Worlds and Adventures

The Traveller's Handbook

QUIKLINK INTERACTIVE

TRAVELLER® 20

Science-Fiction Adventure in the Far Future

TRAVELLER T20

RPG REALMS

TRAVELLER20 – The Traveller's Handbook
Worlds and Adventures

BASED ON THE AWARD-WINNING TRAVELLER GAME SYSTEM AND UNIVERSE BY MARC W. MILLER
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Adaptations and Rules for the d20 System
Hunter Gordon
Written By
Martin J. Dougherty with Hunter Gordon
Additional Assistance
Bruce Runnels
John Hemmert
Mike Jeff
Andy Lilly
Marc Miller
Art Direction
Steve Bryant for *Diverse Hands Studios*
Cover Art
David Mattingly
Interior Art
Steve Bryant
Paul Daly
Chad Fidler
Bryan Gibson
Jason Millet
Allen Nunis
Character Sheet Design
Patrick "the Mad Irishman" Murphy
Lead Playtesters
David L. Nelson (aka DrSkull)
Jim Kundert (aka GypsyComet)
William Franklin Hostman (aka Aramis)
Thomas Jones-Low (aka tjoneslo)
Paul Bendall (aka Takei)
Jonathan Lupton (aka J)
Richard Delorme (aka rdelorme)
Christopher Henry (aka Chris Henry)

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Additional Playtesters
William Barnett-Lewis (aka Willian or Sean Tyler, IISS)
Walt Myers (aka Butcher)
Mark Howe (aka Neo)
Andrew Moffatt-Vallance (aka Andrewmv)
Paul Nemeth (aka Antares Administration)
Mark Ayers (aka n2s)
David Wallace (aka Beladan)
Richard, George, Thomas Gard (aka Magnus Robot Fighter)
Eric Mukogawa (aka esmdev)
Bill Schwartz (aka Urklore)
Allen Shock (aka AllenS)
Megan C. Robertson (aka Mexal)
Special Thanks to
Marc and Darlene Miller
Rose Jordan
Charlyne McMullin

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Dedicated to the Memory Of
Rhonda Sue Gordon
Robert "Bob" Jones, Jr.
Mildred Charlyne McMullin

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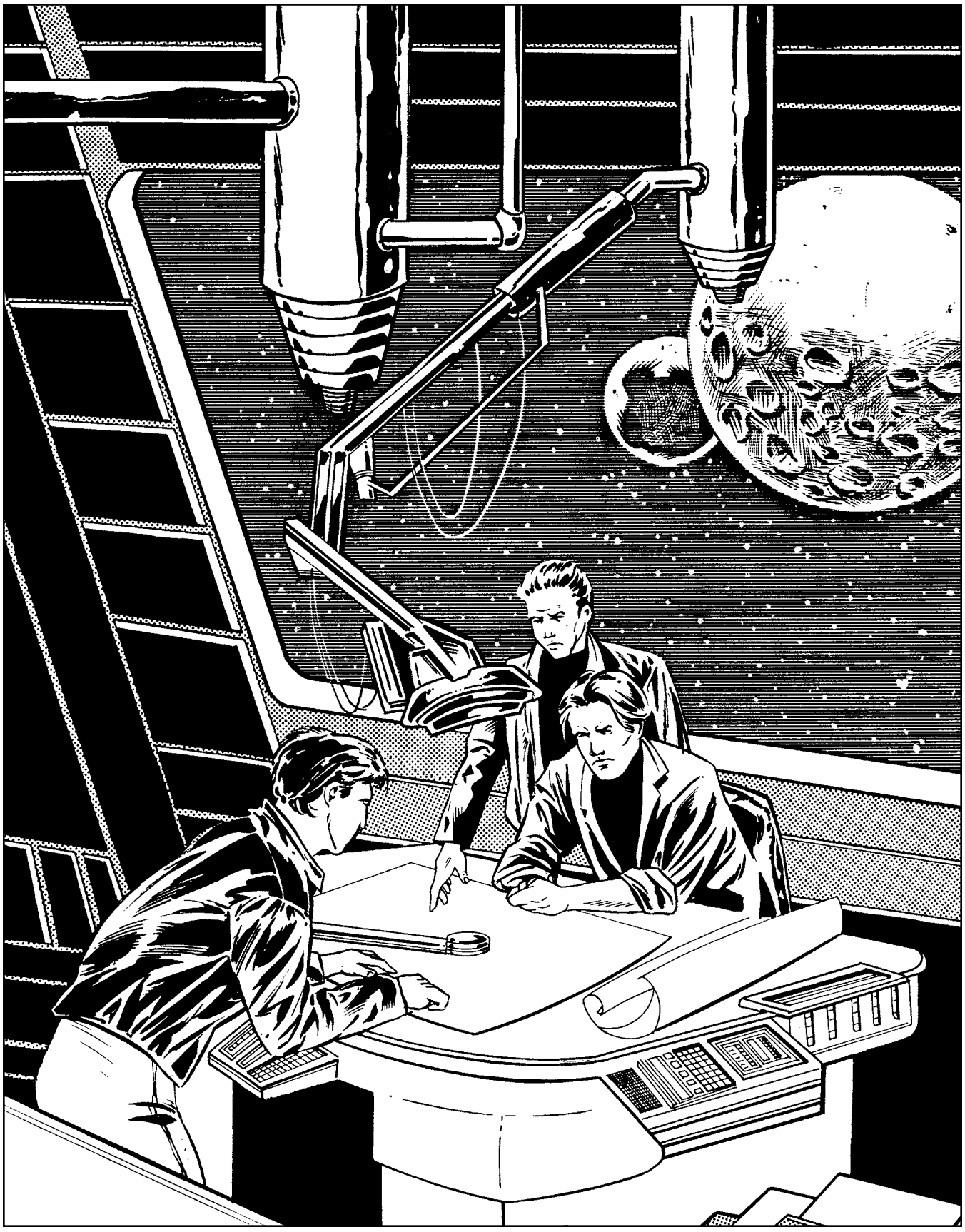

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TRAVELLING

Travellers travel. They move between worlds as well as on the surface. The distances such travel covers may be planetary, interplanetary or interstellar in scale.

INTERPLANETARY TRAVEL

Worlds orbiting the same star are accessible by interplanetary travel, on ships operated by local entrepreneurs, or with a variety of small craft. Many stellar systems have only one major world and a few minor outposts. In such systems interplanetary travel is infrequent compared to interstellar flight. In some systems there may be several important worlds; vessels in such systems may use Jump drives to cross the vast distances between planets if this is quicker than traveling there using sublight drives, but the majority of traffic will be small craft and large non-starships.

Interplanetary travel takes time. The travel formulae given in the sidebar can be used to determine time required (if distance and acceleration are known), acceleration required (if distance and time are known), and distance traveled (if time and acceleration are known). All of the formulae use the MKS (meters, kilograms, seconds) unit system, and assume that the ship is undertaking a journey from rest, that it accelerates continuously to the midpoint of the trip, and then decelerates to rest again. In addition, several travel times and travel distances have been calculated out for ready reference.

TRAVEL FORMULAS

For those interested in exact times and distances, the following formulas are provided. The variables used are Time (T) in seconds, Distance (D) in meters, and Acceleration (A) in meters per second squared (1G equals 9.81 meters per second squared, taken as 10 meters per second squared for convenience.).

Time Required: Two times the square root of Distance divided by Acceleration.

$2 \times (D/A)^2$

Distance Traveled: Acceleration times the Time Traveled squared divided by 4.

$(A \times (T^2))/4$

Acceleration Required: Four times Distance divided by the Time Traveled squared.

$4 \times (D / (T^2))$

INTERSTELLAR TRAVEL

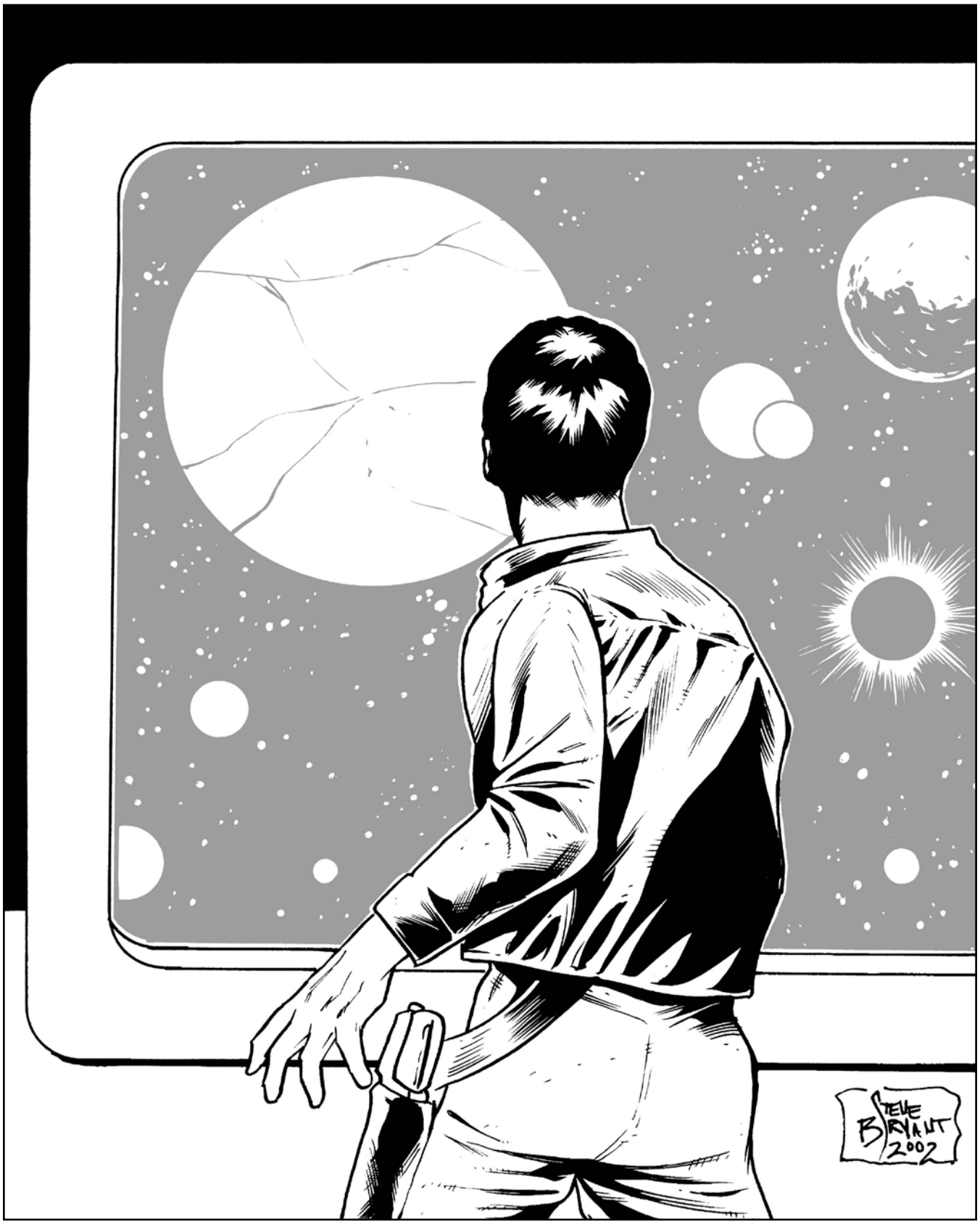
Worlds orbiting different stars are reached by interstellar travel, which makes use of the Jump drive. Once a starship moves to a safe distance from a world, it may activate its Jump drive. Jumping from closer in than 100 diameters is highly dangerous, becoming more or less suicidal at 10 diameters. Transit time to 100 diameters from a size 8 world takes 6.29 hours at 1G.

Jump drives are rated according to the number of parsecs that can be traveled in one week. This is normally 1-6; Jump numbers greater than 6 have not accomplished anything other than dangerous Misjumps. A ship can Jump a distance less than its Jump number (e.g. a ship rated for Jump 4 could Jump 3 Parsecs if desired. Fractional Jumps are entirely possible. Such Jumps use up fuel as if they covered the next full parsec (e.g. a ship might Jump half a parsec, and would use up fuel as if it Jumped 1 parsec). Any Jump takes about one week, regardless of the distance traveled.

Jump physics is not properly understood in the Traveller universe. Unusual effects do occur, creating an element of risk. However, Jump is so useful that the risk is deemed worth it.

Commercial starships usually make two jumps per month. They spend one week in Jump, followed by one week in the star system, travelling from the jump point to the local world, refueling, marketing cargo, finding passengers, leaving the starport and proceeding to a Jump point again. The week in the system usually provides some time for crew recreation and wandering around the planet.

Non-commercial ships usually follow the same schedule of one week in Jump and one week in a system. If haste is called for, a ship may refuel at a gas giant immediately, and re-Jump right away. This allows the ship to make one Jump per week, but makes no provision for cargo, passengers, or local stops.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TYPICAL TRAVEL TIMES

Acceleration Rate Typical Distances	1-G	2-G	3-G	4-G	5-G	6-G
Planet to Orbit (10,000km)	33.33m	23.57m	19.25m	16.67m	14.91m	13.61m
Planet to Moon (400,000km)	3.51h	2.48h	2.03h	1.76h	1.57h	1.43h
Inner System Orbits (45,000,000km, orbits 0-5)	1.55d	1.10d	21.52h	18.63h	16.67h	15.21h
Outer System Orbits (600,000,000km, orbits 6-12)	5.67d	4.01d	3.27d	2.84d	2.54d	2.31d
Extreme Orbits (1,000,000,000km, orbits 13+)	7.32d	5.18d	4.23d	3.66d	3.27d	2.99d
Size 0 World to Safe Jump Distance	1.76h	1.24h	1.01h	52.70m	47.14m	43.03m
Size 1 World to Safe Jump Distance	2.22h	1.57h	1.28h	1.11h	59.63m	54.43m
Size 2 World to Safe Jump Distance	3.14h	2.22h	1.81h	1.57h	1.41h	1.28h
Size 3 World to Safe Jump Distance	3.85h	2.72h	2.22h	1.92h	1.72h	1.57h
Size 4 World to Safe Jump Distance	4.44h	3.14h	2.57h	2.22h	1.99h	1.81h
Size 5 World to Safe Jump Distance	4.97h	3.51h	2.87h	2.48h	2.22h	2.03h
Size 6 World to Safe Jump Distance	5.44h	3.85h	3.14h	2.72h	2.43h	2.22h
Size 7 World to Safe Jump Distance	5.88h	4.16h	3.39h	2.94h	2.63h	2.40h
Size 8 World to Safe Jump Distance	6.29h	4.44h	3.63h	3.14h	2.81h	2.57h
Size 9 World to Safe Jump Distance	6.67h	4.71h	3.85h	3.33h	2.98h	2.72h
Size A World to Safe Jump Distance	7.03h	4.97h	4.06h	3.51h	3.14h	2.87h
Small Gas Giant to Safe Jump Distance	11.11h	7.86h	6.42h	5.56h	4.97h	4.54h
Large Gas Giant to Safe Jump Distance	16.67h	11.79h	9.62h	8.33h	7.45h	6.80h

m = Minutes, h = Hours, d = Days

PASSAGE COSTS

Interstellar travel is priced on the basis of accommodations; prices cover a trip from starport to starport, encompassing one Jump, regardless of length. There are four types of passage:

High Passage: The best method of travel is called high passage, which involves first class accommodations and cuisine. High passengers have the services of the ship's steward, entertainment and complete attention to their comfort. There is a baggage allowance of up to 1,000 kilograms. High passage costs Cr10,000 and provides food and lodging for 1 person for a distance of 1 jump. Double occupancy is allowed at a discounted rate of Cr16,000 (Cr8000 per passenger).

Middle Passage: In order for starships to fill their staterooms with passengers, middle passage is offered on a standby basis, in the event that not enough high passages are sold. While middle passengers occupy staterooms normally similar to those occupied by high passengers, they do not receive the service or entertainment accorded the higher paying passengers. In addition, the quality of the cuisine is rather low. Baggage totaling 100 kilograms is allowed. A middle passenger may be 'bumped' and the stateroom taken by a late arriving high passenger; the middle passenger's ticket is returned, but no other compensation is made. (The middle could then buy a high passage and 'bump' another middle passenger, if the extra cost seemed worth it. Middle passage costs Cr8,000 and provides food and lodging for 1 person for a distance of 1 jump. Double occupancy is allowed at a discounted rate of Cr13,000 (Cr6500 per passenger).

Working Passage: A starship captain with a crew shortage may hire an individual to fill the vacant position, paying not money but passage in return. Working passage may not continue for more than three jumps, or the individual is considered to have been hired for standard salary. In order to be hired for working passage, the individual must have some expertise in the position for which he is hired (jack-of-all-trades may be substituted). Baggage totaling 1,000 kilograms is allowed.

Low Passage: Transportation while in cold sleep (suspended animation) is possible at relatively low cost to the passenger. The passenger is placed in a low passage berth before the ship takes off, and travels the entire journey in a state of suspended animation. He does not age, and requires very little life support. Unfortunately, the low passage system involves some intrinsic dangers to the passenger, and he runs some risk of not surviving the voyage. Therefore a qualified medic should always be in attendance when reviving passengers from low berths. If a medic is present, the medic must make a T/Medical skill check (DC10) for each passenger to safely revive them from cold sleep. If the check is failed or if a medic is not present, the passenger must make a Fort check (DC6), when he is revived after the ship has landed. Modifiers: Attending medic, +1 per skill rank. Failure to achieve the throw to revive results in death for the passenger. Refunds or civil liability if a low passenger fails to survive the trip are not allowed. Low passage costs Cr1,000 and includes a baggage allowance of 10 kilograms.

LESSER KNOWN ASPECTS OF SPACE TRAVEL

As interstellar travel has developed, the field has developed its own dangers and customs. The following are just a few.

The Low Lottery: It is customary for the captain to contribute Cr10 out of each low passage towards a lottery. Each low passenger randomly guesses the number of low passengers who will survive the trip. If the winner does not survive, the captain receives the money. The ship's steward administers the lottery.

The Travellers' Aid Society: Individuals who have decided that they wish to pursue a life of travel and adventure may elect to join the Travellers' Aid Society (TAS), in order to take advantage of its facilities and passage dividends. Non-members can use some TAS facilities for a higher fee.

Hijacking: Starships are an attractive target for hijackers and other criminals. Starship crews maintain a constant level of alert, and the ship's computer can run an anti-hijacking program that denies access to control areas to potential hijackers. Passengers are required to check all weapons (except blades and daggers) into the ship's locker; they are returned at the end of the voyage. Nevertheless, there is a chance of an attempted hijacking, for ransom, or to steal the multi-million credit vessel. Make a Basic check (DC20) to indicate a hijacking attempt (this throw does not apply if all passengers are player-characters). When an attempt occurs, randomly determine the number of hijackers, their identities, characteristics, and weapons, and implement their attempt at some point during the voyage. They will gain complete control of the ship only after defeating all other individuals on the ship. If the anti-hijacking program is functioning, the hijackers will be able to enter the bridge (gaining access to the controls) only by making a successful T/Computer skill check (DC20).

Skipping: Most starships are purchased on credit, and the monthly payments required against the multi-million credit debt are staggering. The owner or captain may decide to steal the ship himself instead of remaining under that load. Passengers have no way of determining if a specific ship is in such a status. Make a Basic check (DC20) to determine that a commercial ship is of this type. Ships that have skipped are subject to repossession attempts if detected by the authorities. Such attempts may range from the formal service of papers through legal injunctions to armed boarding parties. On each world landing, a K/Interstellar Law skill check (DC20) to avoid a repossession attempt; apply a Modifier of +1 per 5 parsecs distance from the ship's world of registry, to a maximum of +9. If the ship has called on the same world twice within the last two months, apply a Modifier of -2.

Piracy: A starship may be attacked by pirates while entering or leaving a system. Similar encounters may involve customs agents or military vessels, including blockades. The ship encounter table later in this book indicates the procedure.

Jump Variance: Calculating a Jump is a complex business, and since Jump dynamics are not completely understood, some of the "laws" involved are in fact rules of thumb. Astrogators attempt to arrive as close as possible to the 100-diameter Jump limit, with residual momentum towards an orbital position (not the planet itself, just in case...). However, an apparently perfectly-good set of Jump coordinates may bring the ship out almost a day late or early, and anywhere out to 400 diameters or more.

A "perfect Jump", hitting the 100-diameter limit exactly, with just the right vector, at exactly 168 hours from Jump entry, is the goal of every Astrogator. Achieving it would be something of a fluke, and most Astrogators never get within 5% of all three factors (duration, exit point and vector) at the same time. This means that vessels tend to emerge from Jump rather unpredictably, creating opportunities for

disaster, piracy etc, or simply requiring a long sublight haul to the target world.

The typical Astrogator can get within 110 diameters about 30% of the time, and within 125 diameters 90% of the time. The other 10% of Jumps can be quite wildly off, though as a rule better (higher skill level) Astrogators make less and smaller errors than less experienced ones. Other factors affecting the accuracy of a Jump include the condition and design of the drives and local gravity conditions (cluttered systems make for greater Jump variance). Familiarity with the system helps the Astrogator "feel" which of the many sets of possible Jump parameters (all of which seem perfectly valid) is the best.

Two vessels jumping within minutes of one another with very similar parameters can emerge a day apart. This is thought to be something to do with "shifts in the Jumpspace dynamic" - i.e. scientists are still baffled. Emergence can by synchronized by vessels sharing a common set of parameters and entering Jump at the same time; a maneuver used by the Navy and termed a "Squadron Jump".

SALVAGE RIGHTS

Salvage is the reward given to persons who voluntarily recover a derelict ship or cargo, or assist a ship or recover its cargo from impending or actual peril or loss. To file a salvage claim, the vessel and/or its cargo must be brought to the nearest class C or better starport, whether repaired and piloted in, or towed in.

Derelict: A derelict is any ship, vehicle, equipment, cargo, or other property, which has been abandoned and deserted at sea or in space by those who were in charge of it without any hope of recovering it.

Peril or Loss: A ship is considered to be at risk or peril of loss if under pirate attack, in danger of being stranded without hope of self-repair, or other situation that might cause the death or disability or crew and passengers.

Government Owned: Items originally owned by a government are immediately returned to the government, and the normal salvage rules do not apply, although most governments will pay a 'recovery' fee for such items, based on 1d6% of the original value. If the salvager has the Barter feat and makes a successful Charisma or Social Standing skill check (DC15), add 1d4% to the recovery fee.

GETTING PAID

Once a claim has been filed with the proper authorities, they will attempt to locate and contact the original (or current) owners, who have 10 years to file a claim of ownership (with proper documentation of course). Perishable goods, or goods that may significantly lose their value during the 10 year period are immediately sold at auction, the proceeds from which will be held in trust. In addition, any items that would cost more to repair than to replace will be sold for scrap at a price equal to 1d10% of the original value of the item(s).

If a claimant does not come forward within the first year, and the items(s) were not already sold at auction, the salvage claim holder may take custodial control of the item(s) in question, subject to the following limitations.

• The item(s) may not be sold or otherwise transferred into the custody/ownership of anyone other than the salvage claim holder and his or her designated heirs.

• Reasonable care must be given to ensure that the remaining value of the item(s) do not deteriorate in quality from the state they were when custody was awarded.

• Repairs and improvements to damaged equipment and vessels may be conducted, the independently evaluated and depreciated value of which may be added to the claim against the original owners should they ever come forward or be found.

If a claimant does not come forward within five years, the custodial agent may elect to sell the item(s) for best price. One-half must be paid to the appropriate authorities in the form of taxes and fees, with one quarter being awarded to the salvage claim holder, and the remaining one quarter being held in trust for the original owners. Any proceeds in trust from goods sold at the time of the original salvage claim are similarly divided, with any and all interest being kept by the authorities.

If a claimant does not come forward within the ten year limit, the remaining funds in trust are awarded to the salvage claim holder.

If a claimant is found, regardless of whether they come forward or not, the salvage claim holder will be awarded a judicial judgment against the owner in an amount equal to 25% of the original or improved value of the item(s). It will be up to the salvage claim holder to see that the judicial judgment is enforced and paid.

STARSHIPS AND SPACECRAFT

Starships (and non-starship spacecraft) are enormously expensive devices requiring the constant attention of a trained crew. They are far beyond the means of ordinary people. Even the smallest starships represent important

assets to their owners. Ships are built to last. With refits and frequent maintenance, a ship can remain in service for fifty or more years. During this time the vessel will probably be modified, upgraded and refitted. It may suffer accident or combat damage or even be scrapped then rebuilt with components very different from those it started out with.

Thus starships gradually lose their value (and some of their reliability) as time passes. As economic climates change, vessels are put to work in new roles or are sold on to new owners. This is how the majority of starfaring vessels in private hands got there, and by the time they do get there, they are not always in the best of condition.

Within most interstellar governments, of course, there is a minimum standard of spaceworthiness. Inspections are carried out randomly at the better ports (Class A to C) and by naval or customs vessels. However, a free trader tramping around the backwater ports may not be inspected for years. By the time it is... suffice to say that this is what the term “coffin ship” was coined for.

Let us take for example the Free Trader *Breakeven,* operating in Ley Sector under Captain Alexi Petrovitch. 60 years ago this was a shiny new Ling Standard Products Subsidized Merchant, ordered from the Yahei yards in Core sector as one of a batch of six. The vessels were to be a part of an ambitious expansion program by Feeder Routes LIC, a moderate sized shipping line serving the smaller ports near the core of Charted Space.

After twenty years in service (and three overhauls) the vessel was sold on. Feeder Routes was now operating bigger ships and the subbies (Subsidized Merchants) were considered uneconomical. One of three bought by the Arech Trade Consortium, the subbie served another ten years on a regular route in the Lishun sector. After suffering collision damage, and in need of an overhaul anyway, the ship was again sold on, becoming the third vessel in the trade fleet of the fledgling Ley Lines LIC. At this time a pair of turrets were added, since Ley sector is not as safe as the Core.

When Ley LIC went bust, the ship was bought by Logistics, Inc, a mercenary outfit specializing in providing supply and transport assets for other merc units. Three years and combat damage later, the ship was sold on...

And since that time she has been converted to a lab ship, then a crude patrol vessel carrying a couple of fighters for a cash-strapped planetary government seeking to do something about piracy, then back to a trader. She has passed from hand to hand for years. Worn systems have been replaced with whatever was available; jury-rigged systems have become part of her standard equipment.

These days, *Breakeven* is basically spaceworthy. Her CG lifters are a little erratic, her electronics fit has several incompatibility problems and there is an intermittent glitch in the internal monitor program. Maintenance is a nightmare due to non-standard systems and endless running repairs. Her maneuver drive runs at a good 8-11% under rated capacity. But she can fly, and can carry cargo - sometimes even at a profit. Her crew are fiercely proud of her (resulting in fights with other crews from time to time.) True, the captain sweats through every Spaceworthiness inspection, but Breakeven is HIS ship and he’s lucky to have her. When he’s not banging on a panel with a wrench out of sheer frustration he can sometimes even remember that.

This is the kind of ship that player-characters will have, unless they have government backing. A ship with character. A ship with its own little quirks. But a ship that works.

Mostly.

STARSHIP OPERATIONS

There are certain requirements for a starfaring vessel to operate over any length of time. Many are enforced by interstellar laws, most of which stem from the desire of starship crews to survive their voyages.

STARSHIP CREW

Starships require a broad range of skills to operate them, and a clear chain of command to deal with problems. On small ships, most crewmembers have several jobs but given the complex nature of starship operations, some degree of specialism is a requirement. The main jobs aboard ship are as follows:

MASTER/CAPTAIN

All non-small-craft (i.e. anything that is not a port utility vessel or a subordinate craft carried aboard a starship) requires a commanding officer, who is usually termed the Master or Captain of the vessel, whatever his or her actual rank may be. Even Scout vessels, whose crews have no formal rank, must designate someone as Master. Exactly who is in charge can vary from day to day.

The Master is personally responsible for the safety of the ship and everyone aboard, plus everyone who might be affected by the actions of the ship and her crew. The Master must be a qualified bridge officer (i.e. he must have at least one of the following skills: Pilot, Astrogator, Sensors). Most ship’s Masters have extensive experience as a junior officer and know how to do many of the jobs

aboard ship. Most also have skills like Law and Leader. Ship Tactics and similar military skills may be useful to an armed ship, and trading skills are desirable for merchant skippers.

EXECUTIVE OFFICER/FIRST OFFICER/MATE

The second-in-command of a ship has several possible titles. On large ships, the First Officer has no other job, but on small vessels he or she will usually be a bridge officer with responsibility for one area of operations such as Sensors or Astrogation.

BRIDGE CREW

The bridge crew may or may not be officers. They are usually specialists who carry out the tasks involved in flying the ship. Many of the bridge jobs can be doubled up; e.g. the Astrogator may also handle communications and sensors.

PILOT

All ships must have a pilot, who guides the vessel. Computer assistance takes much of the labor out of this task, but a pilot is necessary in case of emergency. Pilots often plot the ship's course through normal space if there is no dedicated Astrogator aboard. Any ship should have at least one backup pilot (usually someone who normally does a different job) and for passenger ships this is a legal requirement.

ASTROGATOR

The Astrogator plots the ship's course through Jumpspace. Despite the assistance of computers, there is still a lot of "feel" involved in Jump plotting and a good Astrogator is a valuable asset. The Astrogator will usually handle real-space course plotting as well. An Astrogator is not needed aboard a non-Jump capable vessel, though some larger ones carry a normal-space Astrogator.

COMMUNICATIONS

Comms can be handled from any bridge position, so only large ships carry a dedicated comms officer. Anyone can operate the communications system under normal conditions, but under stress or in an unusual situation, someone with Communications skill is needed.

SENSORS

Sensor operations are often doubled up with the Pilot's job, but in tricky conditions someone (who has Sensors skill) should be monitoring sensor data. The Astrogator often does this during normal-space flights

CHIEF ENGINEER/ENGINEERING OFFICER

The Chief Engineer is the only other member of a crew usually required by law. In theory, the Master and Chief Engineer could legally attempt to run a ship with no other crew. In practice, this is only possible on very small ships. The Chief Engineer is responsible for Jump and Maneuver drives, Powerplant and all technical matters. He usually also has responsibility for general maintenance. T/Engineering skill is a necessity, but Technical: Electronics, Gravitics, Mechanical and Computer skills are also useful.

ASSISTANT ENGINEER/DRIVE HAND

Larger ships usually carry one or more subordinate engineers. Most will have T/Engineering skill, but some will be specialists in Technical: Electronics, Gravitics etc. JoT can sometimes be substituted by personnel working as general "drive hands" under the supervision of a qualified engineer.

PURSER

Commercial ships usually have a Purser, who is in charge of accounts and financial matters. This job is often doubled up aboard small ships, say with that of Medical Officer, Chief Steward or an Assistant Engineer. Admin or Liaison skill is necessary to hold this post.

MEDICAL OFFICER

All spacecraft must have some form of medical assistance available to the crew. On small ships this may be a member of the crew with a basic skill in First Aid, but in order to obtain a license to carry passengers, a ship must have a properly trained medical officer. This can be a medic, paramedic or a doctor (depending upon level of T/Medical skill). The "doctor" need not be fully qualified, but must have undertaken accredited training at some point. Many medical students take time out to earn a little cash and experience as a Free Trader medic before finishing their studies.

SECURITY OFFICER & SECURITY GUARDS

Only large liners carry a security officer and personnel. Armed and unarmed combat skills are necessary, plus skills like liaison or intimidation. Many Guards are also stewards, gunners, technicians or cargo handlers.

STEWARD

Any ship that carries passengers requires stewards, who look after the passengers, cook, and sometimes provide entertainment. The Steward feat is useful but not

CREW SALARIES

Crew Position	Monthly Salary	Required Skills and/or Feats (Desirable Skills and/or Feats)
Master/Captain:	Varies	Any Bridge Skill (Bridge Skills, Leader, P/Admin, Ship Tactics, K/Interstellar Law)
First Officer:	Varies	Any Bridge Skill (Bridge Skills, Leader, P/Admin, JoT, Ship Tactics)
Bridge Crew:	Varies	Varies (T/Sensors, T/Communications)
Pilot:	Cr6000	Pilot (T/Sensors)
Astrogator:	Cr5000	T/Astrogation (T/Sensors, T/Communications)
Communications Operator:	Cr3000	Technical: Communications (T/Sensors)
Sensors Operator:	Cr3000	Sensors (T/Communications)
Chief Engineer:	Cr4000	T/Engineering (Technical: Computer, Electronics, Gravitics, Mechanical)
Assistant Engineer	Cr3000	T/Engineering (Technical: Computer, Electronics, Gravitics, Mechanical)
Drive Hand:	Cr2000	None (JoT, Technical: Electronics, Engineering, Gravitics)
Purser:	Cr3000	Admin (K/Interstellar Law, Liaison, Steward feat)
Medical Officer:	Cr2000	First Aid or T/Medical
Security:	Cr2000	Combat Skills, (Intimidation, Tactics)
Steward:	Cr3000	None (Steward feat, Liaison, Gather Information)
Cargo Handler:	Cr1000	None (T/Robotics)
Gunnery:	Cr1000	Gunnery, T/Sensors
Technician:	Cr2000	Technical: Computer, Electronics, Gravitics, Mechanical
Boat Pilot:	Cr2000	Ship's Boat or Pilot
Deck Hand:	Cr1000	None (JoT)

absolutely necessary. Liaison or Gather Information skills can help, too. Almost anyone can be hired as a steward, so long as they are patient and friendly with strangers.

CARGO HANDLER

On small ships, everyone mucks in and helps with cargo stowage. Larger vessel carry specialists trained in handling hazardous cargoes or operating cargo robots (T/Robotics skill). The majority of cargo handling is grunt work, so anyone can be hired for this post.

GUNNERY OFFICER & GUNNERS

Armed ships require gunners, of whom the most senior is usually termed the Gunnery Officer. Gunner and Sensors skills are necessary. Some personal combat or technical skills are considered a bonus.

TECHNICIAN

Many ships employ one or more technicians with skills like Technical: Computer or Electronics, etc, to help with maintenance. On small ships, such a crewmember may also be required to fill in as an assistant engineer, gunner, steward etc. even though he has no training.

BOAT PILOT

Ships with one or more subordinate craft often carry a Boat Pilot, who usually has other duties as well. Ship's Boat or Pilot skill is necessary to be hired as a Boat Pilot

DECK HAND

Many ships have one or more deck hands, who often have no shipboard skills (but may possess JoT skill). Deck Hands carry out basic shipboard tasks such as cleaning and simple maintenance under the direction of a skilled crewmember. Sometimes a deck hand is hired because they're handy to have around in case of trouble (weapon or unarmed combat skills), or as a favor to a friend. Often the hand will be trained in some shipboard skill and may eventually become a full crewmember. Proper skill accreditation requires that the trained-up crewmember takes a recognized test at a licensed institution, but out on the frontiers many captains accept someone who can prove he can do the job, regardless of his paper qualifications, and

especially if he can offer some other skills such as Gather Information, Vehicle or Combat skills.

OWNER-ABOARD

Sometimes the owner of a ship travels aboard her, but is not part of the crew. No skills are needed for this position, though ownership of a starship is obviously a requirement. The Owner-Aboard can make general policy decisions, but the ship's Master has legal responsibility for the ship and her crew. In a crisis, even the owner is subordinate to the Captain he or she appointed.

COMBINED POSITIONS

Some crew positions may be combined on smaller vessels. The salary for such positions is 75% of the combined salaries from both positions. Common examples are Pilot/Astrogator and Medic/Steward.

GETTING HIRED

The following table shows the base skills required to get hired for a job aboard a starship. Leadership, Tactics etc are handy for those seeking officer posts, but the operational requirement is for shipboard skills first and foremost. JoT and other general skills can help a character show that he or she is handy to have around. Skills in Italics are desirable but not necessary.

BASIC OPERATIONAL COSTS

In addition to crew salaries there are a number of other costs involved in the operation of a starship.

Fuel: Refined fuel may be purchased at any class A or B starport for Cr500 per ton delivered at the starport. If fuel must be ferried out to a ship, add Cr 100 per ton to the cost. Refined fuel may also be obtained by running unrefined fuel through a Fuel Purification System installed onboard a ship. Refined fuel decreases the chance of a problem occurring with a ship's power plant, maneuver drive, and jump-drive.

Unrefined fuel is available for Cr100 per ton from any class A, B, or C starport delivered at the starport. If fuel must be ferried out to a ship, add Cr 100 per ton to the cost. Unrefined fuel is also available for free from the following sources:

Water: On worlds with a hydrographic rating of 1 or higher, a ship may land near an open body of water or ice and pump fuel into their fuel tanks for free. Using water as fuel in this manner is considered to be running unrefined fuel. Note that many worlds may not allow ships to land and fuel for free, preferring to control the availability of fuel from the starport only thus earning the revenue from the operation.

Gas Giants: Streamlined ships equipped with fuel scoops may dive into the upper atmosphere of a gas giant and fill their tanks with unrefined hydrogen. Larger ships may use streamlined fuel shuttles to ferry fuel loads back to the main ship as needed to refill the tanks. There are no fees associated with 'skimming' a gas giant for fuel, but these are also often the favorite point of attack for pirates. Fuel skimmed from a gas giant is considered to be unrefined.

Life Support: Life support includes the air supplies and filtration system, food and water stores, waste handling system, and other consumable supplies needed to keep the passengers and crew comfortable and healthy while aboard a ship in flight. Most ships simply replenish their life-support systems at the end of each jump while in the starport, but it is possible to purchase and store such supplies in bulk to avoid having to constantly pay the standard recharge fees. The higher cost of life support for high passengers and crew officers reflects the higher quality of food stores set aside for these personnel.

The basic life-support systems (waste reclamation, oxygen supply, CO2 scrubbers, etc) are factored as part (1/2-ton) of each stateroom aboard a ship. For each stan-

BASIC OPERATIONAL COSTS

Per High Passenger or Crew Officer	Cr1000 per week
Per Middle Passenger or Crew	Cr750 per week
Per Low Passenger	Cr50 per week
1 ton of Life Support supplies will last 20 passengers/crew 1 month.	Cr54,000 (10% discount included)
1 ton of Luxury Life Support supplies will last 20 passengers/crew 1 month	Cr72,000 (10% discount included)

dard (4-ton) stateroom aboard a ship, 2 crewmembers or passengers may be carried aboard without overburdening the life-support system. For each standard (2-ton) small stateroom aboard a ship, 1 crewmember or passengers may be carried aboard without overburdening the life-support system. Every two extra crew or passengers the life-support system is required to support reduces its effectiveness in halved with the following consequences to those aboard.

1/2 Effectiveness: The air aboard becomes quite rank, stuffy, and uncomfortable. Paying passengers will likely complain (loudly) at their inconvenience, demand partial (or full) refunds, report the captain to the local starport, etc. Crew members will likely grumble if subjected to such conditions for much longer than a week, and will eventually seek other employment if the problems persist much past the next planetfall or two.

1/4 Effectiveness: The air aboard has high carbon-dioxide levels and smells very bad, to the point that it is almost nauseating to breathe. Anyone attempting to do much more than rest will lose 1 point of stamina for each round of exertion.

1/8 Effectiveness: The air is barely breathable, requiring anyone without an oxygen supply to make a Fortitude save (DC15) every hour or fall unconscious. Once unconscious the victim will begin to lose 1 point of Lifeblood every round until dead or given access to an oxygen supply.

ROUTINE AND ANNUAL MAINTENANCE

A well-maintained ship costs far less to operate than one that forgoes routine maintenance in the hopes of saving a few bucks. A ship should perform an annual maintenance overhaul at minimum to keep it in good working order, and performing regular routine maintenance each month will further reduce the chance of malfunction and the eventual cost of the annual overhaul itself. An annual maintenance overhaul will cost 0.01% (1/1000th) of the original (new) cost of the ship. An annual overhaul requires the services of a class C or better starport and will take about 2 weeks to complete.

For each month of routine maintenance performed on a ship by the crew, reduce the cost of the annual overhaul by 5%, up to a maximum of a 50% reduction in cost. Because of this, a ship may skip performing routine maintenance up to twice in one year without failing behind and losing the annual maintenance cost reduction. Routine maintenance cost 0.0025% of the original (new) price of the ship per month. One full day per month is all that is needed to perform routine maintenance. Even factoring in the cost of routine maintenance, a ship saves 20% on average on the cost of the annual maintenance.

Annual Maintenance: A T/Engineering skill check (DC15) must be made to ensure the swift completion of the job and that it passes inspection and certification. Under normal circumstances, annual maintenance will usually take about 2 weeks. Each failed skill check will increase this time by 1 week.

If the maintenance is being performed at a class B starport, add +2 to the skill check, if a class A starport add +4 to the skill check roll. If hiring an outside crew to perform the maintenance, the normal costs apply but add Cr14,000 to the total for labor costs.

Routine Maintenance: Make a T/Engineering skill check (DC10) each month to insure the proper maintenance of the ship's equipment over the past four weeks. If the maintenance is being performed at a class B starport, add +1 to the skill check, if a class A starport add +2 to the skill check roll.

Installing a New Maneuver Drive, Power Plant, or Jump Drive: An T/Engineering check must be made when installing these types of systems, to ensure they have been installed properly. Use the table below to determine the appropriate DC. A successful checks indicates the system has been installed and tested with no problems found. Installations will typically take 2 hours per Rating of the system.

Installations	*DC*	*Modifiers*
Maneuver Drive	10	+1 DC per Rating
Power Plant	15	+1 DC per Rating
Jump Drive	20	+1 DC per Rating

Other Modifiers	*Adjustment*
Rush job (half the time required)	+10 DC
Class A Starport	+4 to skill check roll
Class B Starport	+2 to skill check roll
Sufficient Engineering or Vehicle Shops	+1 to skill check roll
Per 5% crew loss	-1 to skill check roll

ENTERING/LEAVING PORT

All but the most primitive installations operate some kind of traffic control to avoid the risk of collision among vessels using the port. Incoming ships are allocated a berth and an approach route, and are expected to await their turn and proceed in at a regulation speed. Some ports

STARPORT FEES

Starport Classification

Service Provided	*A*	*B*	*C*	*D*	*E or X*
Landing Rights	Cr100	Cr50	Cr20	Cr10	-

Provides one-time docking and departure clearance at the starport. No berthing or other facilities are provided. Ship may remain in port no more than 24 hours.

Landing and Berthing (6 days)	Cr500	Cr250	Cr100	Cr50	-
Berthing per day after 6	Cr500	Cr250	Cr100	C50	-

Provides one-time docking and departure clearance, and up to 6 days berthing within the starport itself. Berthing includes power, life-support, and data hook-ups for the ship, along with access to maintenance facilities. If the starport is an orbital starport, add Cr500 to the listed costs for the increase in life-support costs.

Orbital Berthing (6 days)	Cr100	Cr50	Cr20	Cr10	-
Orbital Berthing per day after 6	Cr100	Cr50	Cr20	Cr10	-

Provides an orbital 'parking slot' that a ship may remain in during its stay. No power, life-support, or data hookup are provide, but the ship may leave and return to its parking slot as often as needed during its stay.

Cargo Handling per ton	Cr40	Cr30	Cr20	Cr10	-
Security Cargo Handling per ton	Cr50	Cr40	Cr30	Cr20	-
Hazardous Cargo Handling per ton	Cr70	Cr60	Cr50	Cr40	-

Most small ship's crews handle cargo loading and unloading for themselves to save these costs, but for those ships that require or desire the use of cargo handlers provided by the starport are available.

Cargo Shuttle Service per ton	Cr30	Cr20	Cr10	Cr5	-
Security Cargo Shuttle Service per ton	Cr40	Cr30	Cr20	Cr10	-
Hazardous Cargo Shuttle Service per ton	Cr60	Cr50	Cr40	Cr30	-

Ships in an orbital berth may require the use of a cargo shuttle to move their cargo from the ship to the starport if they have no vehicles of their own capable of doing so. Ships at an orbital starport may also have need of the services to deliver cargo from the orbital starport to a destination planetside. Cargos requiring armed security or hazardous material cargos will cost more to ship in this manner than standard cargos.

Passenger Shuttle Service	Cr100	Cr75	Cr50	Cr25	-

Passengers requiring transportation to or from a ship to the local starport or planetside may hire the services of a passenger shuttle. The price listed is for a single passenger and up to 200kg of baggage.

Warehousing per week per ton	Cr15	Cr10	Cr5	-	-
Security/Refrigerated Warehousing per week per ton	Cr25	Cr15	Cr10	-	-
Hazardous Warehousing per week per ton	Cr50	Cr25	Cr15	-	-

Warehousing is available a most starports if there is a need to store goods and cargo for periods of a week or longer. Security, Refrigerated, and Hazardous warehousing are each more costly than standard warehousing.

CARGO

Standardized Cargo Container Modules

Cargo Capacity	*H x W x L*	*Shape*	*Cost*
1/2 ton	3 x 1.5 x 1.5	Square	Cr6,000
1 ton	3 x 1.5 x 3	Rectangle	Cr10,000
2 tons	3 x 3 x 3	Square	Cr18,000
2 tons	3 x 1.5 x 6	Square	Cr18,000
4 tons	3 x 3 x 6	Rectangle	Cr32,000
4 tons	3 x 1.5 x 12	Rectangle	Cr32,000
8 tons	3 x 6 x 6	Square	Cr58,000
8 tons	3 x 3 x 12	Rectangle	Cr58,000

Specialized Containers

Type	*Cost Modifier*
Temperature/Humidity Controlled	+20%
Security Container	+10%
Liquid or Gas Storage Tank	x2
Controlled Environment	x3
Habitat	x5

use auto-guidance signals transmitted to the ship, or even put a "harbor pilot" on board. The latter is very rare.

Vessels with special arrangements or which have declared an emergency may be granted a priority docking clearance. A special approach/departure lane is kept open for such vessels, and violating it carries severe penalties.

Incoming vessels may be boarded and searched for contraband while in space or in dock. The Navy, local customs enforcement agents, the port authority or (rarely) local police personnel may carry out such a search. The thoroughness of a search depends upon circumstances. Some vessels, such as Megacorporate freighters, have special exemption-from-search arrangements. Not all such deals are legal.

Upon entering port, a vessel is usually connected to local data feeds and power lines, to allow its reactor to be taken offline. Passenger disembarkation and cargo offloading then takes place.

All vessels are required to file a flight plan when leaving port, though there is no guarantee that the plan filed will be the one followed.

Starport Fees and Services: Within civilized regions of space, most starports charge pretty much a standardized set of rates depending on the classification of the starport itself. The larger and busier class A and B starports are general more expensive to deal with, while the more common class C starport and the class D starport have more reasonable rates. Most class E and X starports do not have any set fees established, as there are no services to offer.

CARGO CONTAINERS

Cargo containers are used to transport the majority of bulk cargo shipments by the larger shipping lines. They are not as commonly used among smaller lines and free traders as these often carry odd shipments and smaller consignments. It is only possible to take advantage of the standardization that cargo containers offer when carrying larger and more regular freight.

These modularized containers are standardized among most cooperating species. Any or all six Container sides may be (fairly) easily removed or installed as needed allowing for a multitude of configurations and uses. The top can be removed to serve as an open-topped container, the top and 4 sides can be removed and it used as a flat pallet, even the covering panels can be removed leaving nothing but the framework structure when needed. Of course in its standard configuration with all six sides installed and locked, the modular cargo can be easily secured and officially sealed against tampering if required to ensure the integrity of the cargo within.

When not needed, these modular containers may be broken down and stored, taking up only one-quarter (1/4) of their rated capacity. For example four 1-ton modular containers can be stored in the space of 1 ton, or four 8-ton modular containers in the space of 8 tons.

There are of course some types of cargo that are not suited for shipment in a standard cargo container and require a specialized container. Unlike their modular counterparts, these containers are not multifunctional and are designed and built for a single purpose.

Reefer Containers: These types of sealed containers allow the interior temperature and humidity levels to be set and maintained and any level ranging from 0-100% humidity and from -50°C to 90°C. Reefers are powered by an

internal battery supply good for two weeks before requiring a recharge (a 1 EP power source for 24 hours).

Security Containers: These sealed containers are built from heavy-duty materials to resist forced entry, and equipped with various security features to expose tampering and prevent theft and entry. They contain their own power supply capable of supporting the container's security features for up to 4 weeks. Security containers require a 4 EP power source for 24 hours to recharge.

Liquid or Gas Tank: These specially designed storage tanks are designed and equipped to ship most any type of liquid or gaseous cargo as safely and efficiently as possible.

Controlled Environment: Some cargos require an even more controlled environment that can be provided by a reefer container, such as an exotic or dangerous atmosphere (e.g. in the case of some alien botanical and biological life forms). These containers are capable of providing their own power and exotic life support for up to 2 weeks. CE containers require an 8 EP power source for 24 hours to recharge.

Habitat: These containers may be used as cramped but serviceable emergency quarters, offices, etc., as needed. The habitat unit can support one man per ton for up to 2 weeks on its own independent life support and power supply system. Habitat containers require an 8 EP power source for 24 hours to recharge.

OPERATING THE SHIP

Standard procedures exist to govern how a starship goes about its business and handles emergency situations. Under normal circumstances, a ship will not deviate from these procedures. A captain whose vessel ignores standard operating procedure will usually have to explain himself to a patrol vessel or the local port authority.

SUBLIGHT MANEUVER

All ship operations, including interstellar flights, involve some sublight maneuvering. Vessels normally run with active sensors on and transponders active (i.e. constantly transmitting) in friendly space. At the discretion of the captain, a vessel may go "silent" and run on passive sensors only. Her transponder does not transmit, and will answer interrogatives from other ships only at the crew's command, though some vessels (Navy ships, for example) can override this and command an automatic response from the silent vessel. Silent running is normally used where there is a threat of an attack.

Ships making short interplanetary flights usually accelerate halfway there, then reverse thrust and decelerate the rest of the way. Coasting at a constant velocity is slower, though it does greatly reduce the ship's emissions.

JUMP DRIVES AND JUMP SPACE

Interstellar flights require the use of Jump drive. Jump is also often used for long-distance flights within a solar system, where the real-space transit time would be greater than the 1-week Jump time. To enter Jump, a vessel needs a working and properly fuelled Jump drive, a suitable set of course vectors, and a properly aligned hull Jump Grid.

The Jump grid allows the Jump field to properly form around the ship and protect it from Jumpspace. A damaged or misaligned grid can cause a ship to Misjump, or to suffer Jump Intrusions while in Jumpspace. In the worst-case scenario, a ship with a damaged drive or a distorted grid may be destroyed at entry or breakout.

A Jump Plot is also required. A Jump Plot can be created by a computer, and Plots are available in the form of "course tapes" purchased from major ports and for common destinations. However, the nature of Jump makes electronic systems less than reliable when creating a plot.

Astrogation is not an exact science. A computer will throw up dozens of apparently suitable jump solutions. All of them will of course work, but minor variations in the plot will cause large variance in flight time and emergence point. A good Astrogator develops a "feel" for his calculations that borders upon black magic. He or she can somehow predict the variance in the system to shave a few minutes off average Jump time and to give a close emergence.

All normal jumps take an average of 168 hours +/-10% (147 + 6d6 hours), or about one week, and are subject to random variations in the point of emergence. If variation creates an emergence point that is too close to a planet or other large body, a catastrophe can occur. The older a plot is, the more variance there is in the actual Jump performance. Thus course tapes tend to err on the side of caution, and give emergence points a long way out from the destination world.

Another important reason for having a good Astrogator is conservation of momentum. A ship entering Jump has the same momentum in the same direction as it emerges. A good Astrogator can ensure an emergence that uses this momentum; the ship arrives headed inward towards the target on a safe vector, and not too fast that it cannot decelerate in time.

MISJUMPS

d100	*Misjump Effect*
Minor Misjump	
01-20	Crew and passengers suffer Jump Sickness (-2 to all checks) for 1d6 hours after emergence from Jump space.
21-40	Ship arrives 1d6+1 x 100 diameters from the destination.
41-55	Ship arrives late or early (1d6: 1-3 late; 4-6 early) by 1d4 days.
61-70	Jump drive is damaged (reduce rating by 1).
Serious Misjump	
71-75	Crew and passengers suffer Jump sickness (-4 to all checks) for 4d6 hours after emergence from Jump space.
76-80	Ship arrives late or early (1d6: 1-3 late; 4-6 early) by 1d6 days.
81-85	Jump drive suffers major damage (reduce rating to 0).
86-90	Ship Misjumps 4d6 parsecs in a random (1d6) direction.
Catastrophic Misjump	
91-92	Ship is destroyed on entry into Jump space.
93-94	Ship is destroyed on emergence from Jump space.
95-96	Ship never emerges from Jump space.
97-00	Other catastrophic effect (Referee's discretion)

Jumpspace can have other effects on a ship. An unstable Jump field can result in Jump Sickness or insanity in personnel within the ship, or can allow Jumpspace Intrusions into the ship itself. This causes structural damage, and tends to spread. Anyone who has seen a J-Space Intrusion and lived is very lucky indeed. Direct contact with Jumpspace is deadly to living beings. Thus working outside the hull while in Jump is a desperate undertaking. There is a bubble (typically about 2 meters deep) of safe space around the hull, but anything moving outside this area suffers what appears to be disintegration. J-Space is deeply unsettling to look at, too, and for this reason all viewports are covered while in Jump.

A ship in Jump is cut off from the rest of the universe. It cannot communicate, change course, or otherwise affect the "real" universe.

No-one really understands what Jumpspace actually is. It is there, it is useful, and its hazards are mostly well documented. However, hard data is hard to come by. Some researchers suggest that Jump Space is a kind of "non-place" which may not even exist when a ship is not present in it. Of these, a few go so far as to say that Jump Space is as big as the ship within it, and that all ships that have ever entered Jump are always present in the Jump bubble, for all time (in so far as time exists in Jumpspace). Others argue that this is rubbish, and that each ship creates a pocket universe for itself which it prevents from collapsing with the Jump Drive. After a time, the decay of this pocket universe spits the ship back out into real space at a point determined by the precise configuration of the Jump drive at entry. Another faction of scientists loudly declares that both other camps are wrong, and indeed idiots to boot. But they haven't got a better theory to offer.

What is known is that J-space is hostile to anything that enters it. Without a properly configured Jump Drive in constant operation, vessels will be destroyed. Other facts, speculation and wild tales include:

Key:
KF: "Known Fact" - which may turn out someday to be incorrect, or at least only partially true
SP: Speculation based upon at least some observed evidence
WT: Wild Tale
??: Veracity unknown

o Ships cannot change course in Jump (KF)
o It is impossible to Jump more than 6 Parsecs, except by accident (KF)
o Communications gear receives only interference in Jump Space (KF)
o Looking at Jump Space can cause mental instability (KF)
o Jump has something to do with Psionics (??)
o There are things living in J-space (WT)
o The government is close to cracking the J-6 barrier (??)
o The government is trying to crack the J-6 barrier (SP)
o Radio signals have been received in Jump Space (WT)
o Lost ships wander forever in Jump Space (WT)
o The Ancients made Jump space (WT)
o Jump Drives do not always function as expected, even when properly tuned (SP)
o Some regions exhibit a higher tendency for Misjump than others (SP)
o Droyne Jump Drives never Misjump (WT)
o Unidentified vessels have been sighted at points that suggest they were exceeding Jump 6 to get there (??)
o There is a cult that worships Jump space as "the face of God". (KF)

Clearly, much research needs to be done into the nature of Jump space and its effects. In the meantime, it is there and it works. People use it and try not to worry about how much remains unknown.

The Procedure for entering Jump is as follows:

1. Jump Plot is generated.
2. Powerplant brought to Jump Readiness
3. Jump Plot is fed to the navigational computer
4. Jump Drive is brought to Readiness
5. Jump Drive begins to fast-burn its Jump Fuel, developing high levels of power
6. Jump Grid is charged
7. Astrogator or Captain gives final Jump command
8. Jump Field is formed
9. Vessel enters Jumpspace

A vessel can abort safely at stages 1-4. Stage 5 is slightly risky and results in about 10% of Jump fuel being wasted. Abort is possible at Stage 6 or 7 with moderate risk. A crash-bleed of energy from the Jump Grid is possible at Stage 8, but this is extremely risky and wastes 50-80% of the jump fuel.

Vessels burn about 80% of their Jump fuel to create the entry into Jumpspace, most of which is used after the "hole" is formed, to keep it open as the ship enters. This fuel is used up at an immense rate in a powerful but inefficient process. The remainder of the fuel keeps the Jumpfield generator running, protecting the vessel and her crew. A little is left over after the Jump, giving a margin for error, but if this fuel runs out (say due to a tank leak or long jump time) then the Jumpfield will eventually fail. No living person knows what happens at this point, which indicates that it must be something bad.

If all goes well, the ship will enter Jumpspace and remain there for about 1 week protected by the Jump Field. Experienced personnel can usually tell when a ship is about to Emerge from jump, and the Jump plot should give an indication of how long the ship will be in Jumpspace. However, variance can cause a ship to precipitate early out of Jump. Emergence outside the +/- 10% envelope usually indicates a Misjump.

Misjumps: The chance of a Misjump each time a ship engages its Jump drive is normally very small; make a basic check (DC21) to see if a Misjump occurs. If the ship is using unrefined fuel add +2 to the roll. If the ship is within 100 planetary diameters of a world add +5 to the roll, add +15 if with 10 planetary diameters of a world. If a ship is using drop tanks to fuel a jump, add +2 to the roll. A failed Astrogation check when plotting a course through Jump space will also cause a Misjump (see T/Astrogation skill pg. 92).

Misjumps vary from relatively minor to catastrophic. If a Misjump does occur, roll on the Misjump table, pg. 353.

FUEL SKIMMING

Fuel skimming is a common practice among those who do not wish to pay for their fuel. Ordinary water can be "cracked" for hydrogen fuel by a ship's processing gear. This water can be obtained by melting ice or taking up water using hoses. Some ships can immerse themselves and open special vents to the fuel-processing tanks.

Alternatively, hydrogen can be skimmed from a gas giant. This involves diving at speed into the upper atmosphere, thus forcing gas into the ship's scoops. This gas is processed; hydrogen is stripped out, and the remainder is dumped. Fuel skimming is a lengthy and risky process, and the diversion required is so time-consuming that most merchant captains just accept the expense of purchasing fuel.

EMERGENCY

All vessels are required to respond to a GK (Distress) signal unless this would expose them to unacceptable risk. Lesser emergencies can be declared using normal communications procedures.

Lesser emergencies are those where the vessel may soon need outside assistance but can probably deal with the situation using its own resources. Examples include a vessel with a minor and controllable fire aboard, sickness among passengers or crew, or a combat-damaged ship attempting to make port under her own power. Interstellar law requires that such emergencies be declared, and that any nearby vessels stand ready to assist at need.

A GK signal is only broadcast when a vessel is in dire peril and needs outside assistance. Any captain who ignores such a signal will have to answer to a court of inquiry, though his reasons may be good ones.

DROP TANKS, BLADDERS & FUELLING STATIONS

The nature of Jump drives makes fuelling stations, where a vessel is fed fuel for its Jump drives through hoses, impracticable. Fuel is mostly needed after the Jump "hole" is created. The Jumpfield would sever pipes before the ship entered Jumpspace proper. This would cause the collapse of the Jumpfield and destruction of the ship. Even if it did manage to enter J-space, the ship would have no fuel to maintain its field, resulting in a catastrophic loss of the vessel. No experiment with fuelling stations has ever succeeded.

Ships can extend their range by two methods, however. Collapsible bladders can be installed in cargo hold areas, to contain fuel which is then pumped into the main tanks for a second Jump once the normal fuel load has been consumed. Drop tanks are another option. The tanks can either

be used as part of the ship's main fuel system, or can be used to fire the J-drive up then blasted free with explosive couplings. This is hazardous, as it can cause interference in the forming Jump-field, but it is acceptable in some military situations. The ship's internal tankage then fuels the J-drive as normal, and the loss of the tanks may actually lower displacement enough that additional Jump range is gained.

TRADE AND COMMERCE

Starships generate revenue by carrying passengers, cargo, mail and charters. Goods taken on in orbit are delivered when placed in orbit around the destination. Goods taken on a planetary surface are delivered when off-loaded on the surface of the destination. This custom applies to cargo, passengers, and mail.

BULK CARGOS

Merchants may inquire at a starport once per week about the number, sizes, and destinations of cargos awaiting transportation. The Referee should determine all worlds accessible to the starship (depending on jump number), and roll for each such world on the Bulk Cargo table. Note that except for Priority shipments, all bulk cargos pay per Jump, regardless of the distance of the Jump itself.

Example: A Jump-1 capable cargo ship charges the same rate as a Jump-3 capable ship, but the Jump-3 ship can carry a cargo to a world 3 parsecs away in only a single Jump. It will take the Jump-1 ship three separate Jumps, and three separate payments to get to the same destination. The Jump-3 ship is not only faster, but also much cheaper for the owner of the cargo. Of course, if the cargo only needs to get to a system 1 parsec away, both the Jump-1 and the Jump-3 ship will get it there in the same amount of time for the same price.

Priority: These cargos pay well, and improve with the distance carried but are very time sensitive and usually must be delivered within 14 days of their acceptance. If delivered on time, a priority cargo will pay Cr1000 for every 1 parsec in distance it was carried between the port of origin and its delivery destination.

Hazardous: Carrying these types of cargos pays well, but carries more than a little risk. For each week such a cargo is carried on board a ship, the Referee should make a check (DC5) to see if any 'mishap' with the cargo is avoided. The exact nature of such a mishap is left up to the creativity of the Referee, but the specifics of the cargo being carried lead to more than a few ideas. Hazardous cargos pay a flat Cr10,000 per ton per Jump

Security: Only an armed ship will usually be contracted to carry a security cargo. These are typically high value or sensitive materials that tend to attract the attention of pirates and other undesirable types interested in acquiring such goods for themselves. The Referee should make a check (DC7) once each week while a ship has a security cargo aboard to see if such an encounter is avoided. Security cargos pay Cr5000 per ton per Jump.

Major, Minor, and Incidental: These are typical run-of-the-mill bulk cargos (grains, metals, ores, consumer electronics, etc.) offered in specific, non-negotiable lot sizes. They may not be broken up into smaller lots. If the size of a lot is too large to be carried on board a ship (i.e. 200-tons of grain and a 100-ton ship), it may not be accepted. For major cargos, multiply the result from the Bulk Cargo table by x10 to determine the exact size of the lot in tons; for minor cargos, multiply by x5; for incidental cargos simply use the result itself in tons. Payment for these types of cargo is a flat Cr1000 per ton, regardless of the distance between the point of origin and the destination.

PASSENGERS

After a starship has accepted cargo for a specific destination, each week passengers will present themselves for transport to that destination. The passenger table is used to determine the number of passengers desiring passage to the announced world based on the origin world's population, and on the destination world's population, and travel zone status. Roll the number of dice specified (3D-1D, for example, indicates that three dice are rolled, and from that total, the result of another one die roll is subtracted). Apply any indicated modifiers.

Passengers will pay the standard fare for the class of transportation they choose: Cr10,000 for high passage, Cr8,000 for middle passage, and Cr1 ,000 for low passage. Passage is always sold on the basis of transport to the announced destination, rather than on the basis of jump distance.

Some passengers (2d4 x 10%) are willing to or request to travel under double occupancy, sharing a stateroom with another passenger (not crew) for a slightly reduced rate. Subtract -2 from the roll (min. 0) when checking for high passage double occupancy. Staterooms booked for double occupancy pay at the double occupancy rate: Cr16,000 for high passage (Cr8000 for each passenger), and Cr13,000 for middle passage (Cr6500 for each passenger). There is no double occupancy rate for low passage.

BULK CARGO

World Pop Digit	Priority*	Hazardous*	Security*	Major (x10)	Minor (x5)	Incidental
0	-	-	-	-	-	-
1	-	-	-	1d6-4	1d6-4	-
2	-	-	-	1d6-2	1d6-1	-
3	-	-	-	1d6-1	1d6	-
4	-	-	-	1d6	1d6+1	-
5	1d6-4	-	1d6-4	1d6+1	1d6+2	-
6	1d6-3	1d6-4	1d6-3	1d6+2	1d6+3	1d6-3
7	1d6-2	1d6-3	1d6-2	1d6+3	1d6+4	1d6-3
8	1d6-1	1d6-2	1d6-1	1d6+4	1d6+5	1d6-2
9	1d6	1d6-1	1d6	1d6+5	1d6+6	1d6-2
A	1d6+3	1d6	1d6+1	1d6+6	1d6+7	1d6
	Cr1000 per ton per Jump Distance	Cr10,000 per ton	Cr5,000 per ton	Cr1000 per ton	Cr1000 per ton	Cr1000 per ton

* Has special requirements

Modifiers (Based on Destination World)	
Liaison skill rank of 5 or better	+2
Population UWP of 4 or less	-4
Population UWP of 8 or better	+1
Red Zone	No cargo except Priority, Security, and Hazardous
Amber Zone	No Major cargo
Technology Level	Add or subtract the difference between the TL of the originating world and the TL of the destination world.

The Referee should roll to determine the number of priority, hazardous, security, major, minor, and incidental cargos available on the world of origin; modifiers take into account the world of destination. After rolling for the number of cargos, roll one die for each cargo to determine its size. Multiply the die roll for major cargos by 10, minor cargos by 5, and incidental cargos by 1 to determine the number of tons in each.

For example, if a ship is on a population 6 world, going to a population 3 world with a tech level 3 less than the current world, the Referee rolls one die for major cargos. He rolls a 4 (+2 from the table, -4 for the low population of the destination, +3 for the tech level difference), giving 5 major cargos. He then rolls one die for each cargo and multiplies each result by 10 to determine their individual tonnages. Each cargo is a distinct shipment and cannot be subdivided, but the ship may accept or reject specific cargos based on the best fit within the cargo hold. All cargos are carried at Cr1,000 per ton. Starship owners may purchase goods locally and ship them at their own expense, speculating that they can later sell them at a profit (see Speculative Trading, pg. 358).

PASSENGERS

World Pop Digit	*High Passengers*	*Middle Passengers*	*Low Passengers*
0	-	-	-
1	-	1d6-1	2d6-6
2	1d6-1d6	1d6	2d6
3	2d6-2d6	2d6-1d6	2d6
4	2d6-1d6	2d6-1d6	3d6-1d6
5	2d6-1d6	3d6-2d6	3d6-1d6
6	3d6-2d6	3d6-2d6	3d6
7	3d6-2d6	3d6-1d6	3d6
8	3d6-1d6	3d6-1d6	4d6
9	3d6-1d6	3d6	5d6
A	3d6	4d6	6d6
	Cr10,000 per psngr Cr16,000 Double Occ.	Cr8000 per psngr Cr13,000 Double Occ.	Cr1000 per psngr

Modifiers:

Skills (only one may be used)	
Recruiting skill rank of 5+	+2
P/Administration skill rank of 5+	+1
K/Interstellar Law skill rank of 10+	+1
Based on Destination World	
Population 4 or less	-3
Population 8 or better	+3
Red Zone	-12, no middle or low passengers
Amber Zone	-6
Technology Level	Add or subtract the difference between the TL of the originating world and the TL of the destination world.

Differences in starship Jump drive capacity have no specific effect on passage and bulk cargo prices. A Jump-3 starship charges the same price as a Jump-1 starship. The difference is that a jump-3 ship can reach a destination in one jump, while the jump-1 ship would take three separate jumps (through two intermediate destinations, and requiring three separate payments) to reach it. Higher Jump numbers also may make otherwise inaccessible destinations within reach. But for two ships of differing Jump numbers going to the same destination in one Jump, each would charge the same cargo or passage price.

Mail and Incidentals: Subsidized merchants may receive mail delivery contracts, usually as an adjunct to their established routes. Five tons of ship cargo capacity must be committed to postal duty on a full time basis, the ship must be armed, and a gunner must be a part of the crew. The starship is paid Cr25,000 (Cr5,000 per ton of postal cargo area) for each trip made, regardless of the actual mail tonnage carried. Such tonnage will not exceed 5 tons per trip.

Other ships may be approached to deliver private messages, at times through the ship's owner or captain, and at times clandestinely through a crew member. Private

CARRIER FEES

Non-Starships

Per hour (12 hour minimum)	Cr1 per ton of vessel chartered

Starships

Charter rate per 2-week block. Ship owner provides crew and covers all overhead expenses.

Per ton of cargo space available	+Cr900
Per High Passage accommodation available	+Cr9000
Per Low Passage accommodation available	+Cr900

mail is usually intended for delivery to a specific point (such as the Travellers' Aid Society building, or a tavern keeper), and is generally accompanied by a Cr20 to Cr120 honorarium. The Referee should decide if a private message to is awaiting transmittal, and determine randomly which crew member is approached to carry it. Serving as a carrier for private mail also serves as an introduction to the recipient as a dependable, trustworthy person.

Mail: 1d6-1 tons waiting. Cr25000 no matter what the actual tonnage carried is, even if no mail at all is waiting.

Charters: The standard price to charter a non-starship is Cr1 per ton per hour, usually with a twelve-hour minimum. Charter price for a starship is computed based on its capacity. Starships are chartered in 2-week blocks; the charge is Cr900 per ton of cargo hold plus Cr9,000 per high passage berth and Cr900 per low passage berth. The owner pays all overhead and supplies a crew.

SPECULATIVE TRADING

A trader with cargo space available and free capital with which to speculate may seek out suitable goods to buy and sell. The Speculative Trade Goods table lists many types of goods, often of general classes which may be of interest to characters for various uses. The goods labels are abstractions, such that a cargo of firearms could potentially be any form from muzzle loading replicas to laser carbines. Should characters wish to divert some part of the cargo to personal use (through payment or pilferage), the exact type of cargo must be determined by the Referee.

Locating Buyers or Cargos for Sale: Each week a trader spends on a world she may search for suitable cargos to buy, attempt to locate a buyer for goods she has for sale, or both. The trader must make a Broker skill check, the DC determined on the Locating and Selling Speculative Cargo table below, based on the local starport type. Reduce the listed DC by -1 for each Population UWP digit for local world. If successful, the specified numbers of speculative cargos or potential buyers are available.

A professional broker can usually be hired to assist in the buying or selling of speculative cargos at most starports, if the merchant nor any of her companions or crew have the skill. In return for their fee, a professional broker assures that a potential cargo for sale or a potential buyer will be located within a week of hire; no check is required. This does not guarantee a sale, nor even a price, although the broker can also be hired to negotiate a price in addition to locating a cargo or buyer (see The Price of Goods).

LOCATING AND SELLING SPECULATIVE CARGO

Starport Type	*DC*	*Potential Buyers or Speculative Cargos for Sale*	*Broker Fee*
A	15	1d8 available	Cr1000
B	20	1d6 available	Cr500
C	25	1d4 available	Cr250
D	30	1d3 available	Cr200
E	35	1d2 available	Cr150
X	40	1 available	Cr100

Modifiers

Circumstance	*DC*
Per World Population UWP digit	-1 or more

Buying Goods: Once it has been determined that one or more speculative cargos are available for sale, it must be determined what exactly each of the cargos are. The Referee should roll 1d100, adding +10 if the local world has a Population UWP digit of 9 or greater, and subtracting -10 if the Population UWP is 5 or less. If the result is less than 0, add +10 to the result. If the result is greater than 100, subtract -10 from the result. Apply this final result to the Speculative Trade Goods table to determine what type of cargo is for sale, its base price, any purchase modifiers, and the exact quantity of goods available. Once these values have been determined, proceed to The Price of Goods below.

Selling Goods: If the character is attempting to sell a cargo, find it on the Speculative Trade Goods table and determine its base price, any resale modifiers, and the exact quantity of goods available. Once these values have been determined, proceed to The Price of Goods below. Only one potential buyer is found per week, but actually represents the best of a number of offers made for the goods.

THE PRICE OF GOODS

A character may elect to negotiate the price of goods for herself, or hire a broker to do so for her. The use of a broker is handy when a character is not trained in the mercantile arts (i.e.: non-Merchant class characters).

The price of goods is determined by rolling 3d6 and consulting the Actual Value table (AV). The result from this table determines the percentage of the base price that will be paid for each quantity of goods in this lot. This roll on the actual value table can be modifier by the following factors:

Using a Broker: The character must decide what quality of broker will be hired for the job. The more effective the broker's capabilities, the higher the price for his services will be. For each +1 modifier on the Actual Value Table the broker adds, he will charge a 5% fee based on the final negotiated price. The maximum broker bonus that may be hired is +4.

BROKERS

Four types of brokers are available:

+/-1 AVT Modifier	5% commission.
+/-2 AVT Modifier	10% commission
+/-3 AVT Modifier	15% commission
+/-4 AVT Modifier	20% commission

Character Skills: Instead of hiring a professional broker at a starport, a character with the Broker skill may make a skill check in an attempt to gain a brokering bonus. The character must select what level of bonus they will attempt to achieve (+1 to +4) before the skill check is made as this determines the DC of the check itself. See the Character Brokers table below.

Bribery may be used in place of the standard broker skill, but a payment must be made based on the level of bonus and the final sale price to the person being bribed. P/Administration skill may be used in place of Broker or Bribery, but with a -2 penalty to the skill check roll.

Only Merchants with the Calculating Eye class feature may Take10 when attempting to negotiate the price of speculative cargo.

CHARACTER BROKERS

Attempted Bonus	*DC*	*Minimum Bribe*
+/-1	15	5% of final price
+/-2	20	10% of final price
+/-3	25	15% of final price
+/-4	30	20% of final price

World Type: The type of world a cargo is being bought or sold at may impart a bonus or penalty to the purchase or sale. For example, trying to sell grain on an agricultural world is probably not the road to riches.

ACTUAL VALUE

3d6	*Percentage Value*	*3d6*	*Percentage Value*
3-	30	13	130
4	40	14	140
5	50	15	150
6	60	16	160
7	70	17	170
8	80	18	180
9	90	19	200
10	100	20	300
11	110	21+	400
12	120		

All applicable modifiers are used when rolling on the Actual Value Table.

SPECULATIVE TRADE GOODS

Die	Trade Goods	Base Price	Purchase Modifiers	Resale Modifiers	Quantity
0-	——————————————Add 10 to the roll and redetermine the result——————————————				
01	Grain	300	A-2, NA+1, I+2	A-2	8d6x5
02	Scrap Metal	300	P-2, NI-2	I+2, R-2	5d6x10
03	Steel	500	I-2, R-1, P+1	I-2, R-1, P+3	4d6x10
04	Lead	500	P-6, NI-4	I+4, R-1	10d6x10
05	Livestock	1,000	A-4	NA+4, NI+2, A-2	1d6x5 (4/ton)
06	Plants	1,000	A-4	NA+2, R+2, I-1	4d6x10
07	Aluminium	1,000	I-3, R-2, P+1	I-3, NI+4, R-1	5d6x10
08	Carbon	1,000	NI-3, P-2	I+2, A+1, R-2	5d6x10
09	Fruit	1,000	A-3, NA+1, I+2	A-2, I+3, P+2	2d6x5
10	Rope	1,000	A-6, NI-2	I+2, NI+2	4d6x10
11	Meat	1,500	A-2, NA+2, I+3	A-2, I+2, P+1	4d6x5
12	Wire	1,500	I-4, R-2, NI+2	A+4, NI+2, P+2	2d6x10
13	Paper Products	1,500	P-1, A-4, I+2	R+2, NA+4	5d6x10
14	Workable Stone	1,500	P-4, NI-2, NA-2	I+4, R+4	5d6x10
15	Wood	2,000	A-6	A-6, I+1, R+2	2d6x10
16	Copper	2,000	I-3, R-2, P+1	I-3, R-1	2d6x10
17	Organic Oils	2,000	A-6	I+2, R+4, P+1	1d6x10
18	Inorganic fertilizer	2,000	P-4, NI-2	A+4, R+2, NA-2	5d6x10
19	Herbs	2,500	A-6	R+4, I+3	5d6
20	Textiles	3,000	A-7, NA-5, NI-3	A-6, NA+1, R+3	3d6x5
21	Piping	3,000	I-4, P-2, NI+2	NI+4, R-2	2d6x5
22	Caustic Alkali	3,000	P-4, NI-2	I+2, R-2	4d6x10
23	Brass	4,000	NI-2	I+1, R-1	4d6x10
24	Glass	4,000	I-2, P-2	NI+1, R-1	2d6x10
25	Agricultural Seeds	5,000	A-6, R-2, P+3	NA+3, P+2	2d6
26	Minerals	5,000	NI-2, I+4, P-3	I+3, R-1	2d6x10
27	Liquid Pavement	5,000	I+2, P-2, NI-1	I+4, R+2	2d6x10
28	Bulk Plastic	5,000	NI-2, I+2, NA-4	I+4, A+2	5d6x10
29	Dishware	5,000	P-2, NI-2, NA-2	R+1	1d6x10
30	Fireworks	5,000	P-3, NI-2	R+2, A+4, NA-1	2d6
31	Abrasive Powders	5,000	P-4, NI-2	I+4	4d6x10
32	Pigments/Dyes	5,000	P-2, A-4	NA+4, R+2	2d6x10
33	Spices	6,000	A-2, NA+3, I+2	A-2, R+2, P+3	1d6x5
34	Coatings (Paint)	6,000	I-2, NA-1	I+4, A+1, R-1	1d6x5
35	Polymers	7,000	I-2, R-3, P+2	I-2, R+3	4d6x5
36	Adhesives	7,000	P+2, I-2	I+2, R+2	1d6x5
37	Tin	9,000	I-3, R-2, P+1	I-3, R-1	3d6x10
38	Books	10,000	P-6, A-2	R+4, I-2, NI+2, NA+2	1d6x10
39	Liquor	10,000	A-4	A-3, I+1, R+2	1d6x5
40	Petrochemicals	10,000	NA-4, I+1, NI-5	NA-4, I+3, NI-5	1d6
41	Compressed Gasses	10,000	NI-2, P-4	I+4, R+2	2d6
42	Blades	10,000	I-3, R-2, P+3	I-2, R-1, P+3	2d6
43	Tools	10,000	I-3, R-2, P+3	I-2, R-1, P+3	2d6
44	Preserved Foods	10,000	I-4, A-2	I+2, NA+4, P+2, R-1	1d6x10
45	Leather	10,000	A-4, P-2	R+4, I+2	4d6
46	Strong Acids	15,000	NI-2, P-1	I+4, R-1	2d6
47	Canned Beverages	15,000	P-4, NI-2, I-2	R+4, I+4	1d6x10
48	Insecticide	15,000	NI-2, NA-4	A+4, R+2	1d6x10
49	Mercury	15,000	NI-2, P-4, I+2	I+4, R-1	2d6
50	Furniture	15,000	P-2, I-4, A-1	I+2, R+4	2d6x5
51	Crystals	20,000	NA-3, I+4	NA-3, I+3, R+3	1d6
52	Animal Skins	20,000	A-4, P-1	NA+1, R+4	2d6
53	Tea	20,000	A-4, NI-2	R+8, I+4	3d6
54	Chemical Catalysts	20,000	NI-2, P-2	I+4, R+2	1d6x5
55	Chemical Solvents	20,000	NI-1, AG-1	I+4, R+2	1d6x10
56	Coffee	25,000	A-4, NI-2	R+8, I+4	4d6
57	Starship Hull Plates	25,000	I-2	R+2, NI-2	4d6

58	Explosives	25,000	P+2, I-2	I+2	2d6
59	Toys	25,000	P-2, NA-2, I-4	R+4, A+2	4d6
60	Firearms	30,000	I-3, R-2, P+3	I-2, R-1, P+3	2d6
61	Ammunition	30,000	-3, R-2, P+3	I-2, R-1, P+3	2d6
62	Refined Silicon	35,000	NI-2, I-4, P-1	I+6, R+2	2d6x10
63	Info Cubes/Disks	50,000	R-2, I-2	P+3, A+6, R+4	1d6
64	Modular Buildings	50,000	I-2, R-2	P+4, NI+2	2d6
65	Body Armor	50,000	I-1,R-3,P+3	I-2,R+1,P+4	2d6
66	Fragrance Oils	50,000	P-2, NI-2, A-4	I+2, R+6	1d6
67	Silver	70,000	I+5, R-1, P+2	I+5, R-1	1d6x5
68	Mechanical Parts	70,000	I-5, R-3	N I+3, A+2	1d6x5
69	Construction Equipment	75,000	I-4, R-2	NI+4, P+4, NA+2	2d6 (4 tons ea)
70	Computer Software	100,000	I-4, R-2	I+2, NI+2	2d6
71	Pharmaceuticals	100,000	NA-3, +4, P+3	NA-3, I+5, R+4	1d6
72	Electronics Parts	100,000	I-4, R-3	NI+2, P+1	1d6x5
73	Starship Electronics Parts	150,000	I-4	R+4, NI-2	2d6
74	Farm Machinery	150,000	I-5, R-2	A+5, NA-8, P+1	1d6
75	Computer Parts	150,000	I-5, R-3	NI+3, A+1, NA+2	1d6x5
76	Special Alloys	200,000	I-3, NI+5, R-2	I-3, NI+4, R-1	1d6
77	Holo-Vid Cubes	250,000	I-4	R+4, P+2	4d6
78	Statuary	250,000	P-6, NI-2, NA-2	R+4, I+2	2d6
79	Cybernetic Parts	250,000	I-4, R-1	NI+4, A+1, NA+2	1d6x5
80	Starship Engine Parts	250,000	I-2	R+2, NI-2	4d6
81	Art Work	250,000	P-4, NI-2, NA-2	R+6, I+2	1d6
82	Vacc Suits	400,000	NA-5, I-3, R-1	NA-1, NI+2, P+1	1d6x5
83	Cloned Human Organs	500,000	P-1, I-2	R+6, I+2, NI-2	1d6
84	Human-Cybernetic Parts	500,000	I-4	R+2, I+4	2d6
85	Robot Parts	500,000	I-4	R+2, P+4, NI+4	4d6
86	Energy Cells	500,000	I-4. NI+2, P+2	R+2, NA+2	2d6
87	Antiques	500,000	P-2	R+6, I+2	2d6
88	Machine Tools	750,000	I-5, R-4	NI+3,A+1, NA+2	1d6x5
89	Computer Memory Modules	1,000,000	I-4	R+2	2d6
90	Radioactives	1,000,000	I+7, NI-3, R+5	I+6, NI-3, R-4	1d6
91	Gems	1,000,000	I+4, NI-8, P-3	I+4, NI-2, R+8	1d6
92	Aircraft	1,000,000	I-4, R-3	NI+2, P+1, NA-2	1d6
93	Robots	1,500,000	I-4	R+2, P+4, NI+4	2d6 (4/ton)
94	All Terrain Vehicles	3,000,000	I-2, R-2	NI+2, P+1, A+1	1d6
95	Jewelry	5,000,000	I-2, NI-4, P-3	R+8	1d6
96	Air/raft	6,000,000	I-3, R-2	NI+2, P+1	1d6
97	Armored Vehicles	7,000,000	I-5, R-2, P+4	NA-2, A+2, R+1	1d6
98	Gold	8,000,000	P-2, NI-2, NA-2	I+4, R+6	1d6
99	Computers	10,000,000	I-2, R-2	NI+2, P+1, A-3	1d6
100	Starship Weapons	Per weapon	I-2	R+2	2d6 (4/ton)
101+	———————————	-Subtract 10 to the roll and redetermine the result	———————————		

Trade Goods: The specific type of goods located for sale or attempting to be sold.
Base Price: The single unit price of the goods. Used to determine the final price. See The Price of Goods, pg 359.
World Types: The Speculative Trade Goods table indicates purchase and resale modifiers based on world types. The Universe chapter indicates the meaning of various world characteristics for other aspects of Traveller, and defines trade classifications. There are six classifications of interest: agricultural and non-agricultural, industrial and non-industrial, rich and poor worlds. A world may meet the criteria for more than one label (it may be poor, non-industrial, for example). Those meeting criteria for more than one label are subject to the modifiers for each such label when using the trade goods table.

A - Agricultural: atmos 4-9, hydro 4-8, popul 5-7.
NA - Non-agricultural: atmos 3-, popul 6+.
I - Industrial: atmos 0-2, 4, 7, or 9, popul 9+.
NI - Non-Industrial: popul 6-.
R - Rich: atmos 6 or 8, popul 6-8, govt 4-9.
P - Poor: atmos 2-5, hydro 3-.

Purchase Modfiers: Any modifiers applied to the determination of the final price of purchase based on the type of world the goods are being bought by a character. See The Price of Goods.
Resale Modifiers: Any modifiers applied to the determination of the final price at sale, based on the type of world the goods are being sold upon by a character. See The Price of Goods.
Quantity: This is the quantity of goods available in the lot, expressed in tons except where quantity has a bracketed value following it. In these cases Quantity refers to the actual number of objects at the tonnage described. Goods are available up to the quantity encountered. A lot may be split or partial purchases may be made if the characters desire; such partial purchases do entail a handling fee of 1% if made.

Throw the number of dice and multiply as shown. For example, 3d6x5 indicates that the result of three d6 is multiplied by 5.

When determining the contents of a cargo, the players and Referee must be certain to correlate the established price of goods with the cost per ton. For example, the base price of a shotgun is Cr150, while a ton of firearms as trade goods has a base price of Cr30,000. A strict weight extension of the shotgun (3.75 kg per shotgun) would indicate 266 shotguns. Extension should be instead based on price, with weight as a limiting factor. Thus one ton of shotguns would contain 200 guns, at Cr150 each. The extra weight can be considered packing and crates. Similar calculations should be made to keep prices in line on other trade goods.

STARSHIP ENCOUNTERS

Starships, by their very nature, come and go. They may thus be encountered anywhere. The Referee should check for encounters any time a ship enters or leaves a star system, and as often as seems appropriate while a ship remains in-system. Make a check (DC17) to see if an encounter occurs. If the system has a class A or B starport add +10 to the roll, add +5 for a class C starport, and add +2 for a class D starport. There are no modifiers for a class E or X starport. If the check roll is equal or higher than 17, an encounter occurs.

1) First determine the type of encounter that has occurred on the table below. Be sure to note the modifiers for the starport type, the population of the mainworld and the presence of any bases.

1d100	*Type of Encounter*
01-05	Pirate Vessel
06-65	Merchant Vessel or Liner
66-85	System Defense Vessel
86-90	Other Vessel or Craft
91-95	Scout Service Vessel
96-00	Navy Vessel

Encounter Modifiers	
Class A or B Starport	+5
Class C Starport	+0
Class D Starport	-5
Class E or X	-10
Naval Depot Present	+25
Naval Base Present	+10
Scout Base Present	+5
Carrying Security Cargo	-10
Carrying Speculative Cargo worth Cr100,000-999,999 per ton	-10
Carrying Speculative Cargo worth Cr1,000,000-9,999,999 per ton	-15
Carrying Speculative Cargo worth Cr10,000,000+ per ton	-20

2) Next determine the range at which the encounter occurs (see Encounter Distance pg. 144).

3) Now determine the specifics of the encountered vessel(s) and their reactions. Each encounter type (determined in step 1 above) is detailed on the following pages.

PIRATE

The scourge of the universe, pirates can be found lurking even in the most civilized of regions at times. Naval and mercenary ships are constantly on patrol to deter or destroy pirates, but they cannot be everywhere. Naval forces will move in to clean up an area particularly beset by piracy, but the really smart pirates will have moved on by then. To determine a pirate encounter, consult the tables that follow. These will allow you to determine the number of pirate ships encountered, what type of ship each of them is (roll individually), where the attack is likely to occur (use the next available result if no asteroid belt or gas giant is present), and the action the pirates will take. Note that most pirates do not advertise what they are, and will use deception and stealth to take their victims unawares. “Pirate” encounters could also include foreign commerce raiders, privateers or rogue naval vessels.

1d100	*Number of Pirate Vessels*
01-40	1
41-70	2
71-90	3
91-100	4

1d100	*Type of Ship*
01-10	Scout/Courier
11-35	Free Trader
36-50	Subsidized Merchant
50-75	Corsair
76-90	Patrol Cruiser
91-100	Mercenary Cruiser

1d100	*Position*
01-40	Lying in ambush for ships skimming the local gas giant
41-70	Hiding in the local asteroid belt
71-90	Close to the standard jump point for this system
91-100	Hiding on the far-side of the mainworld or its moon

1d100	*Reaction*
01-10	Attack without warning
11-20	Attack with warning
21-30	Ordered to heave to and be boarded or they will attack (automatically attack if fail to comply)
31-50	Ordered to heave to and be boarded or they will attack (roll again at -25 if fail to comply)
51-70	Ordered to heave to and be boarded or they will attack (roll again if fail to comply)
71-80	Ordered to heave to and be boarded or they will attack (roll again at +25 if fail to comply)
81-90	Ordered to heave to and be boarded or they will attack (will ignore if fail to comply)
91-100	Will ignore

Situational Modifiers	*Modifier*
Pirates outnumbered	+5 per ship exceeding the number of pirate vessels
Target outnumbered	-5 per ship exceeding the number of pirate vessels
Pirates outweigh the target in tonnage	-25
Target outweighs the pirates in tonnage	+25
Scout base present	+10
Naval base present	+25

If a pirate group takes serious damage to more than 20% of its vessels, they will break and run on a DC of 15.

MERCHANT OR LINER

The lifeblood of any interstellar civilization, these will be the most common types of ships encountered when travelling across space. Use the tables below to determine the specific type of ship encountered, what it is doing at the time of the encounter, and what its reaction will be if contacted.

1d100	*Type of Ship*
01-20	200-ton Free Trader
21-30	200-ton Far Trader
31-45	400-ton Subsidized Merchant
46-60	400-ton Subsidized Merchant
61-70	600-ton Subsidized Liner
71-90	Bulk Carrier
91-100	Luxury Liner

1d100	*Activity*
01-30	Inbound
31-60	Outbound
61-85	Refueling at gas giant or making repairs (no assistance required)
86-95	In need of non-emergency assistance
96-100	Signal GK!

1d100	*Reaction*
01-10	Hostile, wants no contact. Will attack (DC18) if provoked
21-25	Hostile, wants no contact
26-50	Unfriendly, is irritated at contact
51-90	Friendly, welcomes contact, offers possible information
91-100	Very Friendly, initiates contact, possible future contact.

SYSTEM DEFENSE

Most mainworlds with a sufficient technological capacity (TL 9 and higher) will typically have some form of ships for customs enforcement, security and in-system defense. Use the tables below to determine the type of ship encounter, what action it will take, and what its reaction might be if its orders are not obeyed.

1d100	*Type of Ship*
01-25	Scout Courier
26-50	Patrol Cruiser
51-75	System Defense Boat
76-90	Planetary Naval Ship
91-100	Interstellar Naval Ship

1d100	*Activity*
01-40	On patrol
41-50	Heading out to patrol or Jump
51-60	Inbound from patrol or Jump
61-75	Escorting or carrying out inspection of other vessel (determine type on the Merchant/Liner chart, above)
76-90	On maneuvers
91-95	Responding to emergency
96-00	Returning with combat damage

1d100	*Action*
01-05	Hostile, mistakes ship for known pirate vessel. Fires shot across bow and orders ship to heave to and pre pare for boarding
06-15	Requires boarding inspection before ship may continue.
16-30	Requires transponder codes and manifests to be transmitted before ship may continue
31-75	None
76-90	Offers formal greeting and general advisory on local conditions
91-00	Offers friendly greeting and welcome on behalf of owning government

1d100	*Reaction*
01-10	Attacks
11-35	Issues warning (roll again -25 to the roll)
36-60	Issues warning (roll again)
61-85	Issues warning (roll again +25 to the roll)
86-100	Ignores and allows ship to continue, but notes ship for future reference

OTHER

There are many other types of ships in service throughout charted space, all on different missions for different purposes. Use the tables below to determine the nature of the vessel encountered, its current activity, and its possible reaction if contacted.

1d100	*Type of Ship*
01-10	Seeker
11-50	Scout/Courier
51-70	Lab Ship
71-80	Safari Ship
81-95	Yacht
96-100	Mercenary Cruiser

1d100	*Activity*
01-30	Inbound
31-60	Outbound
61-85	Refueling at gas giant or making repairs (no assistance required)
86-95	In need of non-emergency assistance
96-100	Signal GK!

1d100	*Reaction*
01-10	Hostile, wants no contact. Will attack (DC18) if provoked
21-25	Hostile, wants no contact
26-50	Unfriendly, is irritated at contact
51-90	Friendly, welcomes contact, offers possible information
91-100	Very Friendly, initiates contact, possible future contact.

SCOUT SERVICE

The scout services utilize many different types of ships, but by far the most commonly encountered are the ubiquitous scout/courier, the X-boat, and the X-boat tender. The tables below will allow you to determine specifically what type of Scout vessel is encountered, its current activity, and its general reaction if contacted.

1d100	*Type of Ship*
01-50	Scout/Courier
51-75	X-Boat
76-100	X-Boat Tender
	+ 25 if Scout Base present
	+10 if system is on an x-boat route

1d100	*Activity*
01-30	Inbound
31-60	Outbound
61-70	Refueling at gas giant or making repairs (no assistance required)
71-85	Sending/receiving communications; launching receiving Xboat or courier; conducting a survey
86-95	In need of non-emergency assistance
96-100	Signal GK!

1d100	*Reaction*
01-10	Hostile, wants no contact. Will attack (DC18) if provoked
21-25	Hostile, wants no contact
26-50	Unfriendly, is irritated at contact
51-90	Friendly, welcomes contact, offers possible information
91-100	Very Friendly, initiates contact, possible future contact.

NAVY

Ships of a navy can't be everywhere all the time, but when they are encountered they will normally make their presence known (especially if on patrol or "showing the flag"). Naval vessels brook little interference in the conduct of their duties and mission. Use the tables provided below to determine the type of Naval vessel encountered, its mission, what its actions will be when encountered, and what reaction it will have if its orders are not obeyed.

1d100	*Type of Ship*
01-40	Escort, Patrol Ship or Courier (See Subtable)
41-80	Transport or Auxiliary (See Subtable)
81-90	Cruiser or Light Carrier (See Subtable)
91-95	Capital Ship (See Subtable)
96-00	Naval Squadron (See Subtable)

Escorts, Patrol Ships and Couriers Subtable

1d100	*Type of Ship*
01-20	Scout/Courier
21-40	300t Close Escort
41-60	400t Patrol Cruiser
61-70	400t Fleet Courier
71-80	1000t Escort Destroyer
81-90	3000t Destroyer
91-00	5000t Fleet Escort

Transport & Auxiliary Subtable

1d100	*Type of Ship*
01-15	Auxiliary: Far Trader
16-30	Auxiliary: Subsidized merchant
31-50	Auxiliary: 1000t Freighter
51-55	Assault Transport
56-60	Troopship
61-80	Tanker
81-95	Logistics Ship
96-00	Intelligence Ship

Cruiser & Light Carrier Subtable

1d100	*Type of Ship*
01-50	Light Cruiser
51-65	Heavy/Armored Cruiser
66-80	Light Carrier/Escort Carrier
81-85	Strike Cruiser
86-90	Strike Carrier
91-95	Bombardment Cruiser
96-00	Assault Carrier

Capital Ship Subtable

1d100	*Type of Ship*
01-30	Battle Cruiser
31-50	Fleet Carrier
51-95	Battleship
96-99	Dreadnought
00	Command/Superdreadnought

Naval Squadron Subtable

1d100	*Type of Squadron*
01-25	Patrol Flotilla (1d6+1 Patrol Cruisers)
26-50	Convoy (1d6 Auxiliaries and 1d6 Close Escorts)
51-65	DestRon (Destroyer Squadron; 1d6 Destroyers)
66-75	CruRon (1d6 Light Cruisers)
76-80	Task Force: Light Carrier, Light Cruiser and 1d6 Close Escorts)
81-85	Logistics ship and 1d6 Close Escorts
86-90	Heavy Cruiser and 1d6 Destroyer Escorts
91-99	TankRon (Tanker Squadron: 1d6 Tankers + 2d6 Close Escorts)
00	BatRon: 1d6 Battle Cruisers, Battleships or Dreadnoughts plus escorts

1d100	*Mission*
01-50	On Patrol/Guardship
51-60	Courtesy Visit (Flag-Showing)
61-75	On Maneuvers
76-90	Moving to or from mission area (“Redeploying”)
86-95	Hunting Pirates
96-00	Other, or secret, mission (Referee should determine nature)

1d100	*Action*
01-05	Hostile, mistakes ship for known pirate vessel. Fires shot across bow and orders ship to heave to and pre pare for boarding
06-15	Requires boarding inspection before ship may continue.
16-30	Requires transponder codes and manifests to be transmitted before ship may continue
31-76	None
76-91	Offers formal greeting and general advisory on local conditions
91-00	Offers friendly greeting on behalf of owning government

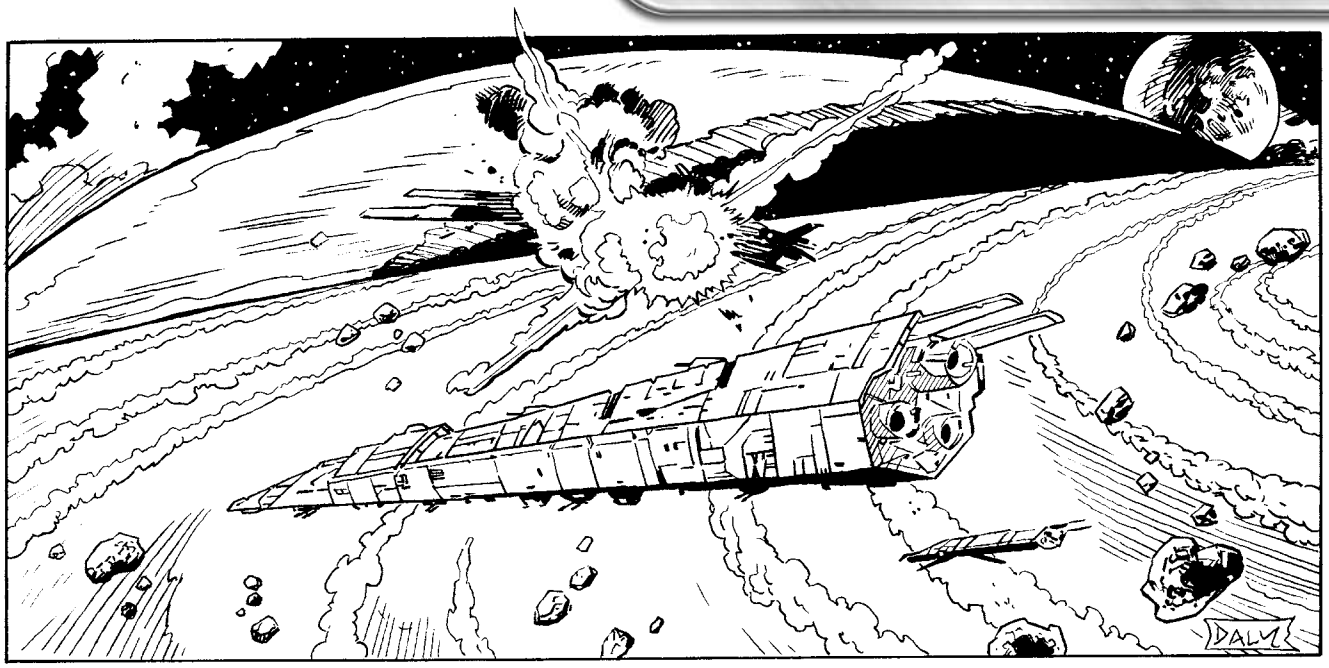
1d100	*Reaction*
01-20	Attacks
21-50	Issues warning (roll again -25 to the roll)
51-80	Issues warning (roll again)
81-95	Issues warning (roll again +25 to the roll)
96-100	Ignores and allows ship to continue, but notes ship for future reference

FLESHING OUT STARSHIP ENCOUNTERS

Starship encounters can be made more memorable if the Referee keeps a list of vessels handy, and assigns a name and a “personality” to any vessel contacted. Encountering familiar ships helps create the feeling of a “living universe” in the players, and also keeps them guessing if this encounter is significant, or just a chance meeting on the way to the Jump point.

Any starship or small craft will be in space for a reason, though that reason may not always be obvious. Nor is a ship’s stated purpose always what it claims. Many a pirate has claimed to be a system defense vessel or an innocent merchant in order to surprise its victims. However, for the most part it will be obvious what a ship is up to from its heading, acceleration etc. For example, a merchant ship moving away from the starport is almost certainly heading out to Jump. Such vessels only make a profit when they deliver their cargo to its destination, so they will waste little time in getting there.

Most starship encounters will be a simple matter of exchanging transponder squawks and maybe a polite greeting. Much of the time this can be assumed to be going on “in the background” as the players near the port or the Jump point, and to be of little consequence. However, some encounters are more significant. Naturally, any encounter involving weapons fire will need to be resolved using the starship combat rules, but other encounters can also be important. A short chat with a passing merchant ship may provide a vital clue, or may allow the players to avoid a dangerous situation. Also, some situations require a response that may lead to adventure.



Sometimes, special circumstances may require the vessels in a system to remain in port or to enter a holding orbit, to heave to for boarding and inspection, or to run for cover from a sudden solar flare. A vessel transmitting a GK signal (a distress call) must be assisted unless the ship receiving the call has a pressing reason not to do so. The absolute minimum response is to rebroadcast the signal (increasing its range), but as a rule an attempt to render assistance must be made unless it would expose the rescuing ship or here passengers and crew to unreasonable danger.

Around a busy Class A or B starport, it is impossible not to encounter other ships, though there is little point in detailing every single vessel in the area. There will always be a host of ships and craft coming and going. Among the merchants and passenger ships will be port utility craft, customs cutters and perhaps fighters or SDBs on close-in security patrol. Vessels behaving strangely or disregarding traffic control instructions can expect a rapid intervention from local defense craft, and weapons fire will bring an escalating response that few vessels can survive. Important worlds will also have standing naval patrols and SDB squadrons scattered across the system for police and defense operations.

As a rule, other ships are more friendly when encountered in these busy systems, feeling more secure under the guns of defense craft than out in the backwaters.

Class C ports see less traffic, though there may be a handful of ships in system at any one time. There will still be a few port authority cutters, fighters etc, but these ports will not have dozens of small craft buzzing about. System defenses are also lighter, and vessels will be more cautious since help is often a long time coming, if it is available at all.

Class D and E ports see little traffic. A class D port will have at most a couple of small craft for utility and rescue work, and a Class E will have none at all. Vessels are generally cautious in these backwaters, since there is no assistance to be had if an encounter goes awry. Of course, there may be visiting Navy ships or a vessel serving a tour as a Guardship, on anti-piracy patrol or whatever, but it is more than likely that the players' vessel will be more or less alone in the system; two or three ships on the landing pad at once is unusual enough to be remarkable.

Naval and Port Authority ships, and also the merchant vessels operated by major shipping lines, have defined protocols for dealing with other ships. They tend to be polite and formal, and also somewhat jealous of their space. Vessels coming in too close will be briskly warned off. However, although the crews of these vessels will not be inclined to gossip, contact is likely to be cordial (though some merchant lines are notoriously contemptuous of Free Traders).

If a boarding party is sent over by a naval or customs vessel, personnel will be armed, cautious, and (usually) professionally polite. Some boarding party personnel may be officious or overbearing (this is quite common when going through a customs check at a high-law world).

Smaller vessels, such as Scouts and Free Traders, are more varied in their contact with other vessels. Vessels transiting to and from the Jump point are likely to be willing to chat and exchange news (though insider trading tips are a valuable commodity and not lightly handed out). Chatting to other ships can thus be a good way to pick up rumors. Of course, the 'personality' of a ship depends upon her captain and crew. Some are garrulous, some are haughty, some are coldly formal or ignore contact entirely. Smaller ships are often quite distinctive due to their long, eventful careers and the little idiosyncrasies they pick up along the way.

UNIVERSE/WORLD DEVELOPMENT

OPEN GAMING CONTENT NOTE

The rules presented in this chapter on the design of star systems and worlds are not Open Gaming Content, however any star systems or worlds created using the rules are considered Open Gaming Content. Basically you cannot explain how to create a star system or world as described under these rules, but you may freely publish and distribute the final stellar or world data and information under the terms of the Open Gaming License.

THE UNIVERSE

The Referee is responsible for mapping the universe before actual game play begins. The entire universe is not necessary immediately, however, as only a small portion can be used at any one time. In unsupervised play, one of the players can generate worlds and perform mapping on a turn-by-turn or adventure-by-adventure basis.

The universe is mapped in convenient segments, called subsectors. Each sub-sector is an area of hexagonal cells measuring eight hexes by ten hexes. Since the recommended scale is one parsec (3.26 light years) per hex, the subsector covers an area ten parsecs by eight parsecs (see the Subsector Form, pg. 439)..

Four subsectors (arranged in 2 rows of 2 subsectors each) form a quadrant.

Sixteen subsectors (arranged in four rows of four subsectors each) form a sector, probably the largest size practical for a continuing Traveller campaign.

Mapping a subsector consists of two sequences: star mapping and world development. Star mapping examines each hexagon in the subsector grid and determines if there is a star system present. It also determines the presence or absence of starports, bases, and fuel for starships. All of this information is coded onto the subsector hexes, and serves as a guide to the Referee and to the players during interstellar travel. World development examines the single most important world in each system and determines the basic characteristics for it. This information is retained for use in adventures on the world surface.

STAR SYSTEM DEVELOPMENT

These system and world generation rules are derived from the original expanded System Generation rules found in Classic Traveller Book 6 - Scouts. They are not intended to replace that work; rather this revision is designed to streamline and simplify the original rules. They are an approximation, and as such they may in places diverge from what we currently know as 'scientific fact' (which anyway has a tendency to change with time...). Playability and a sense of believability are what drove its design rather than formulas and hard facts. Those looking for a more detailed and 'authentic' design system are encouraged to pick up a copy of the Classic Traveller Reprint: The Books (0-9), or the GURPS: Space or GURPS Traveller: First In supplements.

THE UNIVERSAL WORLD PROFILE (UWP)

Traveller uses a shorthand method of describing the most important features of a world. This is termed a Universal World Profile (UWP). UWPs can be created for any planetary body, though normally they are used for the main world of any given system, providing the Referee with quick reference.

UWPs use code numbers and letters to indicate the characteristics of a world. Codes follow a Unidigit system, beginning at 0-9, then using letters to avoid the confusion created by 2-digit entries. Thus A=10, F=15, etc.

Full details of the UWP are found under World Data Format. The most important points are summarized here:

Name:	The name of the world or planetary body
Starport Code:	A-X and indicating decreasing quality of starport, and no starport, respectively
Size:	The Size Code of the world, representing its diameter in thousands of kilometers
Atmosphere:	Atmosphere Code, representing the type of atmosphere the world possesses
Hydrographics:	Hydrographics Code, in increments of 10% water coverage
Population:	Population Code, in orders of magnitude
Government:	Government Code, indicating the nature of the dominant world government
Law Level:	Law Code, indicating the general nature of law and law enforcement on-planet
Tech Level:	0-F and higher, indicating increasing technological capability

Systems and worlds developed with this system are fully compatible with worlds created with the Classic Traveller rules, and vice-versa.

STEP 1 - STELLAR OCCURRENCE

There is normally a basic one-half chance that a hex will contain a stellar system. Systematically check each hex, throwing one die and marking the hex with a circle if the result is a 4, 5, or 6. This indicates that at least one star is present; otherwise, leave the hex blank.

The Referee may elect to alter the normal chances of stars being present, making them more or less frequent to correspond to specific regions of the galaxy. This is easily accomplished by imposing a modifier of +1 or -1 on the whole subsector, or on broad areas within a subsector.

Density	*Check*	*Example*
Standard	4+ on 1d6	standard region
Dense	3+ on 1d6	thick with worlds
Sparse	5+ on 1d6	few worlds
Rift	6 on 1d6	a handful of worlds at best.

STEP 2 - STARS IN SYSTEM

The next step in developing a star system is to determine the number of stars that are present. Normally there will only be a single star, but occasionally a binary (two-star) or trinary (three-star) system will be found. If there are multiple stars, repeat steps 3-5 for each star.

2d6 Roll	*Result*
2-7	Solo (single star)
8-11	Binary (two stars)
12	Trinary (three stars)

STEP 3 - STAR SIZE

Use the Star Size table to determine the size of each star in the system, rolling once for each. When rolling for the size of a binary (2nd) star in a system subtract -2 from the roll. When rolling the size for a trinary (3rd) star in a system subtract -4 from the roll. If the result is a Giant star, roll again on the Giant Star Size subtable.

White Dwarf: A white dwarf (Spectral Class W, Size D) is what remains of most stars at the end of their life. All of the star's fuel has been expended, and it is slowly cooling off and becoming dimmer. Eventually the star will become what is known as a Black Dwarf; nothing but a planetary sized hunk of fused metal of incredible density and a massive gravitational field. About 5% of the stars in our galaxy are classified as a white dwarf. If the star is a white dwarf, you may skip step 4, as the spectral class of the star is automatically W.

Red Dwarf: The most common of all stars is the Red Dwarf (Spectral Class M, Size V) star, which make up approximately 80% of the stars in our galaxy. If the star is a red dwarf, you may skip step 4, as the spectral class of the star is automatically M. A red dwarf is the most long lived of stars, with a lifespan that numbers hundreds of billions of years.

Main Sequence: Main sequence stars, also known as Dwarf stars, are the most commonly found stars in the universe, and represent the mature lifespan of a star. These stars will usually evolve into some type of giant star during the later stages of their existence.

Giant: Typically an older star that has become large and brighter, moving out of the main sequence stage. During this period some stars can grow to as much as 100 times their original size. Most giants are destined to become either a white dwarf, or end their existence in a massive supernova.

STAR SIZE

1d20	*Descriptor*	*Size*	*Odds*	*Temp Mod.*
1	White Dwarf	D	(1 in 20)	+4
2-16	Red Dwarf	V	(1 in 1.25)	+2
17-19	Main Sequence (Dwarf) Star	V	(1 in 33)	+0
20	Giant	Varies	(1 in 20)	-

GIANT STAR SIZE

1d20	*Descriptor*	*Size*	*Odds*	*Temp Mod.*
1-6	Sub-Giant	IV	(1 in 67)	-0
6-14	Giant	III	(1 in 45)	-1
15-18	Bright Giant	II	(1 in 100)	-2
19	Weak Super Giant	Ib	(1 in 400)	-2
20	Bright Super Giant	Ia	(1 in 400)	-4

STEP 4 - STAR SPECTRAL CLASSIFICATION

Once the size of the star has been determined, consult the Spectral Class table to determine the spectral class of the star. Roll once for each star in the system. The number and type of dice that should be rolled will depend on the type of star as shown on the Spectral Class Dice table.

If the star size result was a White Dwarf or a Red Dwarf, this step should be skipped. When rolling for the size of a binary (2nd) star in a system subtract -2 from the roll. When rolling the size for a trinary (3rd) star in a system subtract -4 from the roll.

Stars are rated by their spectral class from brightest (and hottest) to dimmest (and coolest), and represented by the letters O, B, A, F, G, K, and M. A common and easy mnemonic to use to remember this is "**O**h **B**e **A** **F**ine **G**irl (or Guy) **K**iss **M**e".

O: The class O star is very rare, so much so that there is no way to factor it into the tables for this game. The referee should place these types of stars as they see fit, but it is recommended to place no more than one or maybe two per sector. The class O is an extremely bright blue star, hotter, brighter and generally larger than the class B, and has a lifespan of only a few million years on average.

B: These rare large blue stars are extremely bright and hot, but also quite short-lived with a typical lifespan only numbering tens of millions of years.

A: A typically large, white hot star with a lifespan ranging from 500 million to nearly a billion years in length.

F, G, K: Very common, warm stars ranging in color from light yellow to yellow to orange in appearance, and from bright to normal to dim in luminosity. They generally have lifespans ranging from two to 30 billion years.

M: If the star is a red dwarf, this is a small, cool, dim star with a lifespan numbering a hundred billion years or more. For giant stars, this is usually a former main sequence star in the final days of its existence. The planets that might have existed in the star's habitable zone during its main sequence phase will have been swallowed up during the expansion into a red giant. Any planets that do exist will not have had enough time to recover from the expansion of the star to have developed any type of ecosystem.

Stars also have a further spectral classification value ranging from 0 to 9, that represents how far along the spectral class a star is. For example, a K5 star is halfway to being a class G star and

is midway between orange and yellow in color. While this more detailed size has no actual use in T20, it does complete compatibility with previous versions of Traveller.

For those who wish to further determine the spectral classification of a star, roll 1d10 to specify the spectral distance with 10 equaling 0. Note that there are no known Class K5 to K9 sub-giant stars. If this occurs simply reroll or set the distance as K4.

SPECTRAL CLASS

Result	Class	Color	Temp Mod.
1-3	B	Light Blue	-6
4	A	White	-4
5-9	F	Light Yellow	-2
10-11	G	Yellow	+0
12-13	K	Orange	+1
14-20	M	Red	+2

SPECTRAL CLASS DICE

Star Size	Roll
Main Sequence	2d6+1
Sub-Giant	2d6
Giant	2d10
Super Giant	1d20

STEP 5 - GAS GIANTS PRESENT

Most (but not all!) stars have a gas giant or two circling them. Use the table below when checking for the presence of gas giants around each star in the system. Once the number of gas giants has been determined, their size can be found by rolling 1d6. A result of 4 or greater indicates a small gas giant. 3 or less indicates a large gas giant. A small gas giant is roughly 40-60,000 km in diameter, while a large gas giant will range from 60-120,000 km in diameter.

Digit	Average Size	Gravity Description	Typical Surface Gravity
SGG	50,000km	Small Gas Giant	1.25g
LGG	90,000km	Large Gas Giant	2.5g

2d6 Roll	Number of Gas Giants
2	5
3	4
4	3
5	2
6	2
7	1
8	1
9	1
10+	0

STEP 6 - PLANETOID BELTS PRESENT

Planetoid belts are also a common occurrence among star systems, whether debris from an unformed planet or the remains of a planet destroyed in a collision with another stellar body. A planetoid belt that is the main world of a system is referred to as an Asteroid Belt to distinguish it from non-mainworld planetoids.

2d6 Roll	Number of Planetoid Belts
2	3
3	2
4	2
5	1
6	1
7+	0

STEP 7 - PLACE MAIN WORLD, GAS GIANTS, AND PLANETOID BELTS

Orbits are based on distance from the center of the parent star, and are numbered from 0 to 19 from closest to farthest orbit. An orbit of zero is usually (dwarf stars being the exception) within the corona of the star itself. Some star types, most notably giants and supergiants, will have a minimum orbit at which planets, gas giants, or planetoid belts will be found due to the enlarged nature of the sun. Anything that would normally have been found in these closer orbits have been swallowed up by the radius of the star itself. Thus, when placing any stellar feature, the object must be placed in an orbit at least equal to the Minimum Orbit for the star.

Binary and trinary companion stars may sometimes be found in one of the twenty orbits (0-19).

MINIMUM ORBIT

Star Size	Spectral Class B	A	F	G	K	M
White Dwarf	0	0	0	0	0	0
Main Sequence	0	0	0	0	0	0
Giant	1	2	3	4	5	6
Super Giant	2	3	4	5	6	8

ORBITAL DISTANCES

Orbit Number	Distance in Millions of Kilometers
0	30
1	60
2	105
3	150
4	240
5	420
6	780
7	1500
8	3000
9	5800
10	11,500
11	23,000
12	46,000
13	92,000
14	185,000
15	368,000
16	735,000
17	1,470,000
18	2,940,000
19	5,880,000
20	Beyond...

Habitable Zone: This is a temperate orbit around a star where stellar radiation is neither too much nor too little. If other factors are right, life may exist on worlds in this zone. Use the table that follows to determine the Habitable Zone orbit for a given star. A result of X means there is no possible habitable zone around this type of star.

HABITABLE ZONE

Star Size	Spectral Class B	A	F	G	K	M
White Dwarf	0	X	3	1d2	1d2-1	0
Red Dwarf or Main Sequence	8+1d4	5+1d2	3+1d3	1+1d4	1d4	0
Sub-Giant or Giant	9+1d3	6+1d3	5+1d3	6+1d2	6+1d3	7+1d3
Super Giant	10+1d3	9+1d3	9+1d3	9+1d3	9+1d3	10+1d2

Zones: Orbits closer to a star than the Habitable Zone are said to lie in the Inner Orbits of the star. Orbits farther out than the Habitable Zone are said to lie in the Outer Orbits of the star. The Star Stellar Type and Size determine the Habitable Zone.

Companion Stars: Companion binary stars are normally found in close orbit to the primary star (orbit 0), or in a far orbit from the primary (orbit 20+). However a companion star is occasionally found within the main orbits of a primary star. In such cases the next orbit out from the companion will always be empty as will half of the orbits extending from the companion in towards the primary star.

Companion trinary stars are almost always found in far orbits from the primary (orbit 20+), but follow the same placement as binary companions when exceptions are found.

The Main World: If the main world of a system has already been determined, it should be placed in the Habitable Zone of a star's available orbits. If the Main World has an atmosphere of 1- or 10+, then it is not necessary to place it in the Habitable Zone.

Gas Giants: Gas Giants should generally be placed in the Outer Orbits of a star first where possible. They may also appear in the Inner Orbits and the Habitable Zones, though this is far less frequent.

Planetoid Belts: Planetoid Belts should be placed in the next orbit inward from a Gas Giant where feasible.

STEP 8 - OTHER PLANETS

Once the Main World orbit has been determined, and gas giants and planetoid belts (if any) have been placed, check the remaining stellar orbits to see if any other planets exist in the system.

Roll (2d6 - Number of gas giants - Number of planetoid belts - 1). If the result is greater than 0, that is the number of additional planets in the system. Place them as you see fit in any remaining open orbits around the star with preference to the Habitable, Inner, then Outer Zones in that order.

STEP 9 - SATELLITES

It is not usually necessary to determine the details of satellites of all worlds in a system. For worlds where it is relevant, use the following process:

Normal World:	1d6-3 (minimum 0)
Small Gas Giant:	2d6-4 (minimum 0)
Large Gas Giant:	2d6

Satellite size equals the main world size code - 1d6. If satellite Size=0 then it is a ring of debris instead. If satellite Size is less than 0 then the satellite is a small world, (1d8) x 100 km in diameter. Satellites of Size 1 or greater may have an atmosphere and hydrographics (determine normally). Smaller satellites and rings never have an atmosphere.

WORLD DEVELOPMENT

STEP 0 - MAIN WORLD PARENT STAR

The first step in setting up the main world is to determine which star it orbits if there is more than one star in the system. If there is only one star, then obviously the main world will orbit it.

2d6 Roll	Parent Star
2-7	Primary
8-10	Binary (2nd star if present, otherwise Primary)
11-12	Trinary (3rd star if present, otherwise Binary)

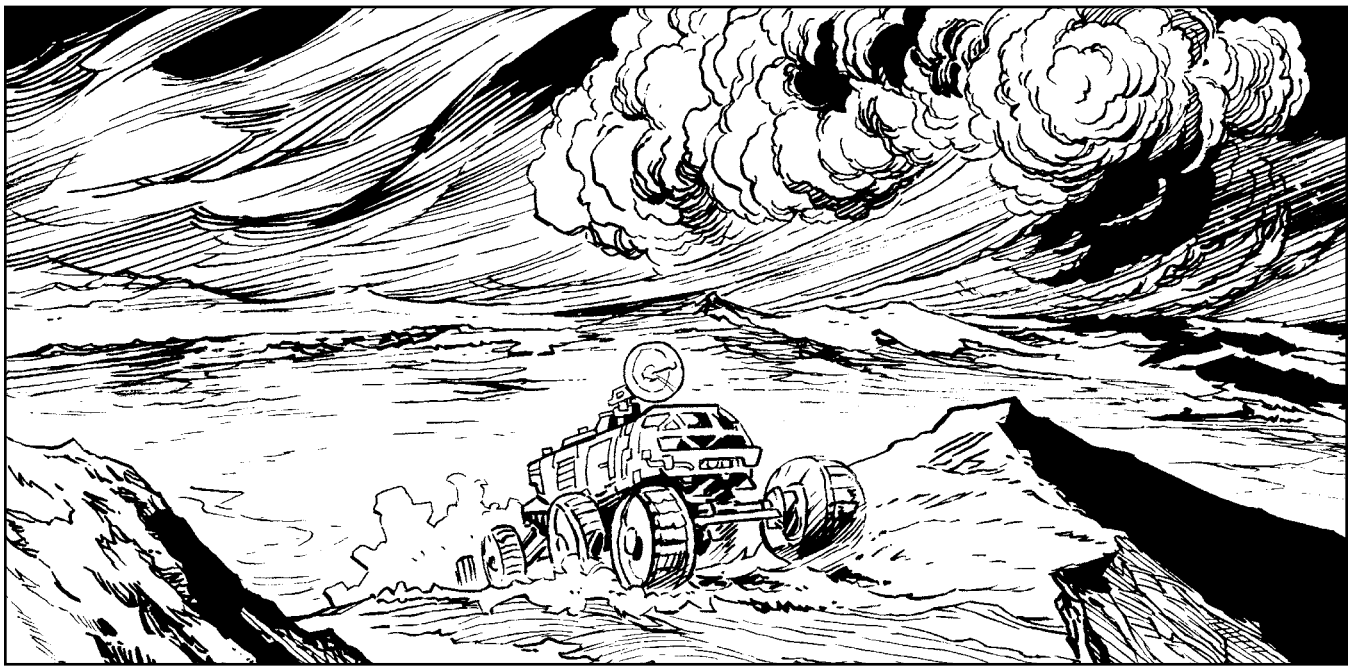
STEP - 1 WORLD ORBIT

The orbit of the world should have already been established when determining the stellar properties of the star system. If for some reason it has not been determined, you may select any open orbit around the star (preferably in the Habitable Zone) or roll 1d20-1 with the result equaling the world's orbit. If the orbit is already occupied, roll again.

The table below should also be used to determine further temperature modifiers for the world in addition to those imposed by the parent star itself, and the length of the year of the world (the time it takes to make a complete orbit of the parent star). 1 Year is based on 365.25 days.

WORLD ORBIT

Orbit	Temp Modifier	Length of Year	Example
0	-4	x0.1	
1	-2	x0.25	Mercury
2	-1	x0.6	Venus
3	+0	x1	Earth
4	+1	x2	Mars
5	+5	x8	Planetoid Belt
6	+6	x12	Jupiter
7	+7	x84	Uranus
8	+8	x165	Neptune
9	+9	x250	Pluto
10	+10	x678	
11	+11	x1911	
12	+12	x5395	
13	+13	x15,244	
14	+14	x43,096	
15	+15	x121,863	
16	+16	x344,639	
17	+17	x974,728	
18	+18	x2,756,862	
19	+19	x7,797,464	



STEP 2 - WORLD SIZE

The digit representing planetary Size indicates the diameter of the planetary sphere stated in thousands of kilometers. To determine the Size of a world, roll 2d6-2. If the world is in orbit 0 subtract -5; if the world is in orbit 1 subtract -4; if the world is in orbit 2 subtract -3. If the world is orbiting a Spectral Class M star, subtract -2 from the roll. Any roll total of less than 0 equals 0. Results of R and S are special results used only for satellites.

Digit	*Average Size*	*Gravity Description*	*Typical Gravity*
R	Ring (around a world)	No Gravity	0
S	Small (200-800 km)	No Gravity	0
0	Asteroid Belt	No Gravity	0
1	1600 km	Very Low Gravity	0.125g
2	3200 km	Very Low Gravity	0.25g
3	4800 km	Very Low Gravity	0.375g
4	6400 km	Low Gravity	0.5g
5	8000 km	Low Gravity	0.625g
6	9600 km	Low Gravity	0.75g
7	11,200 km	Average Gravity	0.875g
8	12,800 km	Average Gravity	1g
9	14,400 km	Average Gravity	1.125g
A+	16,000 km	Heavy Gravity	1.25g

STEP 3 - WORLD ATMOSPHERE

The digit indicating planetary Atmosphere represents the type of atmosphere encountered on the world. Some types of atmospheres require the use of protective clothing or masks. To determine the Atmosphere code for a world, roll 2d6-7, and add the world Size digit to the total. If the world is in the Inner Zone of a star, subtract -2 from the roll. If the world is in the Outer Zone of a star, subtract -4 from the roll. If the world size is 0 or S, then the atmosphere is automatically 0. Results of less than 0 should be changed to 0.

No Atmosphere or Trace: Total or near total vacuum. Survival in these atmospheres requires a vac suit, or other pressurized shelter or protection.

Very Thin: The world has a very thin standard oxygen/nitrogen atmosphere of 0.1 to 0.49 atmospheres. Survival requires the use of compressors to ensure an adequate supply of oxygen can be drawn from the atmosphere.

Thin: The atmosphere is thin (0.5 to 0.74 atmospheres) but a standard oxygen/nitrogen mix. No assistance is needed to breathe on these worlds, though those not acclimatized to the conditions will tire quickly.

Standard: A normal to near-normal atmosphere density (0.75 to 1.49 atmospheres) with an oxygen/nitrogen mix. No assistance is needed to breathe on these worlds.

Dense: A dense atmosphere (1.5 to 2.5 atmospheres) with a standard oxygen/nitrogen mix. No assistance is needed to breathe on these worlds, though those not acclimatized may find breathing uncomfortable.

Tainted: The atmosphere contains some type of taint such as severe industrial pollutants, a high sulfur count, a biological agent, or some other contaminant which requires the use of a filter mask or filtration system to survive.

Exotic: An exotic atmosphere is one with an unbreathable gas mix that requires the use of a constant fresh air supply such as oxygen tanks for survival. No other protective gear is normally required.

Corrosive: These atmospheres are physically corrosive and damaging to all but the most robust of equipment and gear. A hazardous environment suit or vac suit is required to survive in these types of atmosphere.

Insidious: A similar but more extreme version of the Corrosive atmosphere, an insidious atmosphere will actually defeat any protective measures within 2-12 (2d6) hours of their exposure.

Digit	*Description*
0	No Atmosphere.
1	Trace.
2	Very Thin, Tainted.
3	Very Thin
4	Thin, Tainted.
5	Thin
6	Standard
7	Standard, Tainted.
8	Dense
9	Dense, Tainted.
A	Exotic.
B	Corrosive
C	Insidious
D	Dense, High Pressure
E	Ellipsoid
F	Thin, Low Pressure

Dense, High Pressure: Pressure at or below sea level is too high to support most forms of life, but at higher altitudes in the lower pressure the atmosphere becomes breathable.

Ellipsoid: The world's shape is an ellipsoid rather than a sphere, causing much higher atmospheric pressure at the poles of the planet and much lower atmospheric pressure in the equatorial regions. Usually a region with a breathable atmosphere can be found at some point between these extremes.

Thin, Low Pressure: Because of the enormous size of the world, its thin atmosphere sinks to the lowest levels of the terrain rendering the atmosphere unbreathable except at very low altitudes such as deep valleys, crevasses, and depressions.

STEP 4 - WORLD CLIMATE

The average daytime climate of a world depends on a number of factors including the world's orbit, the type if star it circles, the type of atmosphere it has, and a bit of random chance. Worlds within the inner orbital zone of a star are almost exclusively torrid in temperature and generally unfit for supporting life without significant technological assistance. Similarly, worlds within the outer orbital zone of a star are typically frozen and far too cold to support life without additional technological support. It is only worlds within the habitable zone of a star that are usually capable of maintaining the more tolerable temperatures to support life without massive technical assistance.

Roll 1d20 and add the temperature modifiers imposed by the parent star of the world, along with the temperature modifier for the orbit of the world as determined in Step 1. Cross-reference the roll result with the table below to determine the climate.

WORLD CLIMATE

1d20	*Climate*	*Average Temp**
5 or less	Torrid	61 or higher
6	Very Hot	55
7	Hot	45
8	Warm	35
9	Tropical	25
10-11	Temperate	15
12	Chilly	0
13	Cool	-15
14	Cold	-25
15	Frigid	-35
16 or greater	Frozen	-41 or lower

* At 30° latitude. Add +0.5°C every 1° south of 30° latitude, and subtract -0.5° C every 1° north of 30° latitude. Using the T20 World Map add +5°C for every hex row below row 4 and subtract -5°C for every hex row above row 4.

NIGHTTIME TEMPERATURES

Atmosphere	*Temp Mod.*	*Atmosphere*	*Temp Mod.*
None	-50°C	Thin	-20°C
Trace	-40°C	Standard	-10°C
Very Thin	-30°C	Dense	-5°C

Axial Tilt: 1d12-3 * 10°. Treat anything less than zero as zero. The axial tilt of a world determines if it will experience seasonal temperature changes and how intense such changes will be. For every 10° of axial tilt the average temperature will increase by 10°C during the summer and will decrease by 15°C during the winter. For example a world with an axial tilt of 20° (near earth normal) would have an average temperature 30°C lower than normal during winter and up to 20°C higher during summer. During Spring and Fall seasons the temperature will be average.

STEP 5 - WORLD HYDROGRAPHICS

The digit indicating Hydrographic percentage represents the percentage of planetary surface (in increments of 10%) covered by seas or oceans. For normal worlds, this will be water; on other worlds (with exotic, corrosive, or insidious atmospheres), it may instead be other liquids, such as ammonia.

To determine the available Hydrographics on a world, roll 2d6-7 adding the Atmosphere digit of the world to the roll. If the world is in the Inner Zone of the star, then the Hydrographics digit is automatically 0. If the world is in the Outer Zone, subtract -2 from the roll. If the size of the world is 1 or less (including S), then Hydrographics is automatically 0. If the world's Atmosphere is 1- or 10+ then subtract -4 from the roll. Any result of less than 0 should be changed to 0.

Digit	*Description*
0	No free-standing liquid. Desert
1	10% surface liquid
2	20% surface liquid
3	30% surface liquid
4	40% surface liquid
5	50% surface liquid
6	60% surface liquid
7	70% surface liquid
8	80% surface liquid
9	90% surface liquid
A	No large land masses. Water or Fluid World

STEP 6 - NATURAL RESOURCES

Natural Resources can be anything from mineral deposits to exotic lifeforms, to food production capabilities. This value will most often be used as a part of the determination of a world's trade potential, along with forming the basis for general prospecting. To determine the natural resources of a world, roll 2d6-7+Size digit; if Atmosphere is 4-9, add +2. If Hydrographics is 0 or A, subtract -2. If Hydrographics is 4-7, add +1. Treat any Natural Resources result of less than 0 as 0.

STEP 7 - INDIGENOUS LIFEFORMS

The possibility of native lifeforms on a world is represented below. This refers to non-sentient lifeforms. The presence of sentient lifeforms is left to the discretion of the Referee. The Referee is also free to ignore this step and assign the presence of any lifeforms on a world as seems appropriate. Note that the odds of life evolving on a world in the inner or outer zones of a star are very unlikely. If found on such worlds life will usually be found underground where there is shelter from the extreme temperatures of the surface.

INDIGENOUS LIFEFORMS

Worlds in the Habitable Zone	DC16
Worlds in the Outer Zone	DC18
Worlds in the Inner Zone	DC20
Modifiers	
Very Thin Atmosphere	-1
Trace Atmosphere	-2
Exotic Atmosphere	-1
Corrosive Atmosphere	-2
Insidious Atmosphere	-4
No Water	-4
Hot Climate	-1
Very Hot Climate	-2
Torrid Climate	-4
Very Cold Climate	-1
Frozen Climate	-2
Frigid Climate	-4

Where life does exist, biodiversity may also be determined randomly by rolling 2d6 and adding the modifiers given above.

BIODIVERSITY

Roll	*Biodiversity*	*Description*
3 or less	Minute	Small strains of single-celled life-forms. Bacteria and the like
4-5	Minor	Algae, lichens, and mosses are most common
6-7	Active	Abundant plant diversity, some low form animals (e.g. insects)
8 or more	Diverse	Thriving plant and animal ecological systems

	Additional Modifiers	*Mod.*
	Giant Star	-8
	White Dwarf	-4

STEP 8 - WORLD POPULATION

The digit indicating population is an exponent of 10. This may be viewed as the number of zeros following a one. Thus, a population digit of 6 indicates a population of approximately 1,000,000. To determine the population digit of a world, roll 2d6-2. If the orbit of the planet is within the Inner Orbit Zone of a star subtract -5 from the population roll, and if within the Outer Orbit Zone subtract -3 from the population roll. A Population of less than 0 should be changed to 0.

For secondary worlds (i.e. not the main world), if the atmosphere of the world is anything other than 0, 5, 6, or 8, subtract -2 from the population roll.

Digit	*Description*	*Population*
0	No Inhabitants	0-9
1	Tens of Inhabitants	10-99
2	Hundreds of Inhabitants	100-999
3	Thousands of Inhabitants	1000-9999
4	Tens of Thousands	10,000-99,999
5	Hundreds of Thousands	100,000-999,999
6	Millions of Inhabitants	1,000,000-9,999,999
7	Tens of Millions	10,000,000-99,999,999
8	Hundreds of Millions	100,000,000-999,999,999
9	Billions of Inhabitants	1,000,000,000-9,999,999,999
A	Tens of Billions	10,000,000,000+

POPULATION EXPONENT

To further refine the population census, each world also has a Population Exponent, which is used as a multiplier against the base population digit to determine total population. The Population Exponent is determined by rolling 1d10-1. Count 0 as 1 unless the Population digit is 0, in which case the world is totally uninhabited.

STEP 9 - STARPORTS AND BASES

2d6

Roll	*Starport**	*Naval Base***	*Scout Base****
2	A	no	no
3	A	no	no
4	A	no	no
5	B	no	no
6	B	no	no
7	C	no	yes
8	C	yes	yes
9	D	yes	yes
10	E	yes	yes
11	E	yes	yes
12	X	yes	yes

Roll once for each column.

* **Starport:** +3 if Population 3-, +5 if Population 2-, if Population is 0 then Starport is type X.

** **Naval Base:** Do not roll if Starport C, D, E, or X.

*** **Scout Base:** -1 if Starport C, -2 if Starport B, -3 if Starport A. Do not roll if Starport E or X.

STARPORT TYPES

A: Excellent Quality Installation.
Refined fuel is available along with annual maintenance overhaul facilities. Shipyard capable of constructing starships and non-starships present. Naval base and/or scout base may be present

B: Good Quality Installation.
Refined fuel is available along with annual maintenance overhaul facilities. Shipyard capable of constructing non-starships present. Naval base and/or scout base may be present

C: Routine Quality Installation.
Only unrefined fuel is available along with reasonable repair facilities. Scout base may be present

D: Poor Quality Installation.
Only unrefined fuel is available, but no repair or shipyard facilities. Scout base may be present.

E: Frontier Installation.
Essentially a marked spot of bedrock with no fuel, facilities, or bases present.

X: No Starport.
No provisions have been made for any ship landings.

STEP 10 - WORLD GOVERNMENT

The digit representing planetary government indicates a range of possible ruling systems, from anarchy to totalitarianism. The planetary government table gives a brief description of the general characteristics of each government type. Balkanization is a special result, and indicates that there is no world government; instead several rival territorial governments exist. In such cases, the Referee should generate the specific qualities of each territory on the planet separately. To determine the overall world government digit, roll 2d6-7 + Population Digit.

Digit	*Description*
0	No Government Structure: In many cases family bonds predominate.
1	Company Corporation: Government by a company man agerial elite. Citizens are company employees.
2	Participatory Democracy: Government by advice and consent of the citizens.
3	Self-Perpetuating Oligarchy: Government by a restricted minority, with little or no input from the masses.
4	Representative Democracy: Government by elected representatives.
5	Feudal Technocracy: Government by specific individuals for those who agree to be ruled. Relationships are based on the performance of technical activities that are mutually beneficial.
6	Captive Government: Government by an imposed leadership answerable to an outside group. A colony or conquered area.
7	Balkanization: No central ruling authority exists; rival governments compete for control.
8	Civil Service Bureaucracy: Government by agencies employing individuals selected for their expertise.
9	Impersonal Bureaucracy: Government by agencies that are insulated from the governed.
A	Charismatic Dictator: Government by a single leader enjoying the confidence of the citizens.
B	Non-Charismatic Leader: A previous charismatic dictator

	has been replaced by a leader through normal channels.
C	Charismatic Oligarchy: Government by a select group, organization, or class enjoying the overwhelming confidence of the citizenry.
D	Religious Dictatorship: Government by a religious organization without regard to the specific needs of the citizenry.
E	Religious Autocracy: Government by a single religious leader having absolute power over the citizenry.
F	Totalitarian Oligarchy: Government by an all-powerful minority which maintains absolute control through widespread coercion and oppression.

STEP 11 - LAW LEVEL

The digit representing Law Level indicates the relative force of law extant on the world. The level specifically states the restrictions in force concerning the possession and use of weapons by individuals. To determine Law Level, roll 2d6-7 + Government digit.

Digit	*Description*
0	No Law. No prohibitions.
1	Low. Body pistols undetectable by standard detectors, explosives (bombs, grenades), and poison gas prohibited.
2	Low. Portable energy weapons (laser carbine, laser rifle) prohibited. Ship's gunnery not affected.
3	Low. Weapons of a strict military nature (machineguns, automatic rifles) prohibited.
4	Moderate. Light assault weapons (submachineguns) prohibited.
5	Moderate. Personal concealable firearms (such as pistols and revolvers) prohibited.
6	Moderate. Most firearms (all except shotguns) prohibited. The carrying of any type of weapon openly is discouraged.
7	Moderate. Shotguns are prohibited.
8	High. Long bladed weapons (all but daggers) are controlled, and open possession is prohibited.
9	High. Possession of any weapon outside one's residence is prohibited.
A	Extreme. Weapon possession prohibited.
B	Extreme. Rigid control of civilian movement.
C	Extreme. Unrestricted invasion of privacy.
D	Extreme. Paramilitary law enforcement.
E	Extreme. Full-fledged police state.
F	Extreme. All facets of daily life rigidly controlled.
G	Extreme. Severe punishment for petty infractions.
H	Extreme. Legalized oppressive practices.
J	Extreme. Routinely oppressive and restrictive.
K	Extreme. Excessively oppressive and restrictive.
L	Extreme. Totally oppressive and restrictive.

Note: Law level is also the DC to avoid police or enforcement harassment for violations. Thus, on a world with law level 4, the Referee must make a basic check vs. DC 4 to see if local officials attempt to harass or arrest the characters when they encounter them. If the roll is less than the world Law Level, the local authorities will want to question the characters. Most such harassment will be of a petty nature, such as demanding identification, rather than groundless arrest. However, the characters may not be aware that they have violated a local law or custom until the police arrive.

STEP 12 - TECHNOLOGICAL LEVEL

The degree of technological expertise, and thus the capabilities of local industry, depends greatly on the basic characteristics of a world. This technological index is generated based on a 1d6 throw, modified by planetary characteristics.

Consult the tech level table and reference the appropriate planetary digits with the descriptions, note all modifiers indicated, and sum them to form one total modifier. Roll 1d6 and apply the modifier to the result, thus determining the local Technological Level (TL).

Tech Level may vary from 0 to 20, more commonly ranging from 4 through about 10. Higher numbers indicate greater capability.

The Technological Level is used in conjunction with the Technological Level table (pg. 194) to determine the general quality and capability of local industry. The tables indicate the general types or categories of goods in general use on the world. In most cases, such goods are the best that may be produced locally, although local organizations or businesses may import better goods when a specific need is felt. In most cases, local citizenry will not be armed with weapons of a type that cannot be produced locally, although police or military may be. Tech Level also indicates the general ability of local technology to repair or maintain items that have failed or malfunctioned.

The Technological Level tables have several spaces or holes, and the Referee or the players should fill in such gaps when they discover items or devices of interest.

Digit	*Description*
0	Stone Age, primitive
1	Bronze Age to Middle Age
2	circa 1400 to 1700 AD
3	circa 1700 to 1860 AD
4	circa 1860 to 1900 AD
5	circa 1900 to 1939 AD
6	circa 1940 to 1969 AD
7	circa 1970 to 1990 AD
8	circa 1990 to 2100 AD
9	circa 2100+ AD
10	Early Interstellar Community
11	Average Interstellar Community
12	Average Interstellar Community
13	Above Average Interstellar Community
14	Above Average Interstellar Community
15	Technical Maximum Interstellar Community
16	Occasional Interstellar Community

Digit	*Starport*	*Size*	*Atmos*	*Hydro*	*Pop*	*Gov*
0	-	+2	+1	-	-	+1
1	-	+2	+1	-	+1	-
2	-	+1	+1	-	+1	-
3	-	+1	+1	-	+1	-
4	-	+1	-	-	+1	-
5	-	-	-	-	+1	+1
6	-	-	-	-	-	-
7	-	-	-	-	-	-
8	-	-	-	-	-	-
9	-	-	-	+1	+2	-
A	+6	-	+1	+2	+4	-
B	+4	-	+1	-	-	-
C	+2	-	+1	-	-	-
D	-	-	+1	-	-	-2
E	-	-	+1	-	-	-
F	-	-	-	-	-	-
X	-4	-	-	-	-	-

STEP 13 - TRADE CLASSIFICATIONS

The term trade classification is a general catchall phrase that covers world attributes that influence trade and commerce, and other information that is of interest to PCs. Some trade classifications influence the Seculative Trade Goods table, see Speculative Trading (pg. 358).

Agricultural (Ag) worlds have large portions of their economies devoted to agriculture. They must have an Atmosphere of 4 through 9, Hydrographics of 4 through 8, and a Population of 5 through 7.

Non-agricultural (Na) worlds must import much of their foodstuffs from off planet. While such a world may produce synthetic foodstuffs for local consumption, it probably imports quality foods as luxury items. A non-agricultural world must have an Atmosphere of 3 or less, Hydrographics of 3 or less, and a Population of 6 or more.

Industrial (In) worlds have large production bases and can easily engage in the manufacture of finished goods. Such a world must have an Atmosphere of 0, 1, 2, 4, 7, or 9 (vacuum, trace, or tainted), and a Population of 9 or greater.

Non-industrial (Ni) worlds are forced to import much of their finished goods. Non-industrial worlds must have a Population of 6 or less.

Rich (Ri) worlds have good climates and environments and are sought after by most individuals as living places. A rich world must have Government type 4 through 9, an Atmosphere of 6 or 8, and a Population of 6 through 8.

Poor (Po) worlds are undeveloped and marginal backwaters. A poor world must have an Atmosphere of 2 through 5 and Hydrographics of 3 or less.

Water worlds (Wa) are totally covered by seas and oceans, i.e. Hydrographics A.

Desert worlds (De) have no standing water, i.e. Hydrographics 0.

Vacuum worlds (Va) have no atmosphere i.e. Atmosphere 0.

Asteroid belts (As) are accumulations of small planetoids in a belt around the central star of the system, occupied by the majority of the system population and thus considered to be the mainworld. Asteroid belts have Size 0

Ice-capped (Ic) worlds have water present only in the form of ice caps; these are mostly vacuum worlds that would ordinarily have no water. Ice-capped worlds must have Atmosphere 0 or 1 and Hydrographics 1 or greater.

Subsector Capital is the term given to the single most important world in the subsector, especially if the entire sector is under one interstellar government. Subsector Capital designations are assigned by the Referee.

Capital is the term given to a world that is the seat of an interstellar government. If there are several interstellar governments within a subsector, each will probably have a capital. Capital designations are assigned by the Referee.

Other notations are possible as well. The Referee may elect to note the presence of prison worlds, exile worlds, preserves or reserves for various purposes, and so on.

STEP 14 - WORLD TRADE BALANCE

The World Trade Balance is equal to the Natural Resources score for the main world - Population digit, with the modifiers given in the tables below. For example, Modern Earth +5 (TL 9, Pop 9, Starport D, Law Level 4-6, Industrial, Law Level 5, Govt 4). If the Trade Balance is negative, the world is a net importer, i.e. it imports more Credits in goods than it exports. If the Trade Balance is positive, then the world is a net exporter, i.e. it exports more Credits in goods than it imports.

Tech Level	*Modifier*
16+	+3
14-15	+2
13-12	+1
10-11	+0
7-9	-1
4-6	-2
0-3	-3

Starport	*Modifier*
A	+2
B	+1
C	+0
D	-1
E	-2
X	-3

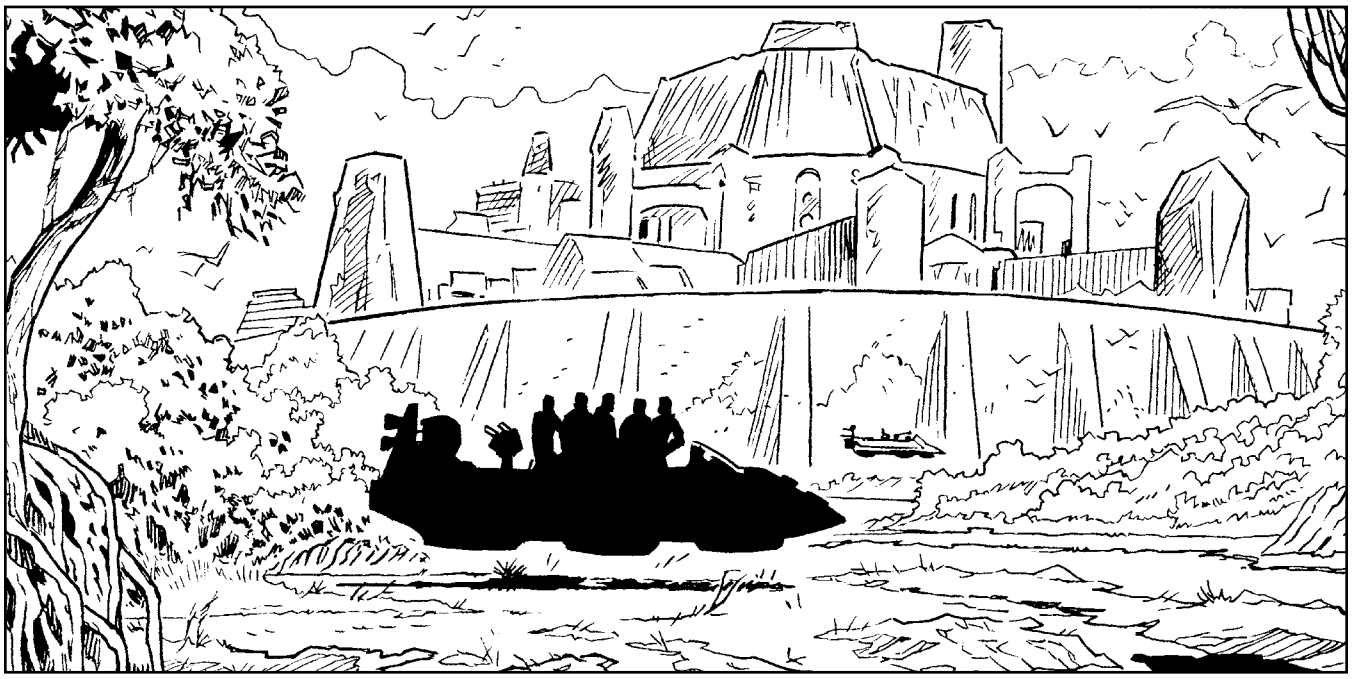
Trade Class	*Modifier*
Industrial	+4
Agricultural	+1
Rich	+2
Poor	-1

Law Level	*Modifier*
0-3	+2
4-6	+1
7-8	+0
9+	-1

Government	*Modifier*	*Notes*
3 or C	-1	Oligarchy
6	-1	Captive Government
8 or 9	-1	Bureaucracy
D	-2	Religious Dictatorship

The following table indicates the most likely types of goods to be Exported (E) or Imported (I) for a given world, depending upon its Trade classification.

	Basic Trade Goods					
Trade Classification	*Food Drink*	*Wood Plant*	*Raw Materials*	*Refined Materials*	*Manufactured Goods*	*Luxury Goods*
Industrial	I	I	I	E	E	E
Agricultural	E	E	I	E	I	I
Non Agricultural	-	-	I	E	E	I
Non-Industrial	E	E	-	-	I	I
Rich	E	I	I	E	I	E
Poor	I	I	E	I	I	I
None	-	-	E	-	-	I



REFEREE'S NOTES

The purpose of the world generation sequence can best be seen as a prod to the imagination. Even the most imaginative individual soon loses brilliance in the face of creating hundreds of individual worlds. The procedure uses die rolls to create a basic world type and then allows the Referee to use that information to determine specific world data. Imagination may be required to explain a tech level 4 civilization in an asteroid belt, or a high population world with a participating democracy for a government.

Specific characteristics for worlds should be construed as guidelines rather than strict limits. For example, a world with a hydrographic percentage of A is 100% ocean; nevertheless, the world would probably have some small islands sufficient for establishing a starport.

Starport: The various starport types are intended to provide a variety of facilities for use in trade or survey missions. Starports provide fuel or construction yards.

TECH LEVEL AND THE IMPERIUM

The Imperium in the Official Traveller Universe is currently at a maximum TL of 14, with the first TL15 items starting to become available to the Imperial military in the year 1000.

Bases: The tables provide for Scout and Naval bases at some worlds. These bases serve as points for Scout and Naval veterans to renew acquaintances with old friends, to find potential patrons, and to scrounge or buy surplus equipment of use to them. The Referee may elect to include other types of bases, perhaps army bases, merchant exploration or trade bases, and defense establishments.

Travel Zones: The use of travel zones is intended to assist in designating areas to avoid and areas to explore. The Referee should consider travel zones and their underlying reasons.

World Size: The generation tables assume that the world in question will be a solid matter sphere. Some alternatives are possible, although they are rare enough to require implementation by the Referee. These include:

Rosettes: Three or more equal masses (worlds) set at the points of an equilateral polygon, and with the correct equal angular velocities about their center of mass, will have a stable orbital configuration. In fact, no central star is required for the group. Rosettes will almost never occur naturally.

Ringworlds: An incredibly strong band may be set rotating about a central star, making a ringworld which uses centrifugal force to provide a simulation of gravity. Such a ringworld, of 93 million miles radius, and with a width of 1 million miles, has a usable surface area equal to about 3 million Earths.

Sphereworlds: Using materials similar to those in a ringworld, and adding gravity generators where necessary for strength and comfort, a spherical shell could be used to completely enclose a star. Such a shell would then trap

WORLD DATA FORMAT SAMPLE

Name	Hex #	UWP	Bases	Trade Classification	Zone	PBG	Allegiance	Stellar Data
Speer	0108	C432440-8	S	Poor, Non-industrial	R	404	1	K8 V

all stellar radiation for use by the civilization. With a radius of about 93 million miles, the internal surface area would equal about one billion Earths.

Atmosphere: The various atmosphere types require specific personal equipment for survival and protection.

• No atmosphere and trace atmospheres require use of a vac suit.

• Tainted atmospheres require the use of filter masks.

• Very thin atmospheres require the use of compressors to insure sufficient oxygen to breathe. The tainted very thin atmosphere requires a combination respirator/filter mask for survival.

• Thin, standard, and dense atmosphere are breathable without assistance.

• Exotic atmospheres require the use of oxygen tanks, but protective suits are not required.

• Corrosive atmospheres require the use of protective suits or vacc suits.

• Insidious atmospheres are similar to corrosive atmospheres, but will defeat any personal protective measures in 2 to 12 hours.

Hydrographics: It is possible for some worlds with vacuum atmospheres to have hydrographic percentages greater than 0. In such cases, the world has ice caps present; the water will not be freestanding liquid.

Population Density: For comparison, the following population densities are common on twentieth century Earth. Earth had a population of about three billion during the 1970's (population level 9); that was approximately 5 persons per square mile, or 16 persons per square mile of land area. Europe is populated at about 151 persons per square mile, the equivalent of population level 10. The Netherlands contain 1500 persons per square mile, or about population level 11. Hong Kong has 10,000 persons per square mile, the equivalent of population level 12.

Government: Government types are intended to convey the general type of authority on the world; each listed type should be a clue to the Referee in administering details of encounters on the world.

Law Level: Law level is an indication of the relative oppressiveness of the world. The digit is classified on the law level table to show prohibitions against weapons. It is also the DC to avoid being harassed or arrested by local authorities.

Tech Level: The technological level of a world determines the quality and sophistication of the products of a world. It indicates what precise types of equipment are available and common locally.

Trade Classifications: Additional details of a specific world can be expressed by the trade classification and statements about the world. The Referee should be ready to establish new classifications when appropriate.

WORLD DATA FORMAT

When noting Universal World Profiles, the following format should be used in order to insure recording all necessary information.

Name: The name of the star system, typically also the name of the mainworld.

Hex #: The hex location of the system on the local sector (not subsector) map.

UWP: The mainworld Universal World Profile. The UWP is a shorthand notation of a world's basic 8 characteristics. In order of placement these are: Starport Classification, Size, Atmosphere, Hydrographics, Population, Government Type, Law Level, and Technological Level. For example:

Speer C432430-8

The world called Speer has a Class 'C' starport, a size of 4 (6400km), an Atmosphere of 3 (Very Thin), a Hydrographics rating of 2 (20% surface water), a Population of 4 (Tens of Thousands), a Government Type of 4 (Self-Perpetuating Oligarchy), a Law Level of 0 (No prohibitions), and a Technological Level of 8.

Bases: The type of bases found in the system. S is used to denote a scout base, while N is used to denote a naval base.

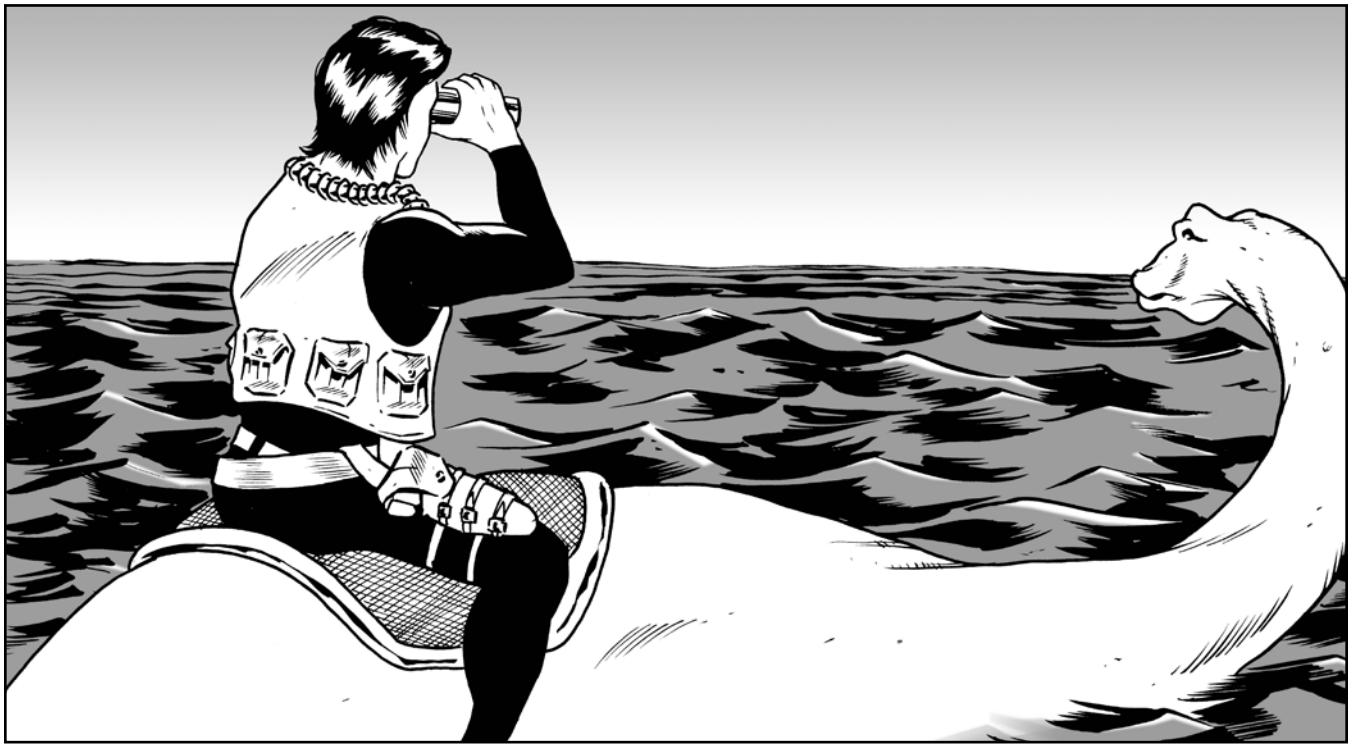
Trade Classification: The trade classifications of the local mainworld.

Travel Zone: The local TAS travel zone rating, typically R for a red zone or restricted world, A for an amber zone or dangerous world, and G for a green zone or safe (relatively) world. Red zoned or interdicted worlds are usually either posted with warning bouys or actively patrolled by scout or naval vessels.

PBG: Three digits representing: The local mainworld Population Exponent, the number of planetoid belts found in the system, and the number of gas giants found in the system, respectively.

Allegiance: A numerical or abbreviated representation of the allegiance of the system to any interstellar government.

Stellar Data: Size and spectral classification data for the stars found in this system.



ENVIRONMENTS

WATER

Any character can wade in relatively calm water that isn't over his head. No check is required.

Swimming in calm water only requires skill checks with a DC of 10. Trained swimmers can just Take10.

Fast-moving water is much more dangerous. On a successful Swim or Strength check (DC 15), it deals 1d3 points of Stamina damage per round (1d6 points of normal damage if flowing over rocks and cascades). On a failed check, the character must make another check that round to avoid going under. If the character goes under, the character is drowning.

Very deep water is not only generally pitch black, posing a navigational hazard, but worse, if one ascends or descends too quickly they may suffer from the bends (see Pressure Breach, pg. 387), with every 30m meters distance up or down equaling 1 atmosphere of pressure increase or decrease.

Very cold water deals 1d6 points of Stamina damage from hypothermia per minute of exposure.

DROWNING

Any character can hold her breath for a number of rounds equal to twice her Constitution score. After this period of time, the character must make a Constitution check (DC 10) every round in order to continue holding her breath. Each round, the DC increases by 1.

When the character finally fails her Constitution check, she begins to drown. In the first round, she falls unconscious (0 Stamina). In each following round, she loses 1d6 Lifeblood until Lifeblood reaches -10 and she dies.
It is possible to drown in substances other than water, such as sand, quicksand, fine dust, and silos full of grain.

STARVATION AND THIRST

In normal climates, Medium-size characters need at least 3 litres of fluids and about 2,000 calories (about half a kilo) of decent food to keep them nourished and avoid starvation. This is proportional to size, so small characters may need as little as half as much. In very hot climates, characters need two or three times as much water to avoid dehydration.

A character can go without water for 1 day plus a number of hours equal to his Constitution score. After this time, the character must make a Constitution check each hour (DC 10, +1 for each previous check) or sustain 1d6 points of Stamina damage.

A character can go without food for 3 days, in growing discomfort. After this time, the character must make a Constitution check each day (DC 10, +1 for each previous check) or sustain 1d6 points of Stamina damage.
Characters who have taken Stamina damage from lack of food or water are fatigued. Stamina damage from thirst or starvation cannot be recovered until the character gets food or water. Not even psionic abilities that restore Stamina can heal this damage.

HEAT

Heat deals Stamina damage that cannot be recovered until the character gets cooled off. Once rendered unconscious through the accumulation of Stamina damage, the character begins to take Lifeblood damage at the same rate.

A character in very hot conditions (above 32° C) must make a Fortitude saving throw each hour (DC 15, +1 for each previous check) or sustain 1d4 points of Stamina damage. Characters wearing heavy clothing or armor of any sort have a -4 penalty to the save. A character with the Survival skill may receive a bonus to this saving throw and may be able to apply this bonus to other characters as well through appropriate measures. Characters reduced to unconsciousness begin taking Lifeblood damage (1d4 points per hour).

In extreme heat (above 45° C), a character must make a Fortitude save once every 10 minutes (DC 15, +1 for each previous check) or sustain 1d4 points of Stamina damage. Characters wearing heavy clothing or armor of any sort have a -4 penalty to their saving throws. A character with the Survival skill may receive a bonus to this saving throw and may be able to apply this bonus to other characters as well. Characters reduced to unconsciousness begin taking Lifeblood damage (1d4 points per each 10-minute period).

A character who sustains any Stamina damage from heat exposure now suffers from heatstroke and is fatigued. These penalties end when the character recovers the Stamina damage she took from the heat.

Abysmal heat (air temperature over 60° C, fire, boiling water, lava) deals Lifeblood damage. Breathing air in these temperatures deals 1d6 points of Lifeblood damage per minute (no save). In addition, a character must make a Fortitude save every 5 minutes (DC 15, +1 per previous check) or sustain 1d4 points of Stamina damage. Those wearing heavy clothing or any sort of armor have a -4 penalty to their saving throws. In addition, those wearing metal armor or coming into contact with very hot metal suffer 2d4 Lifeblood damage per round of contact.

Boiling water deals 1d6 points of scalding damage, unless the character is fully immersed, in which case it deals 10d6 points of damage per round of exposure.

CATCHING FIRE

Characters at risk of catching fire are allowed a Reflex saving throw (DC 15) to avoid this fate. If a character's clothes or hair catch fire, he takes 1d6 points of damage immediately. In each subsequent round, the burning character must make another Reflex saving throw. Failure means he takes another 1d6 points of damage that round. Success means that the fire has gone out. (That is, once he succeeds at his saving throw, he's no longer on fire.)

A character on fire may automatically extinguish the flames by jumping into enough water to douse himself. If no body of water is at hand, rolling on the ground or smothering the fire with blankets and the like permits the character another save with a +4 bonus.

Those unlucky enough to have their clothes or equipment catch fire must make Reflex saving throws (DC 15) for each item. Flammable items that fail sustain the same amount of damage as the character.

COLD

Cold and exposure deal Stamina damage to the victim. This Stamina damage cannot be recovered until the character gets out of the cold and warms up again. Once a character is rendered unconscious through the accumulation of Stamina damage, the cold and exposure begins to deal Lifeblood damage at the same rate.

An unprotected character in cold weather (below 5° C) must make a Fortitude saving throw each hour (DC 15, + 1 per previous check) or sustain 1d6 points of Stamina damage. A character who has the Survival skill may receive a bonus to this saving throw and may be able to apply this bonus to other characters as well.

In conditions of extreme cold or exposure (below -15° C), an unprotected character must make a Fortitude save once every 10 minutes (DC 15, +1 per previous check), taking 1d6 points of Stamina damage on each failed save. A character who has the Survival skill may receive a bonus to this saving throw and may be able to apply this bonus to other characters as well. Characters wearing winter clothing only need check once per hour for cold and exposure damage.

A character who sustains any Stamina damage from cold or exposure suffers from frostbite or hypothermia and is fatigued. These penalties end when the character recovers the Stamina damage she took from the cold and exposure.

WEATHER HAZARDS

WINDS

Winds can create a stinging spray of sand or dust, fan a large fire, heel over a small boat, and blow gases or vapors away. If powerful enough, they can even knock characters down (see the Wind Effects table), interfere with ranged attacks, or impose penalties on some skill checks.

Light Wind: A gentle breeze, having little or no game effect.

Moderate Wind: A steady wind with a 50% chance of extinguishing small unprotected flames, such as candles.

Strong Wind: Gusts that automatically extinguish unprotected flames (candles, torches, and the like). Such gusts impose a -2 penalty to ranged attacks and to Listen checks.

Severe Wind: In addition to automatically extinguishing any unprotected flames, winds of this magnitude cause protected flames (such as those of lanterns) to dance wildly and have a 50% chance of extinguishing these lights. Ranged weapon attacks and Listen checks are at a -4 penalty.

Windstorm: Powerful enough to bring down branches if not whole trees, windstorms automatically extinguish unprotected flames and have a 75% chance of blowing out protected flames, such as those of lanterns. Ranged weapon attacks are impossible, and even heavy weapons such as artillery and rockets have a -4 penalty to attack. Listen checks are at a -8 penalty due to the howling of the wind.

Hurricane-force Wind: All flames are extinguished. Ranged attacks are at -10, and even heavy weapons suffer a -8 penalty. Listen checks are impossible; all characters can hear is the roaring of the wind. Hurricane-force winds often fell trees.

Tornado: All flames are extinguished. All ranged attacks are impossible (even with heavy weapons), as are Listen checks. Instead of being blown away (see the Wind Effects table), characters in close proximity to a tornado who fail their Fortitude saves are sucked toward the tornado. Those who come in contact with the actual funnel cloud are picked up and whirled around for 1d10 rounds, taking 6d6 points of Stamina damage per round, before being violently expelled (falling damage may apply). While a tornado's rotational speed can be as great as 500 kph, the funnel itself moves forward at an average of 50 kph. A tornado uproots trees, destroys buildings, and causes other similar forms of major destruction.

PRECIPITATION

Most precipitation is in the form of rain, but in cold conditions it can manifest as snow, sleet, or hail. Precipitation of any kind followed by a cold snap in which the temperature dips from above freezing to 0° C or below may produce ice.

Rain: Rain reduces visibility ranges by half, resulting in a -4 penalty to Spot and Search checks. It has the same effect on flames, ranged weapon attacks, and Listen checks as severe wind (see above).

Snow: While falling, snow reduces visibility as rain (-4 penalty to ranged weapon attacks, Spot checks, and Search checks). Once on the ground, it reduces movement by half. Snow has the same effect on flames as Moderate Wind (see above).

Sleet: Essentially frozen rain, sleet has the same effect as rain while falling (except that its chance to extinguish protected flames is 75%) and the same effect as snow once on the ground.

Hail: Hail does not reduce visibility, but the sound of falling hail makes Listen checks more difficult (-4 penalty). Sometimes (5% chance) hail can become large enough to deal 1 point of damage (per storm) to anything in the open. Once on the ground, hail has the same effect on movement as snow.

Storms: The combined effects of precipitation (or dust) and wind that accompany all storms reduce visibility ranges by three quarters, imposing a -8 penalty to all Spot, Search, and Listen checks. Storms make ranged weapon attacks very difficult (-10 penalty), except for heavy weapons, (-4 penalty to attack.) They automatically extinguish candles, torches, and similar unprotected flames. They cause protected flames, such as those of lanterns, to dance wildly and have a 50% chance to extinguish these lights. See the Wind Effects table for possible consequences to creatures caught outside without shelter during such a storm. Storms are divided into two types: Thunderstorms and Duststorms:

Duststorm: These desert storms differ from other storms in that they have no precipitation. Instead, a duststorm blows fine grains of sand that obscure vision, smother unprotected flames, and can even choke protected flames (50% chance). Most duststorms are accompanied by Severe Winds (see above) and leave behind a deposit of 1d6 inches of sand. However, there is a 10% chance of a greater duststorm accompanied by Windstorm-magnitude winds (see above and the Wind Effects table). These greater duststorms deal 1d3 points of Stamina damage each round on anyone caught out in the open without shelter and also pose a choking hazard (see the Drowning Rules, except that a character with a scarf or similar protection across her mouth and nose does not begin to choke until after a number of rounds equal to ten times her Constitution score). Greater duststorms leave 1d3 meters of fine sand in their wake.

Snowstorm: In addition to the wind and precipitation common to other storms, snowstorms leave 2d6 centimeters of snow on the ground afterward.

Thunderstorm: In addition to wind and precipitation (usually rain, but sometimes also hail), thunderstorms are accompanied by lightning that can pose a hazard to characters without proper shelter (especially those in metal armor). As a rule of thumb, assume one bolt per minute for a 1-hour period at the center of the storm. Each bolt causes electrical damage equal to 1d10 eight-sided dice. One in ten thunderstorms is accompanied by a Tornado.

Powerful Storms: Very high winds and torrential precipitation reduce visibility to zero, making Spot and Search rolls, Listen checks, and all ranged weapon attacks impossible. Unprotected flames are automatically extinguished, and even protected flames have a 75% chance of being doused. Creatures caught in the area can make a Fortitude saving throw (DC 20) or face the following effects

WIND EFFECTS

Wind Force	Wind Speed	Ranged Attacks (Normal/Heavy Weapons•)	Creature Size••	Wind Effect on Creatures	Fort Save DC
Light	0-15 kph	-/-	Any	None	-
Moderate	16-30 kph	-/-	Any	None	-
Strong	31-50 kph	-2/-	Tiny or smaller	Knocked down	10
			Small or larger	None	
Severe	51-80 kph	-4/-	Tiny	Blown away	15
			Small	Knocked down	
			Medium-size	Checked	
			Large or larger	None	
Windstorm	81-120 kph	-10/-4	Small or smaller	Blown away	18
			Medium-size	Knocked down	
			Large or Huge	Checked	
			Gargantuan or Colossal	None	
Hurricane	121-280 kph	Impossible/-8	Medium-size or smaller	Blown away	20
			Large	Knocked down	
			Huge	Checked	
			Gargantuan or Colossal	None	
Tornado	281-500 kph	Impossible/impossible	Large or smaller	Blown away	30
			Huge	Knocked down	
			Gargantuan or Colossal	Checked	

•Wind effects are as follows:

Checked: Creatures are unable to move forward against the force of the wind. Flying creatures are blown back 1d10 meters.

Knocked Down: Creatures are knocked prone by the force of the wind. Flying creatures are instead blown back 1d10 meters.

Blown Away: Creatures on the ground are knocked prone and rolled 1d12 meters, sustaining 1d4 points of Stamina damage per 3 meters. Flying creatures are blown back 2d10 meters and sustain 2d6 points of Stamina damage due to battering and buffering.

based on the size of the creature. Powerful storms are divided into the following four types:

Windstorm: While accompanied by little or no precipitation, windstorms can cause considerable damage simply through the force of their wind (see the Wind Effects table).

Blizzard: The combination of high winds (see the Wind Effects table), heavy snow (typically 10d10 cm), and bitter cold make blizzards deadly for all who are unprepared for them.

Hurricane: In addition to very high winds (see the Wind Effects table) and heavy rain, hurricanes may be accompanied by flash floods (see below). Most adventuring activity is impossible under such conditions.

Tornado: One in ten Thunderstorms is accompanied by a tornado (see the Wind Effects table).

Fog: Whether in the form of a low-lying cloud or a mist rising from the ground, fog obscures all sight, including infrared sensors, beyond 1.5 meters. Creatures within 1.5 meters have one-half concealment (attacks by or against them have a 20% miss chance).

Flash Floods: Runoff from heavy rain forces creatures in its path to make a Fortitude save (DC 15). Creatures of size Large or smaller who fail the save are swept away by the rushing water, taking 1d6 points of Stamina damage per round (1d3 points on a successful Swim check). Huge creatures who fail are knocked down and face potential drowning. Gargantuan and Colossal creatures are checked, but they only drown if the waters rise above their heads.

OTHER DANGERS

Use the following guidelines to cover the other sorts of dangers a character can face.

ACID

Corrosive acid deals 1d6 points of damage per round of exposure except in the case of total immersion (such as into a vat of acid), which deals 10d6 points of damage per round. An attack with acid, such as from a hurled vial, counts as a round of exposure.

The fumes from most acids cause damage upon inhalation. Those who come close enough to a large body of acid (often found on exotic, corrosive or insidious atmosphere worlds) to dunk a creature in it must make a Fortitude save (DC 13) or take 1 point of Lifeblood damage. All such characters must make a second save 1 minute later or take another 1d4 points of Lifeblood damage.

Creatures immune to acid's caustic properties might still drown in it if they are totally immersed.

CORROSIVE ATMOSPHERE

A corrosive atmosphere is unbreathable to humans and most lifeforms in general, inflicting 1d6 points of Lifeblood damage to lifeforms for each round of inhalation.

In addition, these atmospheres are typically at extreme temperatures (either extremely hot or extremely cold) which would be enough to quickly and easily kill a person.

Those whose skin is partially exposed to a corrosive atmosphere (say by vac suit failure) must make a Fortitude save (DC 13) or take 1 point of Stamina damage per minute of exposure. Those who are fully exposed (i.e. have no suit but perhaps a breathing mask) make the same save and suffer 1d6 points of Stamina damage and 1 point of Lifeblood damage per minute of exposure if it is failed.

A Vac Suit, while sufficient to protect a lifeform from the effects of a corrosive atmosphere, will begin to break down (-1 AR per hour) after 24 hours of repeated exposure due to the acidic effects. Once a Vac Suit reaches 0 AR or lower suit failure automatically occurs. Hostile Environment Suits and pressurized vehicles are immune to this corrosive effect.

CYROGENIC FLUIDS

Cryogenic fluids are the very cold liquids, like Liquid Hydrogen, found as vehicle or starship fuel, used in Low Berths, or carried as cargo. Cryogenic liquids deal 2d6 points of damage for splash hits, up to 20d6 points for total immersion. Sealed armor, such as a vac suit, combat armor, hostile environment suit, or battle dress will reduce this damage normally. Unsealed armor has no effect against this type of damage.

EXOTIC ATMOSPHERE

Exotic atmospheres are not safely breathable by most lifeforms, but are not otherwise generally dangerous. This is often due to unusual biological or chemical compounds within the atmosphere that can cause adverse effects. These compounds sometimes cause damage and at other times have more specific effects. If exposed to an Exotic atmosphere, a character will suffer the effects of suffocation in addition to any other effects listed in the description of the planetary atmosphere.

FALLING OBJECTS

Just as characters take damage when they fall more than 3 meters, so too do they take damage when they are hit by falling objects. Objects that fall upon characters deal damage based on their weight and the distance they have fallen.

For each 90kg of an object's weight, the object deals 1d6 points of damage, provided it falls at least 3 meters. Distance also comes into play, adding an additional 1d6 points of damage for every 3-meter increment it falls beyond the first (to a maximum of 20d6 points of damage).

Objects smaller than 90kg also deal damage when dropped, but they must fall farther to deal the same damage. Use the Damage from Falling Objects table to see how far an object of a given weight must drop to deal 1d6 points of damage.

DAMAGE FROM FALLING OBJECTS

Object Weight	*Falling Distance*
90-46 kg.	6 meters.
45-24 kg.	9 meters.
23-15 kg.	12 meters.
14-4.6 kg.	15 meters.
4.5-2.4 kg.	18 meters.
2.3kg-500gr.	21 meters.

For each additional increment an object falls, it deals an additional 1d6 points of damage. For example, since a 15kg metal sphere must fall 15 meters to deal damage (1d6 points of damage), such a sphere that fell 45 meters would deal 3d6 points of damage. Objects weighing less than 500 grams do not deal damage to those they land upon, no matter how far they have fallen. For any object which is totally unyielding (e.g. rock or metal) or which is well shaped to cause damage (a weapon or stalactite), double the damage it causes when it falls.

ICE

Characters walking on ice must make Balance checks (DC 15) to avoid slipping and falling. Over long distances, a character must make a check each minute. Characters in prolonged contact with ice may run the risk of cold damage.

INSIDIOUS ATMOSPHERE

Insidious atmospheres are the most dangerous types of atmospheres to deal with, since nothing is safe from their effects. Unprotected characters suffer 2d6 points of damage per round of exposure. Damage continues for 1d3 rounds after exposure ceases, but this additional damage is only half of that dealt during actual contact (that is, 1d6 points per round).

Vac suits are useless in an insidious atmosphere, but a Hostile Environment Suit or pressurized vehicle will last 6 hours before beginning to succumb to the effects at a rate of -2 AR per 15 minutes of additional exposure. Once a Hostile Environment Suit reaches 0 AR or lower suit failure automatically occurs.

LACK OF AIR/HYPOXIA

Characters in conditions of low oxygen, such as on top of a mountain, must roll a Fortitude saving throw each hour (DC 15, +1 per previous check), taking 1d6 points of Stamina damage each time they fail.

A character who sustains any Stamina damage from lack of oxygen is automatically fatigued. These penalties end when the character recovers the Stamina damage he took from low oxygen.

Hypoxia: Long-term oxygen deprivation due to low atmospheric pressure (typically high altitude) or other causes, affects mental and physical ability scores. After each 6-hour period a character spends at an altitude of over 6 kilometers, he must make a Fortitude save (DC 15, +1 per previous check) or take 1 point of temporary damage to all ability scores.

LAVA

Lava or magma deals 2d6 points of Stamina damage per round of exposure, except in the case of total immersion (such as when a character falls into the crater of an active volcano), which deals 20d6 points of lifeblood per round. Damage continues for 1d3 rounds after exposure ceases, but this additional damage is only half of that dealt during actual contact (that is, 10d6 points per round).

An immunity or resistance to heat or fire serves as an immunity to lava or magma.

PRESSURE BREACH

The interior of starships in space, vehicles used in deep water, along with buildings on vacuum, trace, exotic, corrosive, or insidious atmosphere worlds are typically pressurized, allowing those inhabitants within to live and work without the use of a pressure suit. In the event that such an environment should lose internal pressure through any reason other than the normal use of airlocks, will cause compression (if the outside pressure is higher) or decompression (if the outside pressure is lower).

If a path of open hatches, iris valves, doors (any type, open or closed), internal walls (if they are not airtight), and/or breached bulkheads can be traced from a location in the vessel to a pressure breach, then all locations along that path become exposed, resulting in compression or decompression. Iris valves and hatches may not be opened if there is a difference of pressure on either side (i.e. they will not function if there is pressure on one side and vacuum on the other side).

Rate of Compression: A 1-ton (14 cu. meter) area will compress at a rate of 0.1 atmosphere X the difference in outside air pressure every 12 seconds from a hole 100 square centimeter in size. Thus a 100-ton ship on a planet with an atmospheric pressure of 10 would increase from 1 atmosphere to 10 atmosphere in a period of 2 minutes from a 100 sq. cm hole. The rate of compression scales up and down proportionally to the size of the hole.

If the rate of compression is enough to raise the pressure 1 full atmosphere or more in a single round, exposed victims must make a Fortitude save (DC15) to avoid getting the 'bends' or pressure sickness. A failed save will inflict 1d6 Lifeblood damage per 1 full atmosphere of change.

Rate of Decompression: A 1-ton (14 cu. meter) area will decompress at a rate of 0.1 atmosphere every 12 seconds from a hole 100 square centimeter in size. Thus a 100-ton ship would drop from 1 atmosphere to 0.1 atmosphere (effective vacuum) in a period of 20 minutes from a 100 sq. cm hole. The rate of decompression scales up and down proportionally to the size of the hole.

If the rate of decompression is enough to drop the pressure 1 full atmosphere or more in a single round, an explosive decompression occurs (see below). In addition, survivors of the explosive decompression must make a Fort save (DC15) to avoid getting the 'bends' or pressure sickness. A failed save will inflict 1d6 Lifeblood damage per 1 full atmosphere of change.

Explosive Decompression: Any lifeform unprotected and exposed must make a Reflex save (DC15) to avoid holding their breath. Characters with the Armor Proficiency (Vac Suit), Armor Proficiency (Battle Dress), or Zero-G and Low Gravity Adaptation feat may add +2 to their saving throws due to training and experience. If the saving throw is failed, the character held their breath, resulting in lung damage. The character must now make a second Reflex save (same DC and modifiers) to realize their mistake fast enough to avoid too much damage. If this second save is successful, the character takes 3d6 Lifeblood damage (which can reduce the victim to a minimum of 1 Lifeblood). If the save fails, immediately reduce their Lifeblood rating to 0, and the character is dying.

A character in a decompressed area is now subject to vacuum exposure.

Robots, along with lifeforms in sealed vac suits, battle dress, or combat armor are immune to the effects of explosive decompression.

Signs of Atmospheric Change: The following signs can be used by the Referee to give characters a hint that they are facing a change in atmospheric pressure:

(a) Explosive Noise. When a rapid change of pressure occurs it is usually accompanied by a loud explosive noise when the two air masses meet.

(b) Flying Debris. As the air is rapidly drawn out of a spacecraft or aircraft at altitude, unsecured items within the cabin with also be drawn toward the point of rupture. Most anything of 1kg or less will become a hurtling projectile, some very capable of inflicting serious damage if they should happen to strike anyone in their path. The Referee may wish to have characters in such a situation make a Reflex save (DC10 to 15) to avoid getting hit by debris for 1d6 damage.

(c) Fogging. Sudden changes in temperature or pressure, or both, can create a temporary fog within the cabin during the event.

(d) Temperature. If a decompression occurs, temperature will be reduced rapidly. Chilling and frostbite may

RADIATION DAMAGE

Severity	*Rads*	*Stamina*	*Lifeblood*	*CON**	*Symptoms*
Mild	51-150	1d6	-	-	Mild to moderate nausea and vomiting
Moderate	151-300	2d6	1d4	-1 once	Hair loss, mild skin burns, nausea, vomiting
Severe	301-500	2d10	2d6	-1 per hour	Hair loss, moderate skin burns, nausea, vomiting, internal bleeding.
Extreme	501-800	3d10	2d10	-2 per hour	Hair loss, severe skin burns, nausea, vomiting, internal bleeding, sterility
Lethal	800+	4d10	3d10	-4 per hour	Hair loss, massive skin burns, nausea, vomiting, internal bleeding, sterility

* Requires a Fortitude save (DC10 + 2 per 100 rads of exposure), to avoid this permanent loss to Constitution.

Solar Flares: The effects of a solar flare will last 1d12 hours during which time it will bombard any exposed living creature to 100x1d20 rads per hour.

occur if protective clothing is not worn or available. If compression occurs, temperatures will rise rapidly to match the outside temperature.

(e) Pressure. A compression or decompression event is accompanied by a rapid change in air pressure, cause the ears to pop, sinuses to clog, etc.

RADIATION

Radiation occurs from many sources; Nuclear bombs, Meson guns, solar flares, some power plant fuels are all sources of radiation. Some planets may also be heavily radiated due to any number of factors including large concentrations of heavy metals and other radioactive elements, stellar bombardment, or even ancient wars.

Radiation occurs in two modes, burst and continuous. Radiation bursts, like from a nuclear bomb blast, do normal stamina/lifeblood damage, but personal armor has no effect (vehicle and starship armor still apply normally).

Continuous radiation exposure, like from solar flares or nuclear fuel rods, cause damage based on the level of exposure measure in Rads (see the Radiation Damage table above), for each hour of exposure.

SMOKE OR HEAVY DUST

A character who breathes heavy smoke must make a Fortitude saving throw each round (DC 15, +1 per previous check) or spend that round choking and coughing. A character who chokes for two consecutive rounds takes 1d6 points of Stamina damage.

Smoke obscures vision, giving one-half concealment (20% miss chance) to characters within it.

SUFFOCATION

A character who has no air to breathe can hold her breath for 1 round per point of Constitution. After this period of time, the character must make a Constitution check (DC 10) in order to continue holding her breath. The save must be repeated each round, with the DC increasing by +1 for each previous success.

When the character fails one of these Constitution checks, she begins to suffocate. In the first round, she falls unconscious (0 Stamina). In each subsequent round, she loses 1d6 Lifeblood until she suffocates to death.

Slow Suffocation: A Medium-size character can breathe easily for 6 hours in a sealed chamber measuring 3 meters on a side. After that time, the character takes 1d6 points of Stamina and 1 point of Lifeblood damage every 15 minutes. Each additional Medium-size character or significant fire source (a torch, for example) proportionally reduces the time the air will last. Thus, two people can last for 3 hours, after which they each take 1d6 stamina and 1 Lifeblood damage per 15 minutes. If a fire or other flame is present (equivalent to another Medium-size character in terms of the air it uses), the air runs out in only 2 hours.

VACUUM EXPOSURE

A character who is exposed to vacuum without protection suffers effects similar to suffocation, but due to the nature of a vacuum the character cannot hold her breath. To do so would be extremely harmful. (see Explosive Decompression for more information). While exposed to a vacuum a character can survive for 1 round per 2 points of Constitution. After this period of time, the character must make a Constitution check (DC 20) in order to continue to

SAMPLE ENCOUNTER TABLE

CLEAR Terrain		Regina (A788899-A)						
1d6	*Animal*	*Size*	*SP/LB*	*AC/AR*	*Attacks and Damage*	*AFS*	*S/D/C*	*F/R/W*
1	1d6 Grazers	Small (6kg)	2/6	17/8	Claws +0 (1)	A+ F9 S3	3/6/6	+1/+2/+6
2	Hunter	Small (25kg)	8/7	13/0	Slap +5 (1d3-2)		7/14/7	+1/+7/+5
3	1d6 Grazers	Large (400kg)	10/11	11/6	Slap +0 (2d4+5)		21/3/11	+0/+6/+0
4	Intimidator	Large (1200kg)	42/16	5/0	Bite +2 (2d6+2), Slap +2 (2d6+2)		15/3/16	+3/+4/+4
5	1d6 Hunters	Large (600kg)	19/12	12/3	Gore +4 (1d10), Kick +4 (1d10)		11/11/12	+6/+2/+2
6	Gatherer	Medium (200kg)	19/11	10/0	Bite +0 (2d4+1)		13/10/11	+0/+12/+3

The top line of the encounter table should denote the type of terrain the table is to be used for, and the planet for which the table was generated (including the UWP rating for the world).
Animal: The number and type (or name) of animal encountered.
Size: The size of each animal by d20 size category and weight.
St/Lb: Each animal's average Stamina and Lifeblood ratings.
AC/AR: The Armor Class and Armor Rating of each creature in the group.
Attacks and Damage: The type of attacks the creature may utilize and the amount of damage such an attack may inflict.
AFS: The Attack - Flee - Speed factors of each animal in the group.
S/D/C: The Strength, Dexterity, and Constitution scores for the animals.

survive. The save must be repeated each round, with the DC increasing by +1 for each previous success.

When the character fails one of these Constitution checks, she falls unconscious (0 stamina). In each subsequent round, takes 1d6 Lifeblood damage until she dies.

ANIMAL ENCOUNTERS

Animals in any ecological system interact with each other, forming food chains, obeying instincts, defending territory, and generally living out their lives. When people enter such an ecological system, they will encounter the animals of the system, prompting natural reactions, such as attack or flight.

Although the precise nature of animals may change, and they may prove quite alien to ordinary experience, most will conform to the broad classifications given below. A Referee may choose to establish his own ecological system on a specific world, ignoring the encounter system outlined here. This system, however, is intended to allow broad latitude in both animal types and attack/defense mechanisms, while remaining essentially logical and reasonable.

Animal Types: Nearly all animals may be classified into four basic categories: herbivore, omnivore, carnivore, and scavenger. Specific definitions for these terms are provided in a later section of these rules, and differ from the precise scientific definitions in current use. Within each category, a variety of animal types exist, based on specific feeding/hunting habits; examples of this concept are grazers, chasers, and pouncers.

Animals which are encountered may be classified into various categories and types, and specific attack and defense mechanisms determined. The resulting description indicates the actions an animal will take without resorting to such confining labels as bear or tiger. While a Referee may well elect to use such names, this system also allows the players freedom to encounter truly alien beasts as well.

USING AN ENCOUNTER TABLE

Each day, an adventuring band may possibly have one or more encounters with some animal life forms. As a general rule, the Referee will check for an encounter once while the band is travelling and once while the band is halted (for rest, exercise, encampment, or whatever). There is a one-third chance (DC7 to avoid) that an animal encounter will occur in any of the specified terrain types. The Referee may choose to modify this frequency depending on planetary or local conditions.

In addition, specific encounters at specific locations are always possible. For example, the Referee may already have populated a location (perhaps a ruin) with specific animals. These are not subject to normal random encounter rules.

Procedure: Twice each day, the Referee will throw to determine if an encounter occurs. If a band splits temporarily, each portion of the band should be liable for an independent encounter. When an encounter does occur, the correct (based on terrain type) encounter column is then used to ascertain the class, type, quantity, and characteristics of the animal encountered (in some circumstances the encounter column may indicate that a non-animal event has been encountered instead. The encounter range is determined using the Encounters rules on pg. 144.

Animal Descriptions: The Referee may elect to describe animals in order to create a better image in the adventurers' minds. The basic system may be used without this aspect, but descriptions such as lion-like, amoeboid, etc. may prove useful.

The table on page 389 is an example of typical animal encounter table, showing the format for presentation of the information and for easy use of the encounters. The table is clearly headed with the type of terrain, and with the world on which the terrain occurs.

Note that each line is a single encounter. For example, die roll 6 indicates that the party has encountered 8 grazers of 400kg each, probably feeding in the clear terrain. They can take 25 hits before unconsciousness, and another 15 hits before dying. They are unarmored, and use hooves for weapons (inflicting 14 Stamina damage each time they hit). They will flee on 1+, attack on 7+ if they have not already fled, and have a speed of 4 times ordinary.

TERRAIN TYPES

Terrain Type	*Terrain Equivalent*	*Subspecies Mod*	*Size Mod*
Clear	Road, Open	+3	-
Prairie	Plain Steppe	+4	-
Rough	Hills, Foothills	-	-
Broken	Badlands	-3	-3
Mountain	Alpine	-	-
Forest	Woods	-4	-4
Jungle	Rainforest	-3	-2
River	Stream, Creek	+1	+1
Swamp	Bog	-2	+4
Marsh	Wetland	-	-1
Desert	Dunes	+3	-3
Beach	Shore, Sea Edge	+3	+2
Surface	Ocean, Sea	+2	+3
Shallows	Ocean, Sea	+2	+2
Depths	Ocean, Sea	+2	+4
Bottom	Ocean, Sea	-4	-
Sea Cave	Sea Cavern	-2	-
Sargasso	Seaweed	-4	-2
Ruins	Old City	-3	-
Cave	Cavern	-4	+1
Chasm	Crevasse, Abyss	-1	-3
Crater	Hollow	-	-1

CREATING ANIMAL ENCOUNTER TABLES

Once the encounter table format has been decided upon, the Referee notes the terrain type for the table, and consults the terrain types table. Any applicable modifiers are recorded. The Referee refers to the Animal Types table and rolls two dice for the animal category involved. The result is the animal type for the entry. The Special Attributes table is consulted to determine if the animal has any special characteristics, such as the ability to fly or swim. The Animal Sizes and Weaponry table is consulted to determine the animal's size, wound potential, weaponry, and armor. Finally, the Characteristics table is consulted to note the animal's predisposition to attack or flee, and its speed.

When events are called for on the encounter table, the Referee should insert an event from those described

ANIMAL ENCOUNTERS

2d6 Column Die		*Category*	*1d6 Column Die*		*Category*
2	S	Scavenger	1	S	Scavenger
3	O	Omnivore	2	H	Herbivore
4	S	Scavenger	3	H	Herbivore
5	O	Omnivore	4	H	Herbivore
6	H	Herbivore	5	O	Omnivore
7	H	Herbivore	6	C	Carnivore
8	H	Herbivore			
9	C	Carnivore			
10	E	Event			
11	C	Carnivore			
12	C	Carnivore			

in these rules, or generate additional events appropriate to the situation.

A) TERRAIN TYPE

The Referee should determine the local terrain type from the Terrain Types table. This table will determine specific modifiers that will be used later in steps 2 (Animal Subspecies) and step 4 (Animal Size).

B) ENCOUNTER TABLE TYPE

There are two types of encounter tables that may be generated, a 1d6 and a 2d6-based table. Which type should be used is up to the Referee, as the only difference is the number of entries on each. When generating a new creature, the Referee rolls on this table to determine the basic category of animal the creature is: carnivore, omnivore, scavenger, or herbivore.

1) ANIMAL CATEGORY

Nearly all animals may be classified into four basic categories: herbivore, omnivore, carnivore, and scavenger. Specific definitions for these terms are provided below, and differ from the precise scientific definitions in current use.

Scavengers: Animals that share or steal the prey of others, or that take the remains of kills, are classed as scavengers.

Herbivores: Animals that eat unresisting food are generally classed as herbivores. While this is usually construed as covering plant eaters, the definition is extended here to cover the eating of unresisting animals as well. For example, the anteater and the whale eat effectively unresisting animals (ants and krill) and should be classified as herbivores.

Omnivores: Animals that eat food without regard to its resistance are termed omnivores. The bear, which will eat fruits and berries as readily as it will hunt for animals, is an omnivore.

Carnivores: Animals that prey on other animals by attacking and killing them in the face of resistance are classed as carnivores.

EVENTS

Events are not necessarily animals, comprising instead both geographic and geological dangers, and special types of animals not ordinarily encountered. The following examples are provided, but more should be generated by the Referee to cover the wide range of possibilities in the universe.

Ravines and Precipices: The party has encountered unexpected geographic features, which will retard progress by one day if travel is overland. If the encounter occurs at close range (to a party on foot), the lead member of the party will probably fall (make a Dexterity check (DC12) to avoid falling), receiving 1d6 x10 in Stamina damage, and 2d6 in Lifeblood damage. If this event occurs at close or short range to a party in a land vehicle, it will topple (make a driving skill check to avoid, DC12); modifier of -1 per 10 kph of speed), inflicting 1d6 x5 Stamina and 1d6 Lifeblood damage to each person in the vehicle.

Seismic Quake: A seismic disturbance occurs. Each adventurer must make a Strength check (DC15) to avoid being thrown to the ground and taking 6d6 Stamina damage (a successful Dexterity check (DC12) to halve this damage).

Meteor Shower: Possible only on airless worlds or in asteroid belts, the meteor shower can puncture vacc suits or vehicles. Throw 2d10 to determine the size and strength of the shower. The result indicates the number of adventurers hit; each one hit must make a Reflex save (DC = size of the shower) to avoid a vacc suit puncture. If the size of the shower is 10+, the shower may puncture a vehicle on a basic check against a DC equal to the strength of the shower. If it does, those inside must roll for injuries as above.

Storm: A violent rainstorm occurs abruptly, forcing the band to stop and seek shelter, or to continue the journey with increased danger. See Weather Hazards, pg. 385 for more information.

Animals: Distantly viewed (or heard) animals.

Plants: Animated vines, tangled underbrush, fire hazards, hallucinogenic (or allergenic) pollen.

Terrain: Bad water, radiation areas, ruins or statues or other lost civilization artifacts.

DETERMINING ANIMAL CATEGORY

Roll on the appropriate Animal Encounters table from Setup Step B above, to determine category type of animal encountered. For example, using the 2d6 based encounter table you roll a 9 on 2d6 to determine that the new animal is a Carnivore. If we used the 1d6 table instead and had rolled a 5, the animal would be an Omnivore instead.

2) ANIMAL SUBSPECIES

Animals which are encountered may be classified into various categories and types, and specific attack and defense mechanisms determined. The resulting description indicates the actions an animal will take without resorting to such confining labels as ‘bear’ or ‘tiger’. While a Referee may well elect to use such names, this system also allows the players freedom to encounter truly alien beasts as well.

Within each animal category, a variety of animal subspecies exist, based on specific feeding/hunting habits; examples of this concept are grazers, chasers, and pouncers. The following definitions more fully detail the meanings of the descriptive terms used for animal categories, types, and events.

HERBIVORES

Herbivores are of three types:

Grazers: Animals that devote most of their time to eating are termed grazers. They may be solitary or grouped in herds. Their primary defense is flight, although such action may result in stampedes that could endanger adventurers in their path. When forced to fight, they will fight fiercely until killed or routed. Typical Terran grazers are the antelope and the moose. The whale (which scoops krill from the sea at it swims through it) is also a grazer.

Intermittent: Herbivores that do not devote full time to eating are termed intermittents. They tend to be solitary. Intermittents usually freeze when an encounter occurs, fleeing if attacked by a larger animal. There is some potential that an intermittent will attack to protect territory or young. Typical Terran intermittents are the chipmunk and the elephant.

Filters: Herbivores that pass the environment through their bodies are termed filters. Unlike grazers, which move to food, filters move a flow of water or air through themselves in order to gain food. Generally, filters suck, trip, push, or pull anything (even animals) at close range into a digestive sac, inflicting automatic wounds of 3d6 Stamina per 50 kg or less of animal mass (wound alteration should be ignored for filters). Filters are often solitary and generally slow-moving. They will attack reflexively (as indicated above), succeeding against adventurers with a normal attack. Prompt struggle by adventurers will secure an escape with a Strength check (DC 11), a modifier of +2 for each companion at close range assisting. Throw once per combat round, beginning on the round following the attack. A filter can absorb an animal up to twice its own weight. Terran filters are generally aquatic, such as the barnacle.

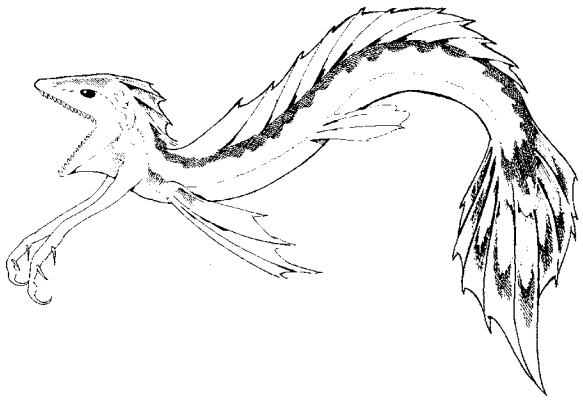
OMNIVORES

Omnivores are of three types: gatherers, hunters, and eaters.

Gatherers: Animals that display a greater tendency toward herbivorous behavior are termed gatherers. In most respects, they are similar to intermittents. Typical Terran gatherers are the raccoon and the chimpanzee.

Hunters: Animals that display a greater tendency toward carnivorous behavior are termed hunters. In most respects, they are similar to small or inefficient chasers. Typical Terran hunters are bears or humans.

Eaters: The true omnivore (in the sense that it will eat anything and everything) does not distinguish its food, consuming all that it confronts. Eaters present considerable danger in that they will not avoid adventurers when encountered. A typical Terran eater is the army ant (when an entire swarm is considered to be one organism).



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CARNIVORES

Carnivores are of five basic types: pouncers, chasers, trappers, sirens, and killers.

Pouncers: Animals that kill their prey by attacking from hiding or by stalking and springing are termed pouncers. Because of the difficulty of coordinating such attacks, pouncers are usually solitary animals. In an encounter, pouncers which have achieved surprise have succeeded in their basic aim and will attack regardless of range. If they do not have surprise, they will sometimes still attack. They will flee if they themselves are surprised. Typical Terran pouncers are cats.

Chasers: Animals that kill their prey by attacking after a chase are termed chasers. They tend to be pack animals. Typical chasers are wolves.

Trappers: Animals that passively allow their prey to enter a created trap wherein they are killed and then eaten are termed trappers. Trappers tend to be solitary and slow, but will attack any animal that enters their trap (treat as the Entangle special ability). Companions are subject to capture by the trap while providing assistance. Usually, a trap

will not wound or damage a character, but will tend to hold the adventurer to allow the trapper to attempt to kill him. A typical Terran trapper is the spider; less typical is the ant lion.

Siren: Distinct from the trapper, which creates a trap for its prey, a siren also creates a lure to draw prey to the trap. The trap is treated in much the same manner as that of the trapper, but the lure entails additional consideration. In most cases, the lure will be specific to some animal, but will be unnoticed by humans. In rare cases (roll vs. DC18) the lure will be universal, perhaps a smell or scent, or a mirage or beautiful configuration, which will attract characters into a vulnerable position. Very rarely, the lure will be psionic in nature. Typical Terran sirens are the angler fish (its mouth is the trap) and the Venus Flytrap.

Killers: Certain carnivores devote much attention to killing, sometimes apparently for the sake of it. The normal reason for killing other animals (such as territorial defense) are replaced by bloodlust or a raw killing instinct. Attacks by killers are fierce and violent. Killers will generally disregard the defender's size as a factor. The typical Terran killer is the shark.

ANIMAL SUBSPECIES

Die	*Herbivore*	*Omnivore*	*Carnivore*	*Scavenger*
0	Filter (1d6)	Gatherer	Siren	Carrion-eater (1d6)
1	Filter	Gather	Pouncer	Carrion-eater (2d6)
2	Filter	Eater	Siren	Reducer (1d6)
3	Intermittent	Gatherer	Pouncer	Hijacker (1d6)
4	Intermittent	Eater (2d6)	Killer (1d6)	Carrion-eater (2d6)
5	Intermittent (1d6)	Gatherer	Trapper	Intimidator (1d6)
6	Intermittent	Hunter	Pouncer	Reducer
7	Grazer	Hunter (1d6)	Chaser	Carrion-eater (1d6)
8	Grazer (1d6)	Hunter	Chaser (3d6)	Reducer (3d6)
9	Grazer (1d6)	Gatherer	Chaser	Hijacker
10	Grazer (1d6)	Eater (1d6)	Killer	Intimidator (2d6)
11	Grazer (1d6)	Hunter (1d6)	Chaser (2d6)	Reducer (1d6)
12	Grazer (1d6)	Gatherer	Siren	Hijacker
13	Grazer (1d6)	Gatherer	Chaser (1d6)	Intimidator (1d6)

Roll 2d6 to determine the subspecies based on the category of the animal.

Table Modifiers:
* Apply any Subspecies modifiers from the Terrain Type table.

SCAVENGERS

Scavengers are of four types: intimidators, hijackers, carrion-eaters, and reducers.

Intimidators: Scavengers that establish their claim to food by frightening or threatening other animals are termed intimidators. Their standard procedure is to approach a kill and force other animals away by appearing to be a threat. A typical Terran intimidator is the coyote.

Hijackers: Scavengers that establish their claim to food by simply taking it are termed hijackers. They rely on their superior strength or size to allow them to hijack food because the other animals present cannot effectively object. A typical Terran hijacker is the lion or the Tyrannosaurus Rex.

Carrion-Eaters: Scavengers that take dead meat when it becomes available (often waiting patiently for all other threats to disperse before beginning) are termed carrion-eaters. Most typical of Terran carrion-eaters is the vulture.

Reducers: Scavengers that act constantly on all available food are termed reducers. They eat the remains of food after all other scavengers are finished with it, consuming bone and other leavings. Terran reducers are all microscopic, such as bacteria.

DETERMINING ANIMAL SUBSPECIES

Roll 2d6, adding any terrain type modifiers for subspecies, and consult the Animal Subspecies table above. This will determine the exact type of animal encounters based on its category. For example, having already determined that a new animal is a herbivore, we roll 2d6 for a total of 8, subtract -3 for broken terrain, for a final roll of 5. Looking on the Animal Subspecies chart under Herbivore we see that 1d6 Intermittents have been encountered.

3) SPECIAL ATTRIBUTES

Animals which adventurers will encounter will tend to be walkers, but may be flyers, swimmers, amphibians, or even triphibians. Four special attribute types are possible on the table that follows.

Flyers: Animals capable of flying through the use of

ANIMAL SPECIAL ATTRIBUTES

Die	Beach	Marsh	River	Sea	Swamp	Other
2	Swimmer (+1)	Swimmer (–6)	Swimmer (+1)	Swimmer (+2)	Swimmer (–3)	-
3	Amphibian (+2)	Amphibian (+2)	Amphibian (+1)	Swimmer (+2)	Amphibian (+1)	-
4	Amphibian (+2)	Amphibian (+1)	-	Swimmer (+2)	Amphibian (+1)	-
5	-	-	-	Amphibian (+2)	-	-
6	-	-	-	Amphibian	-	-
7	-	-	-	Swimmer (+1)	-	-
8	-	-	-	Swimmer (–1)	-	-
9	-	-	-	Triphibian (–7)	-	-
10	-	-	-	Triphibian (–6)	-	-
11	Flyer (–6)	Flyer (–6)	Flyer (–6)	Flyer (–6)	Flyer (–6)	Flyer (–5)
12	Flyer (–5)	Flyer (–5)	Flyer (–5)	Flyer (–5)	Flyer (–5)	Flyer (–3)

Roll 2d6 and compare to the appropriate terrain type.

Table Modifiers:

- If the world size if 9 or larger, subtract –1 from the roll.
- If the world size is 4 or 5, add +1 to the roll.
- If the world size is 3 or smaller, add +2 to the roll.
- If the local atmosphere is rated 8 or higher, add +1 to the roll.
- If the local atmosphere is rated 5 or less, subtract –1 to the roll.

wings, levitating gas sacs, or other mechanisms.

Swimmers: Animals living in liquid and swimming through the use of fins, flippers, jets, or other mechanisms.

Amphibians: Animals living in liquid, but capable of emerging onto land.

Triphibians: Animals living in liquid, but capable of walking on land and flying in the air.

DETERMINING SPECIAL ATTRIBUTES

Roll 2d6 and cross-reference the roll result with the appropriate terrain type. Certain entries on the table are followed by a parenthetical modifier that must be applied to the animal size roll; its general effect is to make flyers smaller and swimmers larger. Note the special attribute (if any) on the blank encounter column being filled in. Record any size modifier temporarily for use in step 4 (Animal Size).

4) ANIMAL SIZE

Animals range in size from tiny (massing about 270 grams) to colossal (massing 113 metric tons or greater), and their size determines a variety of their characteristics:

Size: The creature's standard d20 size designation.

Weight: The average weight of the creature in kilograms.

Str, Dex, and Con: These columns list the dice rolls used to determine the Strength, Dexterity, and Constitution ability scores for the creature. No creature will have a Str, Dex, or Con score of less than 1 regardless of the rolled result.

Stamina Dice: This column gives the number of Stamina Dice the creature. The type of dice used to determine a creature's stamina total is based on the animal type:

Carnivore: d10
Scavenger: d8
Omnivore: d6
Herbivore: d4

Damage: This column shows the damage each of the creature's natural attacks deals.

DETERMINING ANIMAL SIZE

Roll 1d20 and consult the Size, Weight, Str, Dex, Con, and Stamina Dice columns (rolling only once for all seven). If the result is (+6), roll again and add +6 to the result before consulting this table again.

TABLE MODIFIERS:

• Apply and size modifiers based on the Terrain Type or Special Abilities.
• If the size of the planet is 8 or larger, subtract -1 from the roll.
• If the planet size is 4 or smaller, add +1 to the roll.
• If the creature is a Carnivore, add +4 to the final Dex score.
• If the creature is an Omnivore, add +2 to the final Dex score.
• If the creature is a Herbivore, subtract -2 from the final Dex score (min. 1).
• If creature is an infant, reduce the result by -5.
• If the creature is a child, reduce the result by -3.
• If the creature is a young adult, reduce the result by -1.
• If the creature is middle-aged, reduce its Str, Dex, Con, Stamina, and Damage result by -1 row.
• If the creature is old, reduce its Str, Dex, Con, Stamina, and Damage result by -2 rows.
• If the creature is venerable, reduce its Str, Dex, Con, Stamina, and Damage result by -3 rows.

ANIMAL SIZE

1d20	Size	Average Weight	Str	Dex	Con	Stamina Dice
1	Diminutive	Less than 1kg	1d6-2	3d6	1d6-2	1 point
2	Diminutive	1kg	1d6-1	4d6	1d6-1	1/4 die
3	Tiny	2 kg	1d6	4d6-1	1d6	1/2 die
4	Tiny	3 kg	1d6	4d6-2	2d6-1	1 die
5	Small	6 kg	2d6-1	3d8	2d6-1	1 die
6	Small	12 kg	2d6	3d8-1	2d6	1+1 dice
7	Small	25 kg	2d6	3d8-2	3d6-2	2 dice
8	Medium	50 kg	3d6-2	3d6+2	3d6-2	2+2 dice
9	Medium	75 kg	3d6-1	3d6+1	3d6-1	3 dice
10	Medium	100 kg	3d6	3d6	3d6	3+1 dice
11	Medium	150 kg	3d6+1	3d6-1	3d6+1	3+2 dice
12	Medium	200 kg	3d6+1	3d6-2	3d6+2	4 dice
13	Large	400 kg	4d6	3d6-2	3d6+2	4+2 dice
14	Large	600 kg	4d6+1	3d6-2	3d6+3	5 dice
15	Large	800 kg	4d6+2	3d6-2	3d6+4	6 dice
16	Large	1200 kg	4d8	3d6-4	4d6	8 dice
17	Large	1600 kg	4d8+1	3d6-4	4d6+1	10 dice
18	Huge	3200 kg	4d8+2	3d6-4	4d6+2	11 dice
19	Huge	6000 kg	4d10	2d6	4d8	12 dice
20	Huge	12,000 kg	4d10+1	2d6	4d8+1	13 dice
21	(+6)	(+6)	(+6)	(+6)	(+6)	(+6)
22	Gargantuan	24,000 kg	4d10+2	2d6-1	4d8+2	14 dice
23	Gargantuan	30,000 kg	4d10+4	2d6-1	4d8+4	16 dice
24	Gargantuan	36,000 kg	4d10+6	2d6-2	4d8+6	18 dice
25	Gargantuan	40,000 kg	4d10+8	2d6-2	4d8+8	20 dice
26	Gargantuan	44,000 kg	4d10+10	2d6-3	4d8+10	25 dice
27	Gargantuan	50,000+ kg	4d10+12	2d6-3	4d8+12	30 dice

5) NATURAL ATTACKS, ARMOR, AND SAVES

Most creatures have some form of natural weapons with which to defend themselves, be they teeth, claws, stingers, or other form of attack. Some creatures have developed a type of natural armor to help protect them from predators and hostile terrain.

Natural AR: This column gives the creature's natural armor rating (AR) bonus (if any). Roll 1d20 to determine the result.

Natural Weaponry: This line gives the creature's natural physical attacks. If a weapon is followed by an asterisk (*), the weapon is venomous, automatically giving the creature the poison special attack (see Special Attacks, pg. 397).

Natural weapons have types just as other weapons do. The most common are summarized below.

Bite: The creature attacks with its mouth, dealing piercing, slashing, and bludgeoning damage.

Claw or Rake: The creature rips with a sharp appendage, dealing piercing and slashing damage.

Gore: The creature spears the opponent with an antler, horn or similar appendage, dealing piercing damage.

Kick, Slap or Slam: The creature batters opponents with an appendage, dealing bludgeoning damage.

Sting: The creature stabs with a stinger, dealing piercing damage. Stings are usually (75%) envenomed (see Special Attacks: Poison).

BAB: The BAB column determine the base attack bonus the creature has when using any natural weaponry. Carnivores add +2 to this result, omnivores add +1 to the result, and herbivores halve the result.

Saves (Fort, Reflex, and Will): The animal's basic saving throw bonuses (if any).

ANIMAL ATTACKS, ARMOR, AND SAVES

1d20	Natural AR	Natural Weaponry	BAB	Dmg	Fort	Saves Reflex	Will
1 or less	(+6)	Gore and Kick	-2	1	+0	+18	+0
2	-	Gore	-1	1	+0	+16	+0
3	-	Kick and Bite	-1	1d2-1	+1	+14	+1
4	2	Kick	0	1d2	+1	+12	+1
5	-	Gore and Bite	0	1d2	+1	+10	+1
6	-	Slap or Slam	0	1d3-1	+2	+8	+2
7	-	Claw and Bite	1	1d3	+2	+6	+2
8	-	Bite*	1	1d3	+2	+6	+2
9	-	Claw	2	1d4	+3	+6	+3
10	2	Claw	2	1d6	+3	+5	+3
11	-	Slap or Slam	3	1d8	+3	+5	+3
12	1	Claw and Bite	3	2d4	+4	+5	+4
13	2	Claw	4	2d4	+4	+4	+4
14	3	Sting*	4	1d10	+4	+4	+4
15	4	Claw and Bite	5	1d12	+5	+4	+5
16	5	Bite	5	2d6	+5	+3	+5
17	6	Spit*	6	3d4	+5	+3	+5
18	7	Claw and Sting*	7	2d8	+6	+3	+6
19	8	Bite	8	4d4	+6	+2	+6
20	9	Bite and Slap	10	3d6	+6	+2	+6
21	(+6)	-	(+6)	(+6)	(+6)	(+6)	(+6)
22	10	-	12	1d20	+8	+2	+8
23	11	-14	2d10	+10	+1	+10	
24	12	-	16	5d4	+12	+1	+12
25	13	-	18	2d12	+14	+1	+14
26	14	-	20	3d8	+16	+0	+16
27+	15	-	22	4d6	+18	+0	+18

Roll once for each column in this table. If an asterisk (*) follows a natural weapon, the creature also has the poison special ability with this weapon.

Table Modifiers:

- If the creature is a carnivore, add +8 to the BAB roll, subtract –1 from the Natural AR roll, and add +2 to the Will roll.
- If the creature is an omnivore, add +4 to the BAB roll and add +1 to the Fort, Reflex, and Will roll.
- If the creature is a scavenger, add +1 to the Natural AR roll and add +2 to the Fort roll.
- If the creature is a herbivore, subtract –3 from the BAB roll, add +2 to the Natural AR roll, and add +2 to the Reflex roll.
- If creature is an infant, reduce the BAB and Save results by –5.
- If the creature is a child, reduce the BAB and Save results by –3.
  If the creature is a young adult, reduce the BAB and Save results by –1.
- Add the creature's size modifier to the Damage roll (Diminutive –4, Tiny, -2, Small –1, Large +1, Huge +2, Gargantuan +4).

DETERMINING NATURAL ATTACKS, ARMOR, AND SAVES

Roll 1d20, once for each column, to determine any natural armor, what type of natural attacks the creature has, how well it attacks, the damage it may inflict, and its saving throw modifiers. If the roll results in (+6), roll again and add a modifier of +6 to the roll. If (+6) is rolled again, just reroll without the +6 modifier. If the creature possesses more than one form of natural weaponry, roll on the damage column once for each type of weapon to determine its specific damage.

6) SPECIAL ATTACKS

To determine if a creature has a special form of attack, roll 1d20. Add +2 to the roll for each size category the creature is below medium (Small +2, Tiny +4, Diminutive +6). If the result is 20 or greater, the creature has some form of special attack.

Blindsight: Some creatures have the ability to use a non-visual sense (or a combination of such senses) to operate effectively without vision. Such sense may include sensitivity to vibrations, acute scent, keen hearing, or echolocation. This ability makes darkness irrelevant to the creature, and operates out to a range specified in the creature description. Blindsight never allows a creature to distinguish color or visual contrast, which means that it is not possible to read with blindsight.

Deafening or sonic attacks thwart blindsight if it relies on hearing. Blindsight works underwater but not in a vacuum.

Cold Resistance: A cold resistant creature may always make a Fort save against any type of damage due to low temperatures. It will take no damage upon a successful save, and only half-damage on a failed save. It takes double damage from heat based energy weapons (lasers, plasma or fusion guns, some types of radiation) or other high temperatures, unless the situation allows a saving throw for half damage, in which case it takes half damage on a successful save and double damage on a failed save.

Constrict: The creature crushes the opponent, dealing its listed damage, after making a successful grapple check. The amount of damage is given in the creature's entry. If the creature also has the improved Grab ability, it deals constriction damage in addition to damage dealt by the weapon used to grab.

Darkvision: Darkvision is the extraordinary ability to see with no light source at all, out to a range specified for the creature, but such vision is only in black and white. Darkvision does not allow creatures to see anything that they could not see otherwise. The presence of light does not spoil darkvision.

Entangle: Similar to a constriction attack, but an entangle attack does not cause damage. It instead immobilizes the target while the grapple is held.

Evasion & Improved Evasion: If subjected to an attack that allows a Reflex save for half damage, a creature with evasion takes no damage on a successful save. Because it is a reflexive ability, the creature need not know that the attack is coming to use evasion.

As with a Reflex save for any creature, it must have room to move in order to evade. A bound creature or one in a completely restrictive area (crawling through a 2 1/2-foot-wide shaft, for example) cannot use evasion.

Improved evasion is treated like evasion, except that even on a failed saving throw the creature takes only half damage, provided it has the room to evade at all.

Fast Healing: At the beginning of each of the creature's turns, it heals a certain number of points (defined in its description). Unlike regeneration, fast healing does not allow a creature to regrow or reattach lost body parts. This healing is applied first against any Stamina damage the creature may have, with any remaining healing applied against Lifeblood damage.

Fast healing does not restore Stamina or Lifeblood lost from starvation, thirst, or suffocation.

Fear: Certain creatures can affect characters with fear. In most cases, the character makes a Will saving throw to resist this effect, and a failed roll means that the character is shaken, frightened, or panicked.

• *Shaken:* Characters who are shaken suffer a -2 morale penalty to attack rolls, saves, and checks.

• *Frightened:* Characters who are frightened are shaken, and in addition they must flee from the source of their fear as quickly as they can, although they can choose the path of their flight. Other than that stipulation, once they are out of sight (or hearing) of the source of their fear, they can act as they want. However, if the duration of their fear continues, characters can be forced to flee once more if the source of their fear presents itself again. Characters unable to flee can fight (though they are still shaken).

• *Panicked:* Characters who are panicked are shaken, and in addition there is a 50% chance that they will drop what they are holding and run away from the source of their fear as quickly as they can. Other than running away from the source, their path is random. They flee from all other dangers that confront them rather than facing those dangers. Panicked characters cower helplessly if they are prevented from fleeing.

Becoming Even More Fearful: Fear effects are cumulative. A shaken character who is made shaken again becomes frightened, and a shaken character who is made frightened becomes panicked instead. A frightened character who is made shaken or frightened becomes panicked instead.

Heat Resistance: A heat resistant creature may

always make a Fort save against any type of damage due to high temperatures. It will take no damage upon a successful save, and only half-damage on a failed save. It takes double damage from the effects of cold unless the situation allows a saving throw for half damage, in which case it takes half damage on a successful save and double damage on a failed save.

Frightful Presence: This ability makes the creature's very presence unsettling to foes. It takes effect automatically when the creature performs some sort of dramatic action (such as charging, attacking, or snarling). Opponents within range who witness the action may become frightened or shaken.

This ability affects only opponents with fewer Stamina Dice or levels than the creature has. An affected opponent can resist the effects with a successful Will save with a DC of 10 + 1/2 frightful creature's SD + frightful creature's Charisma modifier. An opponent who succeeds at the saving throw is immune to that creature's frightful presence for one day.

Improved Grab: If the creature hits with a melee weapon (usually a claw or bite attack), it deals normal damage and attempts to start a grapple as a free action without provoking an attack of opportunity. No initial touch attack is required, and Tiny and Small creatures do not suffer a special size penalty. Unless otherwise stated, improved grab works only against opponents at least one size category smaller than the creature. The creature has the option to conduct the grapple normally, or simply use the part of its body it used in the improved grab to hold the opponent. If it chooses to do the latter, it suffers a -20 penalty to grapple checks, and can use its remaining attacks against other opponents.

A successful hold does not deal any additional damage unless the creature also has the constrict ability. If the creature does not constrict, each successful grapple check it makes during successive rounds automatically deals the damage listed for the attack that established the hold. Otherwise, it deals constriction damage as well (the amount is listed in the creature's descriptive text).

When a creature gets a hold after an improved grab attack, it pulls the opponent into its space. This act does not provoke attacks of opportunity. The creature is not considered grappled while it holds the opponent, so it still threatens adjacent squares and retains its Dexterity bonus. It can even move (possibly carrying away the opponent), provided it can drag the opponent's weight.

Low-Light Vision: Creatures with low-light vision can see outdoors on a moonlit night as well as they can during the day.

Poison: If a creature with the poison special attack makes a successful attack with its venomous weapon, the target must make a Fort save or suffer the initial effects of the poison. Even if successful, the target must make a second Fort save a minute (10 rounds) later or suffer the secondary effects of the poison.

Unless the poison's damage is noted as permanent (Referee's choice when designing a poison), a character will heal one ability point lost to the poison per day of rest.

TYPES OF POISON

Type	*Ability Affected*
Muscle	Str damage
Necrotic	Con damage
Neurological	Dex damage
Hallucinogenic	Wis damage

POISON STRENGTH

	Damage		
Strength	*Initial*	*Secondary*	*DC*
Very Weak	1	1d3	10
Weak	1d3	1d4	12
Mild	1d4	1d6	14
Moderate	1d6	2d6	16
Potent	2d6	3d6	18
Highly Toxic	3d6	3d6	20

Poison Immunities: Lifeforms with natural poison attacks are immune to their own poison. Lifeforms without metabolisms are always immune to poison. Oozes, plants, and certain kinds of lifeforms are also immune to poison, although conceivably special poisons could be concocted specifically to harm them.

Regeneration: Creatures with this extraordinary ability recover from wounds quickly and can even regrow or reattach severed body parts.

All Lifeblood damage dealt to the creature is treated as Stamina damage, and the creature automatically cures itself of Stamina damage at a fixed rate. Severed parts die if they are not reattached.

Certain attack forms, typically fire and acid, deal damage to the creature normally; that sort of Lifeblood damage doesn't convert to Stamina damage and so doesn't go away. The creature's description includes the details. Regeneration does not restore Stamina or Lifeblood lost from starvation, thirst, or suffocation. Attack forms that don't deal Stamina or Lifeblood damage (for example, most poisons) ignore regeneration. An attack that can cause instant death, such as a coup de grace, or an assassin's death attack, only threatens the creature with death if it is delivered by weapons that can deal it normal damage.

Resistance to Energy: A creature with resistance to energy has the ability to ignore some damage of a certain type (such as cold, electricity, or laser fire) each round, but

it does not have total immunity. Each ability is defined by what energy type it resists and the amount of damage it can absorb from that type of attack before being affected. The creature still makes saving throws normally. Count the creature's resistance from the start of its turn to the start of its turn the next round. Its resistance "resets" on its turn.

This resistance does not stack with the resistance provided by worn armor, such as ablat or reflec, might provide.

Scent: This extraordinary ability lets a creature detect approaching enemies, sniff out hidden foes, and track by sense of smell.

The creature can detect opponents by sense of smell, generally within 30 feet. If the opponent is upwind, the range is 60 feet. If it is downwind, the range is 15 feet. Strong scents, such as smoke or rotting garbage, can be detected at twice the ranges noted above. Overpowering scents, such as skunk musk, can be detected at three times these ranges.

The creature detects another creature's presence but not its specific location. Noting the direction of the scent is a standard action. If it moves within 5 feet of the scent's source, the creature can pinpoint that source.

The creature can follow tracks by smell, making a Wisdom check to find or follow a track. The typical DC for a fresh trail is 10. The DC increases or decreases depending on how strong the quarry's odor is, the number of creatures, and the age of the trail. For each hour that the trail is cold, the DC increases by 2. The ability otherwise follows the rules for the Track feat. Creatures tracking by scent ignore the effects of surface conditions and poor visibility.

Creatures with the scent ability can identify familiar odors just as humans do familiar sights.

Water, particularly running water, ruins a trail for air-breathing creatures. Water-breathing creatures such as sharks, however, have the scent ability and can use it in the water easily.

False, powerful odors can easily mask other scents. The presence of such an odor completely spoils the ability to properly detect or identify creatures, and the base Survival DC to track becomes 20 rather than 10.

Sonic Attacks: Unless noted otherwise, sonic attacks follow the rules for spreads; the range of the spread is measured from the creature using the sonic attack. Once a sonic attack has taken effect, deafening the subject or stopping its ears does not break the effect. Stopping one's ears ahead of time allows opponents to avoid having to make saving throws against mind-affecting sonic attacks, but not other kinds of sonic attacks (such as those that inflict damage). Stopping one's ears is a full-round action and requires wax or other soundproof material to stuff into the ears.

Swallow Whole: The creature can swallow opponents it holds (see Improved Grab, above). If it makes a second successful grapple check after a grab, it swallows its prey. Unless otherwise noted, the opponent can be of a size up to one size category smaller than the swallowing creature. Damage is usually bludgeoning, often accompanied by acid damage from the creature's digestive juices. The consequences of being swallowed vary with the creature and are explained in its descriptive text.

Trample: The creature may run over an opponent at least one size category smaller than itself as a standard attack each round. This type of attack inflicts the creature's normal damage rating, multiplied by the number of leg pairs the creature possesses. For example a four-legged creature would inflict x2 damage, a six-legged creature would inflict x3 damage, etc.

Tremorsense: A creature with tremorsense locates other creatures by sensing vibrations in the ground. It will automatically sense the location of anything that is in contact with the ground, moving, and within range. If no straight path exists through the ground from the creature to what it is sensing, then the range defines the maximum distance of the shortest indirect path.

The sensing creature itself must be in contact with this ground for this special ability to work. As long as the other creatures are taking physical actions, they are considered to be moving; they don't have to move from place to place for a creature with tremorsense to detect them.

7) ANIMAL CHARACTERISTICS

Because animals have predispositions to attack or to flee, these details must be noted on your animal encounter table for each specific type presented. These characteristics are noted in the form of three codes in the table: A for Attack, F for Flee, and S for Speed and is followed by a number or letter as defined below:

ATTACK

When an encounter with an animal first occurs, the Referee uses this characteristic to determine if the animal attempts to attack.

AS: The animal will attack only if it has surprised one or more targets.

A+: The animals will attack if they outnumber their prey.

AP: The animal will attack if at all possible, even if outnumbered.

A(0-20): If the Referee rolls this number or higher on 1d20, the animal will attack if at all possible, even if outnumbered. If the value is 0, this is a special case and will be spelled out in the description of the creature (Referee's choice).

FLEE

If a creature has not already committed to attack when an encounter first occurs, it must be checked to see if it

will flee instead. If the value is 0, this is a special case and will be spelled out in the description of the creature (Referee's choice).

FS: If the animal is surprised, it will attempt to flee if possible.

F(0-20): If the Referee rolls this number or higher on 1d20, the animal will flee if at all possible.

SPEED

The speed of a creature will be needed whenever an encounter occurs, whether the creature attacks, flees, or stands its ground.

S(0-99): This number is the speed of the creature in meters per round. A creature with a speed of 0 is immobile (like a rooted plant) and cannot move from its present position.

DETERMINING ANIMAL CHARACTERISTICS:

Find the appropriate animal type and subspecies on the Animal Charactoristics table. Note the result for each characteristic; Attack, Flee, and Speed. If the result is a die roll, make the roll and note the result.

ANIMAL CHARACTERISTICS

Category Type	*DC To Attack*	*DC To Flee*	*Typical Speed x3 meters*
Herbivores			
Filter	If possible	2d6	1d4-1 (min. 0)
Intermittent	2d6+2	2d6+2	1d4
Grazer	2d6	1d8	2d8
Omnivores			
Gatherer	2d6+2	2d6	1d6
Hunter	1d8	2d6	1d4
Eater	1d8	2d6+2	1d6
Carnivore			
Pouncer	If surprise	If surprised	1d4
Chaser	If more	2d6+2	2d8
Trapper	If surprise	2d6	1d4-1 (min. 0)
Siren	If surprise	2d6+2	1d6-2 (min. 0)
Killer	1d8	2d6+2	1d6
Scavenger			
Hijacker	1d10	2d6	1d4
Intimidator	2d6	1d10	1d4
Carrion-Eater	2d6+2	2d6	1d6
Reducer	2d6+2	2d6	1d4

USING ANIMAL CHARACTERISTICS:

When determining the reaction of herbivores, always check to see if they flee, and if they do not, then check to see if they will attack. For all other types (omnivores, carnivores, and scavengers) check to see if they attack first and if not then check to see if they flee. If neither occurs, the creature will stand its ground and not move away.

8) OTHER ANIMAL ABILITY SCORES

The remaining ability scores for animals (INT, EDU, WIS, CHA, and SOC) are based on the animal type as determined from the table below:

OTHER ANIMAL ABILITY SCORES

Type	*INT*	*EDU*	*WIS*	*CHA*	*SOC*
Herbivore	1d3	n/a	3d6	1d6	n/a
Omnivore	1d4	n/a	2d6	2d6	n/a
Carnivore	1d3+1	n/a	1d6	2d6	n/a
Scavenger	1d4	n/a	2d6	1d4	n/a

Skill Points: Animals will generally have 5 + 1d10 + Int modifier in skill points that may be applied to any of the following skills: Balance, Climb, Hide, Intuit Direction, Jump, Listen, Move Silently, Spot, Survival, Swim, Tumble

Feats: A creature will have a number of feats equal to 1d6 - its INT modifier. If the creature is a herbivore, subtract -1 from the result, if it is an omnivore add +1 to the result, and if it is a carnivore add +2 to the result. If the final number of feats is less than or equal to zero, the creature will have no feats.

These feats may be selected from among the following standard feats:

Acrobatics, Alertness, Dodge, Endurance, Great Fortitude, Improved Initiative, Improved Zero-G/Low Gravity Adaptation, Lightning Reflexes, Mobility, Run, Spring Attack, Stealthy, Toughness, Zero-G/ Low Gravity Adaptation, Weapon Specialization.

In addition, a creature may choose to take an additional special ability (see step 6 above) in place of a feat, or they may select any of the following specialized animal feats:

FLYBY ATTACK

Aggressive flying animals will often have this specialized animal feat.

Prerequisite: Must be a Flyer.

Benefit: When flying, the creature can take a move action (including a dive) and another partial action at any point during the move. The creature cannot take a second move action during a round when it makes a flyby attack.

Normal: Without this feat, the creature takes a partial action either before or after its move.

MULTIATTACK

This feat is often found with creatures that have more than one natural form of attack.

Prerequisite: Two or more natural weapons.

Benefit: The creature's secondary attacks with natural weapons suffer only a -2 penalty.

Normal: Without this feat, the creature's secondary natural attacks suffer a -5 penalty.

MULTIDEXTERITY

This feat is used for animals in place of the standard Ambidexterity feat.

Prerequisite: Dex 15+, two or more arms.

Benefit: The creature ignores all penalties for using an off hand.

Normal: Without this feat, a creature that uses an off hand suffers a -4 penalty to attack rolls, ability checks, and skill checks. A creature has one primary hand, and all the others are off hands; for example, a four-armed creature has one primary hand and three off hands.

MULTIWEAPON FIGHTING

This feat is used for animals in place of the standard Two-Weapon Fighting feat.

Prerequisite: Two or more hands.

Benefit: Penalties for fighting with multiple weapons are reduced by 2.

Normal: A creature without this feat suffers a -6 penalty to attacks made with its primary hand and a -10 penalty to attacks made with its off hands. (It has one primary hand, and all the others are off hands.)

REFEREE'S ADDITIONS

Animals may be provided with more complex motivations than the simple dice rolls for attack and flight. The descriptions of the animal categories and subspecies under steps 1 and 2 will prove helpful. Carnivores will base their decisions on the sizes of the party and of individuals; humans may resemble a carnivore's natural prey, and so on. Large herbivores will be less likely to flee than small ones, tending to ignore a party unless it gets too close. Any animal may attack if the party threatens its young, nest, territory, meal, etc.

Other responses are possible beyond attack or flight. A carnivore may stalk a party, hoping to attack an isolated member. An armored animal may curl up into a ball or withdraw its extremities into its shell. There may be responses analogous to those of the opossum or skunk. An animal may be friendly or want to play it might even mistake a party for members of the opposite sex.

Common Sense: Airless worlds will almost never have life of any consequence on them; if they do, animal life will still tend to follow the same broad outlines given above. Still, flyers and liquid breathers will be almost non-existent.

The Referee should always be prepared to alter or restrain prescribed procedures if it is felt that they contravene logic or reason.

INDIVIDUAL CREATURE DESCRIPTIONS

Name
Size:
Type:
Stamina
Lifeblood:
Initiative:
To Attack:
To Flee:
Speed:
AC:
AR:
Attacks:
Damage:
Saves:
Abilities:
Skills:
Feats:
Special Abilities:
Climate/Terrain:
Organization:

Name: This is the name by which the creature is generally known.

Size: Information on the creature's base size.

Type: The following definitions more fully detail the meanings of the descriptive terms used for animal categories and types.

Stamina Dice: This line gives the number and type of Stamina Dice the creature has and any bonus hit points. A parenthetical note gives the creature's average stamina points. A creature's Stamina Dice total is also its rate of natural healing, and its maximum ranks in a skill.

Lifeblood: A creature has a number of Lifeblood points equal to its Constitution ability score.

Initiative: This line shows the creature's modifier to initiative rolls. A parenthetical note tells where the modifier comes from.

To Attack: The chance of the creature attacking when encountered. Always check to see if a herbivore will flee first, only checking to see if it attacks if it fails to flee immediately. Roll 1d20, if the result equals or exceeds the To Attack value, the creature will attack.

To Flee: The chance of the creature fleeing when encountered. Always check to see if any creature other than a herbivore will attack first, only checking to see if it flees if it fails to attack immediately. Roll 1d20, if the result equals or exceeds the To Attack value, the creature will attack.

Speed: This line gives the creature's tactical speed. If the creature wears armor that reduces its speed, this fact is given along with a parenthetical note indicating the armor type; the creature's base unarmored speed follows.

Armor Class: The Armor Class line gives the creature's AC for normal combat and includes a parenthetical mention of the modifiers contributing to it (usually size, Dexterity, and natural armor).

Attacks: This line gives all the creature's physical attacks, whether with natural or manufactured weapons. The first entry is for the creature's primary weapon. The remaining weapons are secondary and have -5 to the attack bonus, no matter how many there are. Creatures with the Multiattack feat suffer only a -2 penalty to secondary attacks.

Unless noted otherwise, natural weapons threaten critical hits on a natural attack roll of 20. Unless noted otherwise, creatures deal double damage on critical hits.

Damage: This line shows the damage each of the creature's attacks deals.

If any attacks also cause some special effect other than damage (poison, disease, etc.), that information is given here.

Natural weapons have types just as other weapons do. The most common are summarized below.

Bite: The creature attacks with its mouth, dealing piercing, slashing, and bludgeoning damage.

Claw or Rake: The creature rips with a sharp appendage, dealing piercing and slashing damage.

Gore: The creature spears the opponent with an antler, horn or similar appendage, dealing piercing damage.

Slap or Slam: The creature batters opponents with an appendage, dealing bludgeoning damage.

Sting: The creature stabs with a stinger, dealing piercing dam_age. Stings are usually envenomed.

Saves: This line gives the creature's Fortitude, Reflex, and Will save modifiers.

Abilities: This line lists the creature's ability scores. Str, Dex, and Con scores are determined via the Animal Sizes and Weaponry table. All animals have an Int score of 1-2, an Edu score of 0, and a Soc score of 0. Wisdom and Charisma are determined by rolling 2d6.

Skills: This line lists all the creature's skills by name along with each skill's score. An animal has anywhere from 10-15 (9 + 1d6) skill points

Feats: The line lists all the creature's feats by name.

Special Abilities: Any special abilities the creature might have. If it has no special abilities, this line does not appear.

Climate/Terrain: This entry describes the locales where the creature is most often found.

Cold: Arctic and subarctic climes. Any area that has winter conditions for the greater portion of the year is cold.

Temperate: Any area that has alternating warm and cold seasons.

Warm: Tropical and subtropical climes. Any area that has summer conditions for the greater portion of the year is warm.

Aquatic: Fresh or salt water.

Desert: Any dry area with sparse vegetation.

Forest: Any area covered with trees.

Hill: Any area with rugged but not mountainous terrain.

Marsh: Low, flat, waterlogged areas; includes swamps.

Mountains: Rugged terrain, higher than hills.

Plains: Any fairly flat area that is not a desert, marsh, or forest.

Underground: Subterranean areas.

Organization: Animals are found individually, in small groups (1d6), medium groups (2d6) or large groups (3d6+)

REFEREE'S NOTES

Initially, the Referee must prepare a blank encounter column for each terrain type on the world. The terrain modifiers chart indicates the general types of terrain which might be expected on the worlds to be visited. The Referee should determine if the encounter table will use one die or two; two dice tables are more complex, and should be selected for terrain or worlds that will be frequently used, while one die tables are for Worlds or terrain types which do not merit detailed representation. The examples of encounter tables shown indicate the predetermined sequences of animal categories should be used in most cases; these sequences varied by the Referee to fit specific situations or world conditions.

TRAVELLER CAMPAIGNS

A campaign is a linked series of adventures featuring (more or less) the same characters. Playing in a campaign allows for greater continuity and (often) better characterization. Many players like to see their character develop (in terms of persona as well as experience points). Campaign play also allows the background to be explored in more detail than a series of unconnected quick adventures.

A campaign may be planned years in advance, with a grand sweeping story arc and recurring villains. Alternatively, each episode may be created out of thin air by the Referee minutes before the game - or even during it. Most campaigns mix both approaches, especially if the players have a habit of wandering off at tangents whenever something interesting presents itself.

However, many players like to play a variety of characters, and to shift the style and setting of the game. A series of short minicampaigns may suit such players better. There is really no difference between planning a long, open-ended campaign and a short one with a definite end point, except that the expected time frames are shorter in terms of time spent playing; a minicampaign may still span years of game time.

Many long campaigns are subdivided into minicampaigns in a manner similar to an ongoing television series which features apparently unrelated episodes along with some that are critical to the meta-plot. Each series ends with a suitable finale, perhaps with just a few loose threads hanging over. Next series, the characters face new challenges and the return of some old adversaries. And so it is with a good Traveller campaign.

CREATING A TRAVELLER CAMPAIGN

The first question to ask when creating a campaign is - will the campaign tend more towards the Heroic or the Gritty style of play? That is, will the characters hurtle through freewheeling epic adventures where the stormtroopers always miss and the epic threats to galactic stability just keep on getting bigger, or will every tussle with the opposition be a scary and memorable event, with a serious chance of fatal injury?

Heroic and Gritty are opposite ends of a spectrum that allows infinite variation. Any given group of players will have their own preferences about where on this spectrum they like to be. The downside of a gritty campaign is that action scenes can be lethal, and can take out a critical character - or even the entire group! On the other hand, a game where heroes die and guns are deadly forces players to think more. They must consider ways of avoiding combat and of stacking the odds when they do fight. And of course, heroic actions mean a lot more where there is a very real chance of death than in a universe where characters have “plot immunity”.

The other spectrum is detail - fine or coarse? Some players love to “live” the lives of their characters and vicariously experience the worlds they visit, spending hours haggling over a cargo of frozen prawns with Honest Akram while trying to make ends meet in a ramshackle free trader. Others like to gloss over the details and get on with the action. Again, a sensible balance must be struck. Ideally, there should be more detail presented to the players than just what’s relevant to the plot. This not only keeps them guessing about what’s important and what’s merely colorful ‘filler’, but it makes the game experience richer too. And passing details can sometimes lead to new subplots or interesting diversions.

A campaign may well vary considerably in style and tone from episode to episode. Variety can keep a campaign fresh and exciting far beyond the point when players would have become burned out and lost interest in evermore-titanic epic quests.

Next there is the question of advancement. Will the characters be generously rewarded with prestige and power (and experience points!) or will they develop slowly? A sensible balance needs to be struck here. Many players particularly like seeing their characters progress and will become bored if they feel they are stuck at whatever level of power they started with. There is always a skill or feat that a player wishes he or she had taken at character generation. Trying to attain it will motivate the player. Feeling it is unattainable will cause disaffection. On the other hand, if characters progress too fast then the experience is cheapened. If it is easy to obtain a patent of nobility, a small starship and a few million Credits - or twentieth level - then these things become worthless.

Some things should be hard to attain. Working out which ones simply requires a look at the game setting. What possessions or titles are rare, or considered impressive in the setting? What amount of money constitutes “rich”? A character may be able to achieve one of these things after a great deal of effort. A very experienced character may have two or even three of them (especially if she started with one of them). But it should not be possible for every character to have all the trappings of wealth and power. It is suggested that each of the following are considered as the mark of impressive success, and should be achievable by a character who works hard and takes a few risks - but they should not be achieved too quickly.

STEVE BRYANT
2002

• Military Rank: Major, Colonel
• Naval Rank: Commander, Captain
• Civil Rank: Senior Civil Servant or Diplomat
• Small starship: Yacht, Free Trader, Scout/Courier
• Bank Balance: 1 Million Credits
• Minor Noble Title: Knight, Baron
• Scientific Recognition: Doctorate, Professor

The following are much more difficult to attain and should be life goals requiring either very high-level starting characters or long periods of smart play to achieve.

• Military Rank: General
• Naval Rank: Commodore, Admiral
• Civil Rank: Senior Ambassador, Powerful governmental official
• Military Starship: Patrol Cruiser or Similar
• Civilian Starship: Liner or similar
• Bank Balance: 20 Million Credits
• Major Noble Title: Marquisate, Count
• Scientific Recognition: Interstellar recognition as field leader

Character level and skills should also be carefully considered. Characters leaving generation at level 5-7 are already fairly exceptional individuals with either very high specialist skill levels or a broad range of competences. There is no reason why a talented character, after some experience and study, should not be better than a typical soldier at fighting, and yet also a learned scholar capable of holding his own in a debate with doctors and professors on at least one subject, or have truly amazing ability in a narrow field. If however, the party's computer geek is an Olympic fencer, has galaxy-class interpersonal skills and is renowned throughout Charted Space for her epic poetry - and has learned to do these things as a sideline to her main job as a hacker par excellence, then the level of character skills is too high.

A good rule of thumb is to compare the party to "expert" level NPCs. Each character should have a field where she will be respected by (but is not necessarily better than) the experts, or several fields where he is about as skilled as someone who does that thing for a living. This reflects the nature of player-characters, who are unusually talented people - but not superheroes.

Unless, of course, the needs of the campaign require a team of "better than the best of the best" superheroes. In which case, go for it!

CAMPAIGN TYPES

Some character types do not fit well with some styles of campaign, so it is important to choose a style that will suit the players, or is general enough to allow any character type. It is possible to work most character types into a campaign with a bit of imagination, however.

The four most common types of Traveller campaigns are listed below, with their basic requirements.

FREE TRADER

Probably the most popular (and flexible) Traveller campaign. Player-characters form some or all of the crew of a small merchant starship. Such vessels are usually old, and may be in poor repair or heavily modified. The crew is likely to comprise a diverse group of individuals. The only real requirement is that the characters must be able to operate their ship (perhaps with some help from NPCs). Some characters may be working passage or may be passengers aboard the ship, though as the campaign unfolds the team will usually find reasons to stick together.

Some bookkeeping is necessary for this kind of campaign. Usually one of the players (the one whose character is owner, captain or purser of the ship are logical choices) can be detailed to keep track of the ship's finances. A Free Trader must of course make ends meet, so it is usual for the characters to engage in a lot of trading. This can be glossed over using the trade rules or can give rise to many roleplaying opportunities.

Of course, Free Trader crews are renowned for getting into trouble. The need to make a living from trade is an excellent driving force, and the requirement for some hard-to-obtain spare - or the chance of scoring a large profit - can be used to tempt or drive the players into an adventure. Free Traders hear all the portside scuttlebutt, and may choose to chase down rumors or become engaged in illegal activity such as smuggling.

Just because the characters have a ship does not mean that they have to spend all their time aboard it. While the ship is in port awaiting cargo delivery or routine maintenance, the characters have a chance to explore the worlds of the charted space, and have no end of planet-based adventures.

It is best if the Referee prepares a few starport rumors and has some data handy about the nearby worlds. This makes choosing speculative cargo more realistic, and really brings the universe to life.

Character Skills: Starship Crew, Mercantile.

Adventure Hooks: Callup as naval auxiliary. Only ship in port at time of crisis. Rumor. Distress signal. Component failure needs rare spare part. Lucrative trade opportunity. Ship charter by individual with a mission.

Hazards: Piracy, Customs inspection, Local disturbance on-planet, Rival vessel, Conflict with larger corporate concern.

MILITARY

The military campaign is very popular with Traveller fans. Characters are usually ex-military personnel or "freelance

security experts", selling their skills and weaponry for a price. It is possible to run such a game with the characters as part of an organised military unit (perhaps even the Marines or Navy) but more commonly the players are part of a small merc outfit fighting other people's wars. Some of those wars can be very dirty indeed.

There are many, many opportunities for mercenary work in Charted Space. Commissions can be quite varied, ranging from training up the local militia or guarding a mining installation to launching a surgical strike on a rival corporation's base. The range of character types is of course rather limited in the type of campaign, and it will not suit all players. However, a fair amount of variation is possible, especially where the campaign features a "team of experts" rather than an army unit.

Military campaigns require rather less bookkeeping than Free Trader games, but they do require that the Referee understand how military operations are conducted in order that the opposition has a fair chance but still reacts realistically. There is no need to generate large areas of space, but details of the political and military situation are required. It is not usually enough to note down what forces the opposition has available; the Referee must take into consideration the political and social effects of any combat. Enemies will learn from defeat or become overconfident; they will obtain better weapons or run out of ammunition. Local people may rise up against their government, or may turn out as militia to aid it.

Military campaigning can be quite subtle. Adventures may focus on the politics of peacekeeping, or the difficulty of keeping a remote outpost supplied. Military personnel may be called in to help with disaster relief. A particularly interesting twist is to have a military team suddenly presented with an alien site or with a situation where they have to cooperate with the enemy in order to survive.

Character Skills: Military, Weapons, Leadership.

Adventure Hooks: Protect threatened civilians, Surgical strike against state preparing for war, Hostage rescue, Deal with riots, Disaster relief, Bodyguard/installation security, Supply arms or training to local forces.

Hazards: Government intervention, Natural disaster, Hostile locals, Faulty intelligence, Equipment breakdown, Flying lead.

INTRIGUE/POLITICAL

Some players like to play in campaigns where they must make decisions that affect the political situation surrounding them. This style of play does not suit everyone, since there tends to be more talk than action, and much of the action is actually carried out by subordinates.

The most obvious idea for a political campaign gives the players one or more nobles and the senior members of the nobles' entourage as characters. These characters may be involved in political maneuvering within the governmental system, perhaps in conflict with a rival noble house, or they may have been sent on a mission for the government, perhaps acting as a diplomatic "fire brigade" in a subsector. Their task in this case will be to deal with the many crises occurring within the campaign area. These can be varied - war, economic disaster, piracy, labor disputes, missing liners full of rich passengers, corruption in the system, etc. The characters will be quite powerful in this case, capable of calling in the Marines or the Navy at need - but also answerable for doing those things.

However, there are other ways to run a political campaign. The characters may be corporate officials or freelance advisors-for-hire working for a planetary government. They might be the senior officers of a Navy starship, perhaps also holding noble rank. Such individuals are charged with defending and maintaining the stability of the government, and have a great deal of responsibility. Direct firepower solutions are rarely the answer, so other means must be found.

The political campaign can be integrated with other types. For example, players may have two sets of characters - powerful government figures who make the big decisions and attempt to sell diplomatic solutions at formal receptions, and a team of sneaky spies or daring mercs to carry out the dirty work.

An intrigue campaign depends more on hints and role-playing than on direct action. The Referee must prepare the "big picture" and keep track of who is doing what. A shifting web of alliances and conflicting influence is difficult to keep track of, but worth it. Who has how many of their fingers in which pie must be determined and updated as the campaign progresses.

Character Skills: Diplomacy, Leadership, Interpersonal

Adventure Hooks: Assassination, Trade dispute, Territorial claim, Offworld investment, Riots, Threat of war, Sudden diplomatic visit, Ally needs help, Market crash, Terrorist action.

Hazards: Government intervention, Assassination, Loss of position, Devaluation of holdings, Lynching by mob.

ADVENTURING

Many Traveller games follow the classic "adventuring" campaign model. The player-characters are a team of freelance experts or just a group of friends who travel from place to place having adventures. The group, or at least some of its members, must have a reason to visit each place they go to. Adventures can be quite varied.

The party may or may not possess a starship. If they do, it is likely to be a noble's yacht or a Scout ship. Free Traders also work well for this kind of campaign, of course. It is quite possible to disregard the whole trading system and assume that the characters make enough by trade to run their ship, but must engage in adventuring to gain any money for themselves.

A team of freelancers might spend some of their time in speculative operations, perhaps chasing rumors of alien relics or searching for a lost bullion-crammed liner. At other times they may be hired for mercenary, consulting or troubleshooting work by local governments or commercial concerns. They may occasionally be pressed into service by the authorities to help with some crisis.

An Adventuring campaign can be very varied. The characters could compete in an All-Terrain-Vehicle race one week, sneak into corporate offices to find evidence of corruption the next. For example, a mercenary job to protect a vital mining installation might be followed by an attempt to smuggle gemstones off planet.

Character Skills: Absolutely anything, but some combat skills desirable.

Adventure Hooks: Terrorist action, Bodyguard duty, Corporate intrigue, Ancient ruins, Service reactivation, Old friend or comrade needs help, Unmissable opportunity, Rumor.

Hazards: Hostile people/animals/plants, Environmental hazards, Almost anything.

THE TRAVELLER CAMPAIGN

A ***Traveller*** campaign can incorporate elements of all the above types. What follows is a brief outline for a campaign that would suit almost any taste.

CAMPAIGN CONCEPT

This campaign incorporates elements of the four major types. Depending upon how much the players like starship economics, trade and commerce may be integral to the game or might be assumed to be going on in the background. ("Okay, you made enough on that trip to earn you 500 Credits apiece and keep the backers happy. While Maran-the-NPC-Purser is handling cargo unloading, you hear these rumors...."). Adventure leads will take the characters to interesting places and the occasional firefight.

BACKGROUND

The Free Trader Hazard to Navigation is an elderly ship, and not in the best of working order. However, she is spaceworthy and, more importantly, paid for.

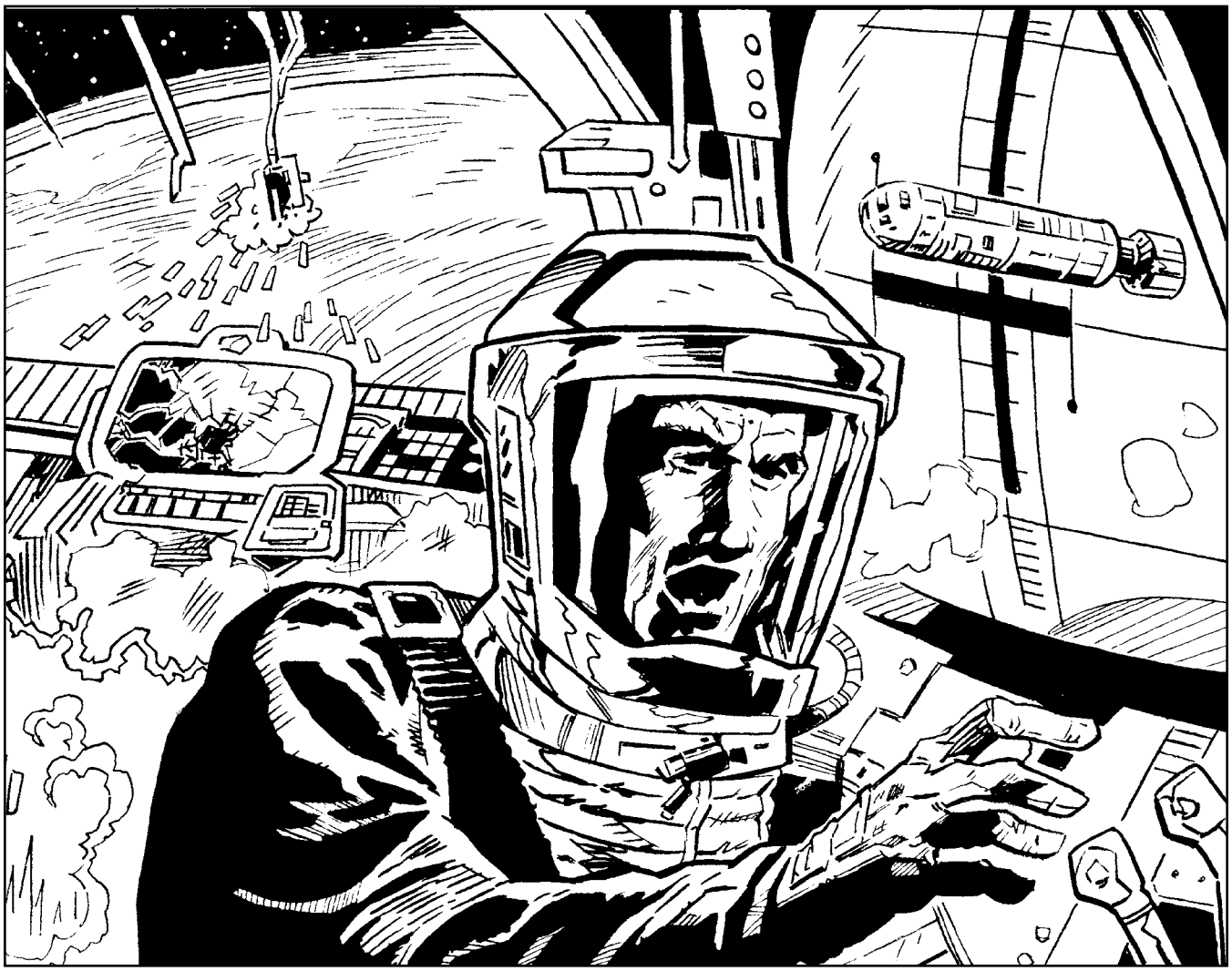
The Hazard is owned by a fledgling shipping company grandly titled Interstellar Commerce, LIC. She was acquired as part of a job lot of vessels (some of which were fit only for breaking for spares) and refitted to an acceptable standard with parts from some of the others.

Interstellar Commerce LIC began as a joint venture between three successful free trader captains and Hiller Yards LIC, a private refit-and-maintenance outfit. The line now operates six vessels; four on regular routes and two on speculative trade throughout the Ley Sector region. All vessels return to Hiller Yards for refit and annual maintenance. So far, the venture has been modestly successful.

Hazard to Navigation is the sixth vessel to enter service with IC. Her rebuild was fairly inexpensive as these things go, since parts were available from the derelicts and labour carried out between jobs at the yards. However, even without a bank mortgage to pay, it is about time she got out there and began making a profit.

Hazard to Navigation already has a captain (ex-first officer of one of the other IC ships) and a chief engineer (a talented Second Engineer promoted from another ship). These can be player-characters. The rest of the crew must be recruited from PCs and NPCs.

Hazard to Navigation has no expensive bank mortgage to pay, but her owners need to make their money back. To this end they have made available a sum of money to engage in speculative trade. To keep overheads down, the captain and crew have not been offered standard salaries. Instead they are entitled to a percentage of the ship's net profits at the end of each month. The ship's life support provides basic needs while in space of course, and is paid for out of the ship's overheads. But if the crew want to actually make any money they'd better get to work.



CHARACTERS

The ship is going to need a pilot, astrogator and engineer (the first two can be the same person) and whatever other crew are deemed necessary. A medic is required if passengers are to be carried, and gunners might be an idea. Characters with no shipboard skills might be hired as cargo handlers, security, stewards or maintenance technicians. The captain and engineer are assumed to be loyal to the parent company, and should have appropriate skills.

The big carrot here is the ship itself. It is owned by IC, but if the characters are successful, it is possible that they will be taken on as permanent crew and maybe even become partners in the firm, with the ship as their property.

The crew have a relatively free rein, so long as they make a profit for their parent company. That might mean charter or freighting work, passengers or speculative cargo. It certainly does not preclude side trips to undertake adventuring, but - of course - the ship must make a profit or a new crew will be recruited and the characters fired.

CAMPAIGN OUTLINE

The first cruise of the Hazard to Navigation is already planned out. She will make a circuit of the local star cluster, shaking down her crew and systems while hopefully turning a modest profit. The trip will visit seven worlds, taking roughly three to four months. Crew performance will be evaluated at the end, to see who gets kept on and who doesn't.

The seven worlds to be visited are worked up by the Referee, who makes a few brief notes about culture, conditions and local places of interest. If the players think to ask in the right places, they can learn a few facts about the worlds along the way that might help them buy and sell at a greater profit.

The majority of the campaign (actually, this is a mini-

campaign serving as an introduction to a longer campaign if the players wish it.) is about the life of a merchant crew. The characters will interact with one another and with NPC crewmembers while in jump, collect information in starport bars, and deal with the business of finding and buying appropriate trade goods.

Along the way, the characters will almost certainly want to get out of the ship whenever they are in port. (Starships are small and cramped, and characters are cooped up in them with the same people for weeks at a time.) In some cases, this means sampling the local cuisine and culture in restaurants, or visiting interesting places on-planet. This gives the Referee a chance to show the players that there is more to the Traveller universe than starports and the inside of a space vessel. Some of the local encounters will be more significant, however.

As the cruise progresses, various adventures take place.

• The Hazard to Navigation is diverted to join a search-and-rescue operation for a distressed freighter.
• A drive failure strands the ship for two weeks, during which time the crew are offered work carrying out mineral surveys in a remote area.
• A navigation error brings the ship out of Jump well off established routes. The crew detects a rogue asteroid and investigates, finding artifacts from the Rule of Man period in a small mining outpost.
• Terrorists attack the restaurant the characters are eating in.

There will be minor (and semi-random) obstacles along the way. Picky customs officials, unusual local laws, and the occasional brawl with local toughs or drunken spacers, will crop up from time to time. The ship has a number of minor (and a few serious) faults that will require the occasional stopover or emergency repair session. These will serve to divert and perhaps confound the characters.

The main story behind this mini-campaign will not be immediately apparent to the players. However, as their adventures continue they will start to hear rumors that will lead them into the story and to a final showdown. The opposition in this case is a rival free trader starship, the Bad Penny, which serves the same cluster of worlds. The Bad Penny is in deep financial trouble and has turned to illegal means to make a profit and to gain an edge over the competition.

At first the illegal activities of the Bad Penny and her skipper, Paulus Likhsaamsi, were limited to under declaration of customs fees and a little smuggling. As times have grown even worse, the crew have stooped to sabotaging other ships' operations in order to reach market first, and have finally made a deal with an organised crime group on one of the worlds in the cluster.

Early in the campaign, the characters should encounter the Bad Penny behaving like a normal Free Trader, which at that point she is. However, the characters should become suspicious when dock workers and local thugs are bribed to rough up other Free Trader crews, sabotage their ships and otherwise delay them (though all of these activities will be non-fatal at first). The crew of the Bad Penny may contrive to look like victims themselves, which may throw the characters off the scent. The deal is lucrative for the ship and for the gang, and for a time remains only slightly illegal.

But eventually, the deal goes sour. The crime gang decides to try its hand at piracy. The Bad Penny has a long history as a legitimate merchant, which makes her an ideal vessel - other Free Traders are not likely to suspect her until she opens fire. The crew are forced to operate their vessel by armed thugs put aboard for the purpose. After a Free Trader is taken in deep space (and her crew murdered) and a couple of outsystem installations are taken by surprise and plundered, the gang decided to make a last big raid with the ship before the authorities get wise.

Unfortunately for them, one of the crew has managed to escape. Having refused to work the ship after the first raid, the second engineer was shot and left for dead by the thugs. Somehow managing to survive and reach help, he contacts the crew of the Hazard to Navigation in port. The characters have been badly done-to by the Bad Penny crew, but may agree to help. If they don't, the engineer is sure (and he's correct) that the crew will be murdered to cover the gang's trail.

The engineer knows where the gang intends to strike next. A small mining outpost in the outsystem builds up quite large stockpiles of gold and platinum between monthly visits from the bulk freighters. The gang plan to approach the installation feigning distress, then take out the crew and clean the place out.

The characters have a difficult problem - how to stop the raid without killing the crew of Bad Penny (for some groups this may be less of a consideration than for others). Staging an ambush at the mining outpost is one option, though they will have to talk the miners into helping. One thing is certain. There is too little time to call in the authorities. The characters must act immediately or not at all.

Hopefully, the thwarting of the raid and rescue of the Bad Penny crew will make a dramatic finale to the mini-campaign as well as providing some answers as to why so much went wrong on the early cruise.

TRAVELLER ADVENTURES

The heart of any Traveller game is adventures. Good ones will captivate the players and stick in their memories. Mediocre ones will be quickly forgotten, and bad ones... well.

CREATING TRAVELLER ADVENTURES

The key to creating good adventures is preparation. This does not necessarily mean having reams of notes - in fact that can be counterproductive. Preparation in this case simply means being ready to run the game. At a minimum, the Referee should:

- Know the system well enough that the game flows without rules-consultation pauses.
- Have some idea about characters' surroundings and what is going on in them
- Have some interesting NPCs or situations for the characters to interact with

How much of the adventure is scripted in advance, and how much is created on the fly in response to what the players do is up to the Referee to decide. It is certainly impossible to predict every possible move the characters may make. A good way to get around this is to write adventures in the form of "scenes" or "nuggets" rather than a linear plot. Adventures in this style (and this is by no means the only way to do Traveller adventures) have the following components:

- Background information on the world and setting
- A loose timeline of events
- Details of critical scenes
- Stats for the opposition
- Relevant maps

A map of the surrounding stars and some data on the worlds there is also a good idea. The players may choose to have their characters look up library data on neighbouring planets, or may simply head for the starport and travel to another world.

Using the above format, the Referee knows what is going on around the characters and what the opposition is up to. Character actions may influence the order in which things happen, but some scenes will happen anyway. Whatever the characters choose to do on Twoday, they are going to find themselves in the middle of the "Hurricane hits the Starport" scene if they are around at the time. Even if they're in a nice coffee shop across town, they are still going to experience the hurricane.

However, less widespread events may simply not happen to the characters (though they may hear about or be affected by them later). If the characters are exploring the North Pole at the time, they are not going to experience the "Bank robbery on Fourday" scene at firsthand. The events still happen, but the characters are elsewhere (and the Referee is going to have to deal with what they do at the North Pole that day on the fly.).

Some scenes can be shifted so that the characters DO experience them. This is especially important for plot-critical events. It probably doesn't matter if the characters were caught in the hurricane and/or the bank robbery, so long as those things happen. But if "Boris intimidates the characters on Fiveday" doesn't happen, this may derail the plot. A loose format allows Boris to appear as and when he can. It seems a bit unlikely that Boris and his henchmen will come jumping out of an igloo as the characters take photos of the polar ice-sheet, so the event will have to rescheduled for when the characters are available for intimidation.

This format is flexible and easily adaptable, but is by no means the only way to do things.

STYLE AND TONE

Traveller is a hard-science game, which means that so far as possible, realism should be maintained. Objects and the setting itself should obey consistent physical laws. People and animals should also behave realistically. This does not mean that the fantastic has no place in Traveller. Far from it - it is this very grounding in the ordinary that makes the extraordinary so wondrous in Traveller. Some SF settings are so filled with the bizarre and unearthly that they dull the imagination. Not so Traveller. When a shadow falls over the characters and they look up to see an entire city floating overhead on antigrav modules, the event will have greater impact if the players understand that this really is an impressive achievement. Cities don't normally do that! If they do, the setting loses something.

Aliens, weird ecosystems and strange human societies should be tempered with a healthy dose of reality. "Psionics" or "Ancient Devices" can explain only so many bizarre occurrences. Similarly, however odd a society or ecosystem may be, it should still obey its own internal logic, even if it seems incomprehensible to the players.

Comedy is a difficult issue. All games benefit from light relief, but self-parody is a bad idea as pretty soon the whole game becomes a parody of itself and impossible to take seriously. The occasional "silly" adventure as a one-off is a reasonable idea, but care should be taken that events from the comedy game do not become in-jokes in the serious sessions. Better to avoid outright comedy altogether, or play an entirely different game for those silly sessions.

STEVE BRYANT
2002

OPPOSITION & DANGER

Without some kind of conflict or danger to the characters, adventures will tend to be rather boring. The most obvious source of opposition is NPCs actively opposed to the characters, or hostiles encountered randomly. However, there are more ways to confound the adventurers that just shooting at them.

The ***Traveller*** universe is - more or less - civilized, with laws and bureaucracy to contend with. Stubborn customs officials or tortuous local laws can present the characters with a major obstacle, which must be got around with good roleplaying or some sneaky maneuvering. Simply shooting the customs clerk is rarely an answer, as this kind of behavior usually leads to consequences of an unpleasantly fatal sort.

The environment around the characters can present all manner of danger. Adventures often take place in difficult environments: underwater or in hard vacuum; in the arctic or desert; up a mountain or in deep jungle. Troublesome animals can be shot, but an avalanche cannot. A torn vac suit is a major crisis, which can turn a simple repair task into a dramatic rescue.

The Referee is encouraged to present a range of challenges to the players in this manner. Physical obstacles, environmental hazards and direct (shootable) threats can all be combined with one another and with relatively mundane activities such as driving an ATV or changing a coolant cylinder on the contragrav lifters to give the players a variety of hard times.

Bear in mind also that actions have consequences. Adventurers are bound by local laws, wherever they are, and some activities are illegal most anywhere in charted space. Players who use strongarm tactics all the time are going to get into trouble. Sometimes it may be possible to hide the evidence, but tech level 15 forensics as used by advanced investigation teams are pretty good - and several corpses in an unmarked grave is the sort of thing that will prompt a government to investigate.

Characters who flout local laws will run afoul of law enforcement. Depending upon local law levels, this will most likely just be a couple of police officers with sidearms. However, major crimes (shooting at the local police is often considered one!) will trigger a robust response from the equivalent of SWAT teams, militia, army units or even a team of Marines from the starport protection force. This is not to say that characters will go to jail for firing their guns. Self-defense is usually considered acceptable so long as locally-legal weapons are used. Many incidents (especially on frontier worlds) are never investigated at all.

If characters commit a crime on one world and manage to get off-planet, they may well escape justice. They will remain wanted on that world for the crime, and in some cases “unofficial” retribution may be attempted in the form of bounty hunters or “free police agents” sent out to harm or capture the characters and return them for trial. However, in most cases, local crimes can be left behind. This is not true of “high crimes” such as deliberate murder, which are illegal on most worlds. Such crimes will usually result in a warrant being issued.

The important consideration here is simply that pointlessly violent characters will eventually end up being pursued by legal agencies, and if the Ministry of Justice or the Imperial Marine corps is your enemy, you’ve had it.

RANDOM ENCOUNTERS

Adventurers, as they travel about on planets, also have random encounters with an unpredictable variety of individuals or groups. Such individuals will be engaged in performing various tasks which may complement, supplement, oppose, or be irrelevant to the goals of the adventurers themselves.

Some ‘random’ encounters are mandated by the Referee. For example, a band may encounter a guard patrol at a building while in the course of visiting (or burglarizing) it. The Referee is always free to impose encounters to further the cause of the adventure being played; in many cases, he actually has a responsibility to do so. Other random encounters are dictated by the random encounter process. Usually, a random encounter point with humans will occur once per day. There is a one third chance that a group will be met (throw one die: a result of 5 or 6 indicates an encounter). Encounters with persons are independent of the procedure for encounters with animals described in the animal encounter section.

If a random encounter occurs, consult the person encounter table to determine the identity or occupation of the person or group encountered. Throw two dice consecutively, and index the result to the table. Indicated on the table are a basic description or identity for the encountered individuals, a dice throw to determine their number, an indication of their vehicle, if any, and a description of their weaponry and armor.

RANDOM ENCOUNTERS

Die	Type	Qty	V	Weaponry	Armor
11	Peasants	1D	-	Clubs and cudgels	-
12	Peasants	2D	-	Clubs and cudgels	-
13	Workers	2D	-	Clubs	-
14	Rowdies	3D	-	Clubs	-
15	Thugs	2D	-	Daggers	-
16	Riotous mob	4D	-	Clubs and daggers	-
21	Soldiers	2D	-	Rifles and bayonets	Cloth
22	Soldiers	2D	V	Carbines	Mesh
23	Police patrol	1D	V	Automatic pistols	Cloth
24	Marines	2D	V	Revolvers and cutlasses	Mesh
25	Naval security troops	3D	V	Carbines	-
26	Soldiers on patrol	2D	V	Submachineguns	Jack
31	Adventurers	1D	-	Swords	-
32	Noble with retinue	2D	-	Foils	-
33	Hunters and guides	2D	-	Rifles and spears	Jack
34	Tourists	2D	V	Cameras	-
35	Researchers	2D	V	-	-
36	Police patrol	1D	V	Revolvers	-
41	Fugitives	1D	-	Clubs	-
42	Fugitives	2D	V	Blades	Jack
43	Fugitives	3D	-	Revolvers	-
44	Vigilantes	2D	V	Rifles and carbines	Jack
45	Bandits	3D	-	Swords and pistols	-
46	Ambushing brigands	3D	-	Broadswords and pistols	Cloth
51	Merchant and employees	1D	-	Daggers	-
52	Traders	2D	V	Blades	-
53	Religious group	2D	-	-	-
54	Beggars	1D	-	-	-
55	Pilgrims	5D	-	-	Jack
56	Guards	3D	-	Halberds and daggers	Jack
61					
62					
63					
64					
65					
66					

ADDITIONAL WEAPONS

	1	2	3
1	Laser rifle	Shotgun	Broadsword
2	Auto rifle	Carbine	Sword
3	-	Revolver	Halberd
4	-	-	Cutlass
5	-	-	Foil
6	-	-	-

Notes to Random Person Encounters

The code V in the V column indicates that the group has a vehicle appropriate to the technology of the world and the terrain of the area.

Group numbers and their weaponry should be adjusted for law level, tech level, and balance where necessary.

After determining the number in the group, assign appropriate characteristics to the individuals. Generally, it may be assumed that most individuals in an encountered group have the same characteristics. Leaders may have somewhat higher skill levels or attributes.

In addition to the weapons indicated on the table, there is a possibility that one of the group's members will be armed extraordinarily. Consult the additional weapons table: throw 1d6 for column 1. If a weapon is shown, one person is armed with it; if a dash is shown, re-roll on column 2. If a weapon is shown, one person is armed with it; if a dash is shown, re-roll on column 3. If a weapon is shown, one person is armed with it; if a dash is shown, no extraordinary weapons are present.

Six entries in the person encounter table are left blank; initially, they may be interpreted as no encounter. Later, they may be filled in by the Referee for specific situations, as necessary.

Once an encounter occurs, a determination of attitude is made using the reaction table (later in this section). Combat may ensue. After an encounter has been resolved, there is the potential for small amounts of money to be on the persons (or bodies) of the vanquished. It is also possible to loot the vanquished of their equipment, vehicles, weapons, or armor.

PATRON ENCOUNTERS

	1	2	3	4	5	6
1	Arsonist	Cutthroat	Assassin	Hijacker	Smuggler	Terrorist
2	Crewperson	Peasant	Rumor	Clerk	Soldier	Shopkeeper
3	Shipowner	Tourist	Merchant	Police	Scout	Rumor
4	Diplomat	Courier	Spy	Scholar	Governor	Administrator
5	Mercenary	Naval	Marine	Scout	Army	Mercenary
6	Noble	Playboy	Avenger	Émigré	Speculator	Rumor

Note: Rumors are, in effect, absent patrons. They impart knowledge which may be acted on by characters if they so choose.

PATRON ENCOUNTERS

One key to adventure in Traveller is the patron. When a band of adventurers meets an appropriate patron, they have a person who can give them direction in their activities, and who can reward them for success. The patron is the single most important NPC there can be.

A patron will, if he decides to hire a band of adventurers, specify a task or deed to be performed, and then finance reasonable expenses for the pursuit of that task. Some tasks may be ordinary in nature, such as hired guards or escorts; other tasks may be for the location and procurement of items of great value. Generally, a patron's agreement with a band of adventurers will specify that the patron will receive the item he is seeking while all other goods or items acquired will belong to the adventurers.

In a single week, a band of adventurers may elect to devote their time to encountering a patron. They may frequent bars, taverns, clubs, perhaps the Travellers' Aid Building, or any other likely places. One throw is allowed for the entire band: a result of 5 or 6 on 1d6 indicates a likely patron has been found. Two d6s are then thrown consecutively, and the Patron Encounter table is consulted to determine the general character of the potential patron. If necessary, the patron's personal characteristics are generated at this point. The band then meets with the patron, and an interview takes place. Throw two dice on the reaction table to determine if the patron concludes that the band will be suitable. The patron then discloses his task, and the adventurers may accept or reject the offer of employment.

Once the patron and the adventurers have met, the responsibility falls on the Referee to determine the nature of the task the patron desires, the details of the situation (perhaps a map or some amount of information), and the limits of the patron's resources in the pursuit of the task.

Employees and Hirelings: When PCs themselves require employees, for any purpose, they must find them in the course of their activities. This may require advertising, visiting union hiring halls, or active efforts in barrooms or clubs. Hiring is done by stating a requirement to the Referee, who then describes any persons presenting themselves for employment. The interview consists of generating the person's characteristics and experience. While decisions to hire are made on qualifications, the number of persons applying for employment may be limited.

DESIGNING PATRON ENCOUNTERS

A patron encounter is usually written as a short paragraph to be read to the players, which briefly details the information available to them. This might include the location, a description of the patron, his or her name, the task or job being offered, and the payment that will be rendered for completing the job. Details should also be added that help establish opinions in the minds of the characters about the patron and/or the job which may or may not be true.

A list of three to six possible outcomes or rationales for the situation should be drawn up (for example: the patron is lying, the patron is crazy, the patron has been swindled, etc.). The true outcome or rationale should then picked by the Referee when the encounter occurs (or prepared before the game session). This allows a patron encounter to be used more than once with just a bit of changing and tweaking here and there.

A sample patron encounter follows on pg. 417.

AMBER ZONES

Amber Zone is a travel zone code issued by the Travellers' Aid Society to warn individuals of dangerous worlds. This same term is used for situations that present a danger to characters and warn them to use caution. Amber Zone adventures do not need to take place on an Amber Zoned world - they may be used on any world, asteroid or orbital habitat. Amber Zones present a problem, task, or predicament to the players and typically include a general outline for the Referee to follow. The Referee must provide deck plans, maps, and other information where called for,

SAMPLE PATRON ENCOUNTER

1. Mercenary, Courier **Required Skills:** None **Required Equipment:** None

Players' Information

While hanging around the starport between jobs, the characters are approached by a smartly-dressed young man who identifies himself as Jayme Hewitt. Hewitt is, he says, a courier for Brightland Packages, a security firm specializing in delivery of small packages across the sector. A check will show that the firm is real, and has a good reputation for efficiency and remaining within the law.

Hewitt is on-planet to pick up a case of documents for a regular client (he will not say who). He's carried out similar transfers between his client's offices on various worlds several times. They transfer sensitive information in hard copy only, in tamper-proof attaché cases, in order to be certain of security.

However, there have been no less than five attempts to intercept couriers working for this client in the past six months. Hewitt is concerned that there may be an attempt to prevent this delivery, or to steal the case. With two of his colleagues dead and one permanently out of the business, he's not inclined to take chances. He is becoming convinced that someone is stalking Brightland agents, and that he is next on the list.

Hewitt proposes that the group help him to confuse the issue and fool anyone trying to set him up. He will make the pickup as planned, but before he can reach the port, he will be "ambushed" by the group. In the ensuing scuffle the case will be stolen and he will be "hospitalized" (this is already set up). The characters will then immediately depart on a starship with the case. At the other end of their trip the characters should watch the local data net for a certain coded signal, and keep their heads down until it comes.

After a couple of days pretending to be in critical trauma care, Hewitt will quietly leave the hospital and follow the characters to their destination, where he will signal them to meet him and they will hand over the case in return for Cr 2500 each. Liner fares and hotel bills will all be charged to Hewitt's "discretionary expenses" account. He adds (with a chuckle) that the characters' expenses will be costing the client, not him, and that they should be able to get away with quite considerable (though justifiable) spending. He does suggest that the characters surrender their case if they do run into trouble - no fee is worth getting shot over.

Referee's Information

The situation is above board. Hewitt is pretty sure that someone will try to intercept him, and hopes either to evade interception or better still, to draw out his stalker (if there is one) and identify them. Of course, he is playing a double game, and the case he "loses" is not the real one. He doesn't think the characters will be in any real danger, since whoever is stalking him will not have time to switch targets.

The "ambush" goes well enough. Hewitt provides a couple of snub revolvers loaded with "stinger" training ammo; enough to burst the blood bag under his shirt but not sufficient to really hurt him. The characters can then snatch up the case and make for the starport.

Determine the outcome by rolling 1d6:

1. Everything goes well. Hewitt catches up to the group after a few days of hiding out. He expresses shocked disbelief at their expenses claims, but pays up.

2. As 1, but local law enforcement officials arrive on the scene as the characters grab the case. With no time to explain, the characters must flee.

3. The stalker is fooled, and follows the characters to their destination. He attempts to gain the dummy case by stealth. (He is alone, armed with a handgun and knives)

4. As 3, but the "stalker" is a team of thugs equal in numbers and armament to the characters. They attempt to take the case by force.

5. The stalker was partially fooled. Hewitt was murdered on the way to the hospital, and the stalker is now after the players, thinking that they have the real case. Subsequent events are up to the Referee.

6. The stalker was not fooled. Hewitt is dead, as in 5, and the stalker has the real case. He will not come after the characters, but they will not know that. Subsequent events are up to the Referee.

and must be prepared to deal with problems in background or reactions when it becomes necessary.

SAMPLE AMBER ZONE

Dismal Hole is an outsystem mining outpost situated on a gas giant moon, several days' travel from the mainworld. The moon has no air, no water, and little to recommend it but for some mid-level deposits of common metals such as iron and tin.

The outpost is run by several minor ore extraction and processing firms. A tiny spaceport serves the only community on-planet, numbering about 2000 people who mainly

work in the ore-processing and packaging works owned by Interstellar Minerals, LIC. The rest of the population work in service industries or at the spaceport as cargo handlers. About another 2-3000 miners and prospecting engineers work from temporary camps scattered about the planetary surface.

Dismal Hole is very much a frontier town, with little in the way of formal law or enforcement. Security personnel from the five mining companies and the processing works they all use keep order (in a fairly rough and ready way) and major issues are decided by a council of executives, one from each of the firms and a chairman, who represents the service workers.

The system is ad-hoc but it has always worked, at least until now. A major dispute has arisen, resulting in the processing works refusing to handle ore from Gashaskii Enterprises or Rockrip LIC. This will cripple the operations of these two firms unless the situation is resolved - and that seems unlikely. Fights between workers are becoming common, and the security personnel are being drawn in rather than remaining impartial.

In a bid to break the deadlock, Rockrip LIC has chartered a free trader ship to bring in a prefabricated ore-processing plant and to shuttle the ore back to the mainworld. This is an inefficient way to do things, but better than being choked out of business by the processing plant operators.

Referee's Information

The dispute is the result of a deliberate attempt by Interstellar Minerals LIC to force the mining companies to agree to a higher fee for processing. Similarly, IM wants to control the port, thus gaining a monopoly on all operations on Dismal Hole. Three of the five mine companies have caved in, and are now being coerced into fighting IM's battles for it in return for minor concessions.

In just a few weeks, the pressure will be too great and the remaining mine corps will have to either agree to the new deal or pack up and leave. But Rockrip's plan might just derail the operation. Interstellar Minerals will not tolerate this, and plans to move directly against Rockrip if necessary.

The characters may become involved in this situation in several ways. They may be the free trader crew, innocently thinking that all they have to do is to deliver equipment and shuttle ore from a remote location. They might be engineers or miners, caught in the middle, or they might be freelance security professionals brought in by one side.

Whatever part the characters play, tensions will rise steadily, violence will increase, and IM will eventually learn where the ore processing plant has been set up (it's hard to hide such things). Attempts will be made first to sabotage it, and if that fails, a direct assault by security personnel (armed mainly with SMGs and shotguns) will be made using ATVs and mine buggies. The fight will be a very nasty affair, fought in rugged airless terrain by vac-suited miners and security personnel. Many improvised weapons such as seismic charges and laser drills can be brought into play.

Nobody will fight to the death, but there is a lot of anger on both sides, so the fighting will be very bloody.

Subsequent events are up to the Referee.

SHORT ADVENTURES

Unlike patron encounters and Amber Zones, a short adventure is a fully detailed scenario restricted only by its length, that focuses primarily on a single interesting situation or location, and provides relatively detailed background and data that will be need to run the scenario. This would usually include complete maps or deckplans, descriptions, detailed situations, animal encounters, and other similar information.

THE EPIC ADVENTURE SYSTEM

The problem with many adventures is that they are very 'linear' in design, in that encounter one typically leads to encounter two, which inevitably leads to encounter three, ad-nauseum. This is fine until you get player characters involved who always seem to want to go from encounter one, to encounter twelve, back to encounter three, then over the woods to an area you haven't developed yet, and general cause mayhem to the plot of an otherwise well-planned adventure.

The Epic Adventure System provides a new way to design and organize adventures, that allows the player characters the 'freedom to roam' without causing the Referee nightmares. An Epic Adventure is broken down into 6 parts:

THE CAST OF CHARACTERS

The Background - The background provides the Referee with the information needed to prepare himself, and lay the groundwork for introducing this adventure to the players.

Minor Scenes - Minor Scenes (usually just referred to as 'Scenes'), are encounters or events that involve the player characters in some form. Many are directly related to the adventure, and may provide clues, equipment, or other information and materials needed to eventually complete the adventure. Others are merely to provide diversion and amusement. Scenes, unless noted in their descriptions, do not need to be played in any particular order, and may be sprung upon the player characters when the Referee deems appropriate.

Plot Keys - Plot Keys (or simply 'Keys'), make up the

heart of the storyline for the adventure. They contain critical pieces of the plot and must be played for the adventure to make any sense to the players in the end. You may play any number of Scenes before and after each Plot Key, but each Plot Key should eventually be completed in their proper order.

Chapters - A Chapter is made up of one of more Plot Keys, and probably one or more Scenes. They outline the plot to the Referee, and provide tips and information for playing the Scenes and Plot Keys that are contained in the Chapter. In order to complete a Chapter, each Plot Key within must be completed. Each Chapter must be played in order to successfully run the adventure.

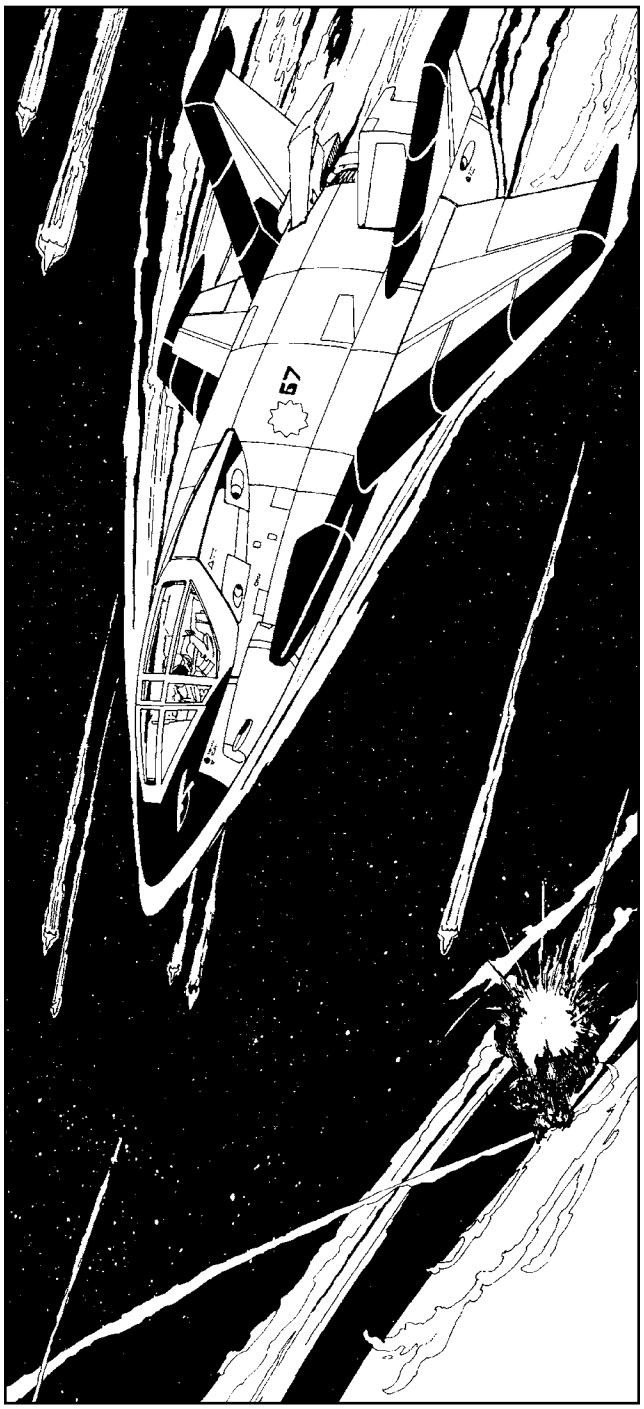
Because of the 'cinematic' nature of the Epic Adventure system, it is easy for the Referee to allow the characters to temporarily deviate from the current adventure storyline to follow a false lead or pursue another short adventure that has interested them. When the PCs are ready to return to this adventure plot line, simply pick up with the next Scene.

Adventure Checklist - The Adventure Checklist provides newer Referees a recommended guideline of the order in which various Scenes and Plot Keys in this adventure should be presented to the players. As the characters complete each Scene or Plot Key, the Referee simply checks it off the list. When every Plot Key in a Chapter has been played, that Chapter has been completed the Referee may begin the first Scene in the next Chapter.

You will note that not every Minor Scene is included in the Checklist. This allows Referees who would like to use the Checklist, but would like to change things a little bit to swap out scenes, or included their own custom scenes. If you feel comfortable in letting your characters stray from the order of the checklist, you may determine the 'cinematic' order of the scenes as you see fit, or use a weekly events chart like the one below to determine the course of events.

This weekly events chart has been created for an adventure in which the characters spend several weeks in the outback searching for lost ruins in the hope of finding historical artifacts.

2d6	*Weekly Event*
2-8	Play a Minor Scene/Find a Ruin
9-11	Starport Run. The Professor has some errand requiring the characters to go to the local starport for the week.
12	Plot Key



Play a Minor Scene - Select one of the Minor Scenes detailed later and run the scene as directed.
Starport Run - This is an excuse and an opportunity to bring in sideline encounters, patrons and scenarios unrelated to this adventure.
Play a Plot Key - Plots Keys should be played in the correct order for the adventure to make sense to the players. If you change the order of the Plot Keys, you should

be sure to adjust any of the other scenes to ensure the adventure flows properly and makes sense.

REWARDS AND ADVANCEMENT

Traveller enemies rarely have boxes of Credits lying around their lair to be picked up by victorious adventurers. Valuables can of course be taken from defeated enemies, but Traveller characters generally earn their wealth in other ways. Commonly, this is payment for a task undertaken. Governments, corporations and affluent individuals often seek to hire experts to solve their problems, and are generally willing to pay well for expertise (or deniability) that would not otherwise be available.

Payment (or reward) for a task is not always in hard currency, of course. Characters may receive their reward in terms of useful information, a favour, a preferential fuel price or the cancellation of a legal penalty. Alternatively, payment can be in kind. Characters may find themselves in part-ownership of a merchant cargo, entitled to a cut of the profits (if any). Shares or land deeds are not uncommon as rewards, too.

Finally, reward can take the form of positions and titles. The reward for a job well done may be a position as security advisor, or commander of a military unit. It may be a prestigious (but otherwise empty) title. Some worlds can grant characters titles within their local nobility, or a character may even be elevated to the Imperial nobility.

Naturally, the promised reward is not always delivered, nor is it always what was expected. That can spark a whole new adventure.

The other reward for success in the game is character advancement. Traveller does not reward 'hack & slay' adventuring and thus does not typically hand out experience points just for shooting people (however much they may deserve it).

The amount of experience earned by a party of characters upon completion of an adventure depends on the type of adventure and how difficult it was for the characters to complete it (successfully or unsuccessfully).

EXPERIENCE REWARDS AND ADVANCEMENT

Adventure Type	*Group XP Award*
Random Encounter	100-600XP or the XP value of any creature(s) fought whichever is greater.
Patron Encounter	1,000XP x the average party level
Amber Zone	2,000XP x the average party level
Short Adventure	3,000XP x the average party level
Full Adventure	4,000XP x the average party level

Difficulty	*XP Modifier*	*Example*
Trivial	x1/4	The characters could have completed the adventure in their sleep.
Minor	x1/2	The worst that might have happened is a character lost the keys to the vehicle.
Average	x1	A few characters may have been injured, or the party ran into some other fairly minor difficulties in getting the job done.
Hard	x1.5	There were a couple of times during the course of events that posed real challenges for the characters to overcome.
Difficult	x2	One or more of the characters was seriously injured, died, or other major difficulties were run into during the adventure.
Impossible	x3	The characters barely survive the ordeal; those still standing are in a state of shock.

Other Experience Awards

Per Week of Full-Time Work: 20XP. If a character is spending the majority of their time using a skill or feat for gainful purposes during a given week, he or she is considered to have been working and earns 20xp. This does not include practicing, training, etc.

Per Week of Part-Time Work: 10XP. If a character uses a skill or feat for gainful purposes during a given week, he or she is considered to have been working and earns 10XP. This does not include practicing, training, etc.

Per Week Not Working: 5XP. If a character is specifically on shore leave, vacation, or otherwise does not use a skill or feat for gainful purpose during a given week they will earn 5XP.

Good Roleplaying: 10-50XP. At the Referee's discretion, he or she may award individual characters extra experience points (10-50) for good roleplaying on the part of the player.

APPENDIX I: FRIENDS AND ENEMIES

The d20 Game system requires a sizable number of stats for each character or creature during all combat encounters. This appendix provides referees with some sample/example stat blocks that they may use or reference, especially for encounters that occur "on the fly".

The character and animal stat blocks presented in this appendix are meant to be "Average". Each is therefore designed with average ability scores for race and average Stamina points for class. They may be adjusted as necessary for stronger or weaker encounters.

NPC Stats: Since the bulk of the NPCs that follow are human, most ability scores are set at either a 10 or 11 for first level and rise at the normal pace with experience levels. Non-humans' ability scores are adjusted by their race's ability modifiers, from the same base. For example, a human character at first level might be Str 11, Dex 11, Con 11 but a Vargr would be Str 9, Dex 13, Con 9 because of racial modifiers.

NPCs who have the Mercenary character class automatically have a starting Strength of at least 12. This is to comply with the entry requirements of the class. The examples of Imperial Marines given in the book have Str, Dex and Con of 12 each, due to the Marines' rigorous training regime and selective recruiting.

Because of the various possibilities for gaining experience, age has not been factored into the stats given for these characters. Furthermore, all the stats provided can be used for male or female NPCs interchangeably, except for the Aslan Marines who must be male for social and cultural reasons.

READING THE STAT BLOCKS

Here is a sample of the sort of stat block used in the book:

Main Block: The main block will list the name of the NPC or creature, the type or class(es), and all pertinent combat related information the referee may need to use this NPC or creature during an encounter.

Skill Line: The next line contains all of the character's skills and the total skill bonus, including skill ranks, ability bonuses, racial bonuses, and the feat bonuses that always apply. For example, a Skill Focus in a skill will always be included in the total, but the bonus from EW specialist will not because it only applies in certain circumstances.

Feat Line: The complete list of all feats the character possesses. Vessel, Armor, and Weapon Proficiency feats are each grouped together; so Vessel (grav, wheeled, ship's boat) means the character possesses Vessel: Grav, Vessel Wheeled, and Vessel: Ship's Boat.

Equipment: The noteworthy equipment that the character carries. For weapons that require ammunition, military characters are assumed to have 6 magazines for each (high energy and lasers excepted), and non-military characters to be carrying 3 magazines. Characters with arrows or black powder weapons are assumed to have a load of 30 shots.

Special Abilities: List for animals only, and then only if the creature has some form of special ability or attack. Details for such abilities will normally be detailed in the text description of the creature itself.

Climate/Terrain: The most common natural environments these types of animals are found in. List for animals only.

Organization: Listing the numbers and type of groups the creature normally organizes into for protection and socialization.

SECTION 1: CIVILIANS

The first section covers the non-military characters that the players might encounter on a world surface.

BANDITS/GUERRILLAS

These characters represent the average foot soldiers in bands of rural robbers or bandits, the flunkies of tribal warlords, guerrillas and peasant revolutionaries.

Regular Bandit: Human Rogue 4/Mercenary 2; TL 5+; Init +0; AC 12 (+2 jack); AR 2 (jack); Spd 9m (6 sq); St/Lb 37/12; Atk +6 melee (fist 1d4+1/20), +5 melee (machete 1d6+1/19), +5 ranged (rifle 1d12/x3), +5 ranged (assault rifle 1d12/x2); SV Fort +5, Ref +4, Will +3; SZ M; Str 12, Dex11 Con12, Int 10, Wis 10, Cha10, Edu 6, Soc 5.

Skills: Hide +11, Move Silently +11, Spot +11, P/Hunting +7, Listen +9, Driving +0

Feats: Vessel (wheeled), Weapons (marksman, combat rifleman, swordsman), Armor (light, medium, vac suit), Stealthy, Alertness, Tracker, Brawling, Spot Trouble, Sneak Attack (+1d6), Evasion, Point Blank Shot

Equipment: jack armor, rifle or assault rifle, machete.

BARBARIAN WARRIORS

These NPCs are used for the typical low-tech tribesmen that the players inevitably meet at some point in their adventures. At tech level 0 they are unarmored and carry only a spear. At tech levels 1-3 they will have padded armor (unless in a tropical locale) and a large wooden shield and perhaps a sword or axe as well.

Regular Barbarian: Human Barbarian 6; TL 0-3; Init +0; AC 13 (+1 padded, +2 shield); AR 0; Spd 9m (6sq); St/Lb 47/13; Atk +7/+2 melee (spear 1d8+2/20x2), +6/+1 melee (sword 1d8), +6/+1 melee (axe 1d6), +7/+2 melee (fist 1d4); SV Fort +6, Ref +2, Will +3;SZ M; Str 11, Dex 11 Con 12, Int 10, Wis 10, Cha 10, Edu 4, Soc 10.

Skills: Hide +9, Move Silently +9, Spot +7, Listen +6

Feats: Armor (light, shield), Weapons (archer, swordsman, armsman), Weapon Focus: lt. spear, Weapon Specialization (lt. spear), Alertness, Brawling, Run, Toughness

Equipment: light spear and if TL 1-3: padded armor and large wooden shield, some have sword or axe as well.

FUNCTIONARY

If 25 years of the unfolding of the Traveller experience has proven anything, it is that sooner or later somebody is going to try to shoot the clerk, kidnap the corporate official or beat the bureaucrat's head in. Here are the stats to help that process along. Most functionaries will be unarmed, but body pistol, sword and dagger stats are included in case they are needed. Mid-Tech functionaries will have Vessel (wheeled) and Driving skill, High-Tech functionaries will have Vessel (grav) and Pilot skill.

Regular Functionary: Human Professional 6; TL 5+; Init +0; AC 10; AR 0; Spd 9m (6sq); St/Lb 22/10; Atk -3 ranged (body pistol 1d6/20), -3 melee (sword 1d8/20x2), -3 melee (dagger 1d4/19), -3 melee (fist 1d3/20); SV Fort +2, Ref +2, Will +5; SZ M; Str 10, Dex 10 Con 10, Int 11, Wis 10, Cha 11, Edu 12, Soc 10+.

Skills: Pilot or Drive +9, P/Admin +13, Liaison +9, Appraise +9, T/Computer +10, T/Communications +10, K/Interstellar Law +12, Speak Language (choose).

Feats: Vessel (grav or wheeled), Armor (light), Connections (professional), Research, Barter, Trustworthy, Credit Line, Professional Specialty (choose), Carousing, Skill Focus Admin, Legal Eagle

Equipment: perhaps communicator, perhaps sword or dagger or body pistol

GUARDS (MIDDLE TECH)

These are typical security guards, bodyguards, starport guards and police patrolmen for tech levels 5 through 9. They are outfitted with flak jackets, as if expecting trouble, but this can be reduced to no armor in lower risk environments. Most will carry an auto-pistol and baton, but often will have a shotgun (riot gun) nearby as well.

Regular Guard: Human Mercenary 6; TL 5-9; Init +1 (+1 Dex); AC 15 (+1 Dex, +4 flak jacket); AR 4 (flak jacket); Spd 9m (6sq); St/Lb 33/11; Atk +7/+2 melee (baton 1d6+1/20), +8/+3 ranged (auto-pistol 1d10+2/20x2), +7/+2 ranged (riot gun 3d6/2d6/1d6/20), +8/+3 melee (fist 1d4+1/20); SV Fort +5, Ref +3, Will +3; SZ M; Str 12, Dex 12 Con 11, Int 10, Wis 10, Cha 10, Edu 10, Soc 10.

Skills: Driving +10, Listen +11, Spot +11

Feats: Vessel (wheeled), Armor (light, medium, vac suit), Weapon (marksman, combat rifleman, armsman), Evasion, Brawling, Alertness, Quick Draw, Defensive Roll, Weapon Focus: auto pistol, Weapon Specialization; auto pistol

Equipment: flak jacket, auto-pistol, baton, (access to riot gun).

GUARDS (HIGH TECH)

These are typical security guards, bodyguards, starport guards and police patrolmen for tech levels 10 and beyond. Unlike their lower tech counterparts, high tech guards are required to have extensive training in various tech skills. As a result, they are multi-classed professional/mercenaries. They are outfitted in combat environment suits for dangerous duty. Each guard carries a shock baton, snub pistol and a variety of ammunition. Guards in higher-risk situations will carry a Snub SMG too. The guns will be fitted with a Heads-Up Display giving an included +3 to hit. In rural situations they will often have a light ACR with HUD display.

Regular Guard: Human Professional 3/Mercenary 3; TL 10+; Init +1 (+1 Dex); AC 17 (+6 CES, +1 Dex); AR 6 (CES); Spd 6m (4sq); St/Lb 26/11; Atk +7 ranged (snub pistol 1d10/20), +4 melee (shock baton 1d6+1d6+1/20), +7 ranged (snub smg 1d10/20); +7 ranged (light ACR 1d12/20), +5 melee (fist 1d4+1/20); SV Fort +4, Ref +3, Will +5; SZ M; Str 12, Dex12 Con11, Int 10, Wis 10, Cha10, Edu 11, Soc 10.

Skills: Pilot +4, Spot +5, Listen +5, P/Security+6, T/Electronics +6, T/Communications +6, T/Computer +6, T/Sensors +6, K/Interstellar Law +8, P/Admin +8, Sense Motive +5

Feats: Vessel (grav), Armor (light, medium, vac suit), Weapons (armsman, marksman, combat rifleman), Alertness, Quick Draw, Professional Specialty (Security), Brawling, Interrogation, Legal Eagle, Skill Focus: Sense Motive

Equipment: Combat Environment Suit, Snub pistol with HUD, shock baton, access to Snub SMG with HUD or Light ACR with HUD.

STREET THUGS

The selection of Average Street Thugs below are best used as petty muggers, paid "muscle", enforcers and gunmen of urban criminal gangs. These aren't the smugglers, con men or forgers, just the simple goons that the players always seem to wind up running afoul of. These stats can also be used for bodyguards and minor henchmen to master villains.

Regular Thug: Human Rogue 6; TL 5+; Init +5 (+1 Dex, +1 Improved Initiative); AC 13 (+2 jack, +1 Dex); AR 2 (jack); Spd 9m (6sq); St/Lb 32/12; Atk +5 melee (fist 1d4/20), +4 melee (dagger 1d4/19), +4 ranged (shotgun 3d6/2d6/1d6/20), +4 ranged (revolver 1d10/x2), +4 ranged (auto-pistol 1d10/x2), +4 ranged (SMG 1d10/x2); SV Fort +2, Ref +6, Will +2; SZ M; Str 11, Dex 12 Con 11, Int 10, Wis 10, Cha 10, Edu 6, Soc 5.

Skills: Driving +10, Innuendo +9, Intimidate +9, Listen +11, Spot +11

Feats: Vessel (wheeled), Weapons (marksman, swordsman), Armor (light, medium), Alertness, Toughness, Brawling, Improved Initiative, Spot Trouble, Quick Draw, Point Blank Shot

Equipment: jack armor and 1-2 of the following: revolver, autopistol, shotgun, SMG, dagger.

SECTION 2: STARSHIP CREWS

The NPCs in this section are those likely to be found on the various types of starships and space vessels in the Imperium.

BELTERS

These are rough-and-tumble asteroid miners and deep-space workers, ubiquitous across Charted Space. Most belter ships will have a few snub pistols, shotguns and carbines on board for security purposes, and belters are known for an almost pathological reluctance to remove their vac suits.

Regular Belter: Human Belter 6; TL 12+; Init +0; AC 13 (+3 vac suit); AR 3 (vac suit); Spd 6m (4sq); St/Lb 22/10; Atk +3 ranged (snub pistol 1d10/20), +3 ranged (shotgun 3d6/2d6/1d6/20), +3 ranged (carbine 1d10/20x2), +4 melee (fist 1d4/20); SV Fort +2, Ref +2, Will +6; SZ M; Str 11, Dex 11 Con 10, Int 10, Wis 12, Cha 10, Edu 10, Soc 10

Skills: Appraise +9, K/Mining +10, P/Prospecting +10, T/Engineering +9, Demolitions +9, Gunnery +6, K/Geology +5, Search +5, Pilot +4.

Feats: Vessel (grav, ship's boat, starship), Armor (light, vac suit), Weapons (marksman, ship's weapons), Zero-G/Low-G Adaptation, Improved Zero-G adaptation, Brawling, Geological Survey, 3-D awareness

Equipment: Vac Suit-12, Snub pistol or shotgun or carbine, tool kit

VARGR CORSAIR CREW

These are the Vargr crewmembers of a piratical spacecraft.

Regular Corsair: Vargr Traveller 6; TL 12+; Init +1 (+1 Dex); AC 14 (+3 vac suit, +1 Dex); AR 3 (vac suit); Spd 9m (6sq); St/Lb 21/10; Atk +5 melee (claw 1d4-1/20), +5 melee (bite 1d6+2), +4 ranged (snub pistol 1d10/20), +4 ranged (laser carbine 3d8/20); SV Fort +2, Ref +4, Will +3; SZ M; Str 9, Dex 13, Con 10, Int 10, Wis 10, Cha 10, Edu 11, Soc 10, Pres 3.

Skills: Pilot +10, Gunnery +9, Gambling +9, Any 3 technical skills +9

Feats: Vessel (grav, starship, ship's boat), Weapon (marksman, laser, ship's weapons), Armor (light, medium, vac suit)

Equipment: laser carbine or snub pistol, vac suit TL-12, medium range communicator

MERCHANT CREW

These are typical crewmen on merchant space vessels, be it free traders or corporate liners. They are presented equipped to "repel boarders" and so are in vac suits, carrying snub pistols and makeshift weapons. Additionally stats for a shotgun are provided for when the merchant crew turns out to be a bit more heavily armed. In the skill and feat list for each level, there are several choices: one for bridge crew, one for technical crew and one for trade crew; gunners should be taken from the Navy stats. Merchant crew can be used for the crew of smuggler ships and the "less professional" pirate ships. Note that a "lead pipe" is a representative weapon - any heavy blunt object found lying around will do in a pinch.

Regular Merchant Crew: Human Merchant 6; TL 12+; Init +0; AC

13 (+3 vac suit); AR 3 (vac suit); Spd 6m (4 sq); St/Lb 22/10; Atk +1 ranged (snub pistol 1d10/20), +2 melee (fist 1d4/20), +1 melee (lead pipe 1d4/20), +1 ranged (shotgun 3d6/2d6/1d6/20); SV Fort +3, Ref +2, Will +3; SZ M; Str 10, Dex 10, Con 10, Int 11, Wis 11, Cha 10, Edu 12, Soc 10.

Skills: all: Pilot +9, P/Merchant +9, K/Trade Law +10, Appraise +9, Gather Info +9

a) Bridge Crew: T/Astrogation +10, T/Computer +10, T/Sensor +10

b) Tech Crew: T/Engineering +10, T/Mechanical +12, T/Electronics +12

c) Trade Crew: Trader +11, Broker +11, Liaison +9

Feats: all: Vessel (grav), Armor (light, vac suit), Weapons (Marksman), Barter, Brawling, Connections (merchant), Zero-G/Low-G Adaptation, First Aid

a) Bridge Crew: Vessel (ship's boat, starship), Hacker

b) Tech Crew: Jury Rig, Gearhead. Miracle Worker

c) Trade Crew: Steward, Calculating Eye, Chief Steward

Equipment: vac suit, snub pistol, lead pipe.

NAVAL CREW

Here are the crewmen of Imperial, Subsector and Planetary Naval Ships. All are equipped for hazardous or security duties in their vac suits, carrying a semi-automatic snub pistol or a laser carbine.

For lower tech Planetary navies you can change the tech-14 vac suit for a lower tech model, but everything else would remain the same. Under skills and feats, there are 3 options provided for each level: Flight Crew, Engineering Crew and Gunnery crew (which includes security). Naval gunnery crew stats can be used for gunners on merchant ships as well. The stats for Naval crewmen are also useable for the crew on the better Star Merc and Pirate vessels.

Regular Naval Crew: Human Navy 6; TL 14-15; Init +0; AC 12 (+2 vac suit); AR 2 (vac suit); Spd 6m (4sq); St/Lb 22/10; Atk +6 ranged (snub pistol 1d10/20), +6 ranged (laser carbine 3d8/20), +4 melee (fist 1d4/20); SV Fort +2, Ref +2, Will +5; SZ M; Str 10, Dex 10, Con 10, Int 11, Wis 11, Cha 10, Edu 12, Soc 11.

Skills: all: Pilot +9, T/Computer +10, P/Administration +9, Liaison +9

a) Flight: T/Astrogation +10, T/Communications +10, T/Sensors+10,

b) Engineering: T/Engineering +10, T/Mechanical +12, T/Electronics +12

c) Gunnery: Gunnery +11, Forward Observer +10, T/Sensors +10

Feats: all: Vessel (grav), Armor (light, vac suit), Weapons (marksman, laser), Brawling, Zero-G/Low-G adaptation, Zero-G combat, First Aid

a) Flight: Vessel (starship, ship's boat), Ship's Tactics

b) Engineering: Jury Rig, Damage Control, Gearhead

c) Gunnery: Weapons (ship's weapons), Skill Focus: Gunnery, Heavy Metal

Equipment: vac suit-14, combat snub pistol or laser carbine with HUD.

SCOUT CREW

These characters represent the typical crews of courier, express boat and survey vessels. They can also be used for crewmen on private yachts, science vessels and for pirates. Aboard ship they likely will carry a laser pistol, but while exploring a planet surface they may also carry a carbine.

Regular Scout: Human Scout 6; TL 14+; Init +1 (+1 Dex); AC 13 (+2 vac suit, +1 Dex); AR 2 (vac suit); Spd 6m (4sq); St/Lb 34/11; Atk +5 ranged (laser pistol 2d10/20), +5 ranged (carbine 1d10/20x2), +6 melee (fist 1d4/20); SV Fort +2, Ref +4, Will +3; SZ M; Str 10, Dex 12, Con 11, Int 10, Wis 11, Cha 10, Edu 10, Soc 10.

Skills: Pilot +10, T/Engineering +9, T/Communications +9, P/Survey +5, Gunnery +4, Survival +5, Gather Info +4

Feats: Vessel (grav, starships, ship's boat), Armor (light, vac suit), Weapons (marksman, laser, ship's weapons), Brawling, Jack of All Trades, Zero-G/Low-G adaptation

Equipment: vac suit-14, carbine or laser pistol, communicator, hand computer

SECTION 3: MILITARY

This section details the members of organized ground combat military forces.

LOW TECH INFANTRY

Low Tech infantry are guards, retainers and soldiers found on tech level 1-4 planets. These NPCs can be used interchangeably for military, police and private guards at these tech levels. Swords, shields and studded leather armor are available at all the tech levels, but at tech levels 2-4, a bow, musket, crossbow or halberd can be substituted for the shield.

Regular Trooper-Low Tech: Human Army 6; TL 1-4; Init +0; AC 15 (+3 studded, +2 shield); AR 1 (studded); Spd 9m (6sq); St/Lb 29/12; Atk +5 melee (sword 1d8+3/20x2), +4 melee (halberd 1d10+1/19), +4 ranged (crossbow 1d10/19), +4 ranged (war bow 1d8/20x2), +4 ranged (musket 1d10/20x2); SV Fort +2, Ref +4, Will +2; SZ M; Str 12, Dex11, Con 11, Int 10, Wis 10, Cha 10, Edu 8, Soc 10.

Skills: Spot +9, Ride +9, Gather Info +9, Survival +9, Gambling +9

Feats: Armor (light), Weapons (swordsman, armsman, archer or black powder), Weapon focus: sword Weapon Specialization: sword, shield proficiency, Mounted Combat, Toughness

Equipment: studded leather armor, large wooden shield, and sword. May replace shield with bow, crossbow, musket or halberd.

MIDDLE TECH INFANTRY

These are typical army troopers for tech levels 5 through 8. They can be used for infantry troops, spotters, scouts or artillery gunners. These NPCs can be used as gunners in vehicles firing cannon, mortars or machineguns as well.

Regular Trooper- Mid Tech: Human Army 6; TL 5-8; Init +1 (+1 Dex); AC 15 (+4 flak jacket, +1 Dex); AR 4 (flak jacket); Spd 9m (6sq); St/Lb 26/11; Atk +5 ranged (assault rifle 1d12+2/20x2), +5 melee (bayonet 1d8/20x2), +5 melee (fist 1d4/20); SV Fort +2, Ref +6, Will +2; SZ M; Str 11, Dex 12, Con 11, Int 10, Wis 11, Cha 10, Edu 10, Soc 10.

Skills: Spot +9, Driving +10, Survival +9, Forward Observer +9, Gunnery +9

Feats: Vessel (wheeled), Armor (light), Weapons (marksman, combat rifleman, armsman, field artillery), Weapon Focus (assault rifle, bayonet), Weapon Specialization (assault rifle), Brawling

Equipment: flak jacket, assault rifle, 2 HEAP grenades, 2 fragmentation grenades, bayonet, medium ranged radio

MIDDLE TECH VEHICLE CREW

These are typical army troopers assigned to ground or air vehicles for tech levels 5-8.

Regular Crew- Mid Tech: Human Army 6; TL 5-8; Init +1 (+1 Dex); AC 15 (+4 flak jacket, +1 Dex); AR 4 (flak jacket); Spd 9m (6sq); St/Lb 26/11; Atk +4 ranged (smg 1d10/20x2), +4 ranged (auto-pistol 1d10/20x2), +5 melee (fist 1d4/20); SV Fort +2, Ref

+6, Will +2; SZ M; Str 11, Dex 12, Con 11, Int 10, Wis 11, Cha 10, Edu 10, Soc 10.

Skills: Spot +9, Driving +10, Pilot +10, Forward Observer +9, Gunnery +9

Feats: Vessel (wheeled, and tracked or aircraft (choose)), Armor (light), Weapons (marksman, combat rifleman, heavy weapons, field artillery), Brawling, Heavy Metal, Vessel Specialization (choose)

Equipment: flak jacket, SMG or auto-pistol

SYDITE BRUTE SQUAD TROOPERS

Throughout the Trailing Frontier, Braknak Security LIC (a.k.a. "The Brute Squad") is famous for providing gunmen by the day, week or month in squads, platoons and companies. Recruited exclusively from the Sydite minor human race, these hulking four-armed humanoids are usually found working as guards and as light infantry on low to middle tech planets. Braknak arms its troops to TL-8 standards and so they pose no threat to Imperial interests, but are useful to corporations and local despots. On combat detail they usually are issued the heavy and intimidating Light Assault Gun with HE ammo, while on guard duty they are usually issued with military shotguns.

Regular Brute: Sydite Mercenary 6; TL 8; Init +2 (+2 Dex); AC 16 (+4 flak jacket, +2 Dex); AR 4 (flak jacket); Spd 9m (6sq); St/Lb 38/14; Atk +9/+4 melee (fist 1d4 +1/20), +8/+3 ranged (LAG-HE 3d10/20), +8/+3 ranged (shotgun 3d6/2d6/1d6/20); SV Fort +6, Ref +4, Will +1; SZ M; Str 13, Dex 14, Con 13, Int 8, Wis 8, Cha 8, Edu 8, Soc 9.

Skills: Driving +2, Spot +8

Feats: Vessel (wheeled, tracked), Armor (light, medium, vac suit), weapons (combat rifleman, marksman), Toughness, Point-Blank Shot, Brawling, Rapid Shot

Equipment: flak jacket, either light assault gun or military shotgun

HIGH TECH ARMY TROOPS

These represent army troopers at TL12, but are only different in some equipment details for higher-level army troops. They are useable as infantry, vehicle or artillery troopers. Infantry will have a gauss rifle, with one PGMP-12 per squad, but vehicle or artillery troops will usually have a lighter Snub SMG instead.

Regular Trooper- High Tech: Human Army 6; TL 12; Init +1 (+1 Dex); AC 20 (+7 combat armor, +2 chameleon, +1 Dex); AR 7 (combat armor); Spd 6m (4sq); St/Lb 26/11; Atk +8 ranged (gauss rifle 2d12/20x2), +8 ranged (PGMP-12 6d12/18x2), +8 ranged (snub smg 1d10/20), +5 melee (fist 1d4/20); SV Fort +2, Ref +6, Will +2; SZ M; Str 11, Dex 12, Con 11, Int 10, Wis 11, Cha 10, Edu 11, Soc 10.

Skills: Pilot +10 T/Sensors +9, Spot +9, Gunnery +9, Forward Observer +9

Feats: Vessel (grav), Armor (light, medium, vac suit), Weapons (marksman, combat rifleman, field artillery, high energy, heavy weapons), Weapon Focus (gauss rifle and pgmp-12 or snub smg), Heavy Metal, Brawling

Equipment: Combat Armor 12 plus Chameleon-12, gauss rifle or pgmp-12 with HUD displays. Vehicle crews have snub SMG. Infantry troops will have 1-8 grenades too.

VARGR MERCENARIES

These are typically encountered Vargr space mercenaries and can be used as the ship's troops on Vargr Corsair and merchant vessels as well as troops for hire throughout the Coreward areas of the Imperium.

Regular Vargr Merc: Vargr Mercenary 6; TL 12; Init +2 (+2 Dex); AR 19 (+7 combat armor +2 Dex); AR 7 (combat armor); Spd 9m (6sq); St/Lb 28/9; Atk +11/+6 ranged (laser rifle 3d10/20), +11/+6 ranged (snub smg 1d10/20), +4/-1 melee (blade 1d6+1/19), +9/+4 melee (claw 1d4+1/20), +9/+4 melee (bite 1d6+4/20); SV Fort +4, Ref +4, Will +3; SZ M; Str 12, Dex 14, Con 9, Int 10, Wis 10, Cha 10, Edu 10, Soc 10, Pre 5.

Skills: Pilot +11, Gunnery +9

Feats: Vessel (grav), Armor (light, medium, vac). Weapons (combat rifleman, lasers, marksman, field artillery, heavy weapons), Zero-G Combat, Point Blank Shot, Evasion,

Equipment: Combat Armor-12, blade and Laser Rifle or snub SMG with HUD

ASLAN SHOCK TROOPS

These are the shock infantry of Tech-12 Aslan clan and younger-son fleets. They can be seen guarding colonies, raiding their rivals and working as mercenaries throughout the Spinward Frontiers.

Regular Aslan Trooper: Aslan Marine 6; TL 12; Init +0; AC 19 (+7 combat armor, +2 chameleon); AR 7 (combat armor); Spd 12m (8sq); St/Lb 38/12; Atk +11/+6 ranged (gauss rifle 2d12/20x2), +10/+5 ranged (PGMP-12 6d12/18x2), +8/+3 melee (dewclaw 1d6+1/20); SV Fort +5, Ref +2, Will +4; SZ M; Str 13, Dex 10, Con 11, Int 10, Wis 8, Cha 10, Edu 10, Soc 10.

Skills: Spot +8, Demolitions +5, Pilot +4

Feats: Vessel (grav), Armor (light, medium, vac suit), Weapons (marksman, combat rifleman, swordsman, high energy), Weapon focus (gauss rifle), Zero-G Combat, Second Wind, Toughness, High Morale

Equipment: combat armor-12, chameleon-12, either gauss rifle or PGMP-12, personal medkit, communicator, 1-8 grenades.

IMPERIAL MARINES

This is the players' worst nightmare - the Marines, loaded for bear. Unlike other "average" characters the marines start with STR, DEX and CON of 12. Those described here are infantry troops from a regular Line or Fleet unit, not battle-dress armored heavy strikers.

Regular Imperial Marine: Human Marine 6; TL 15; Init +1 (+1 Dex); AR 23 (+8 combat armor, +4 chameleon, +1 Dex); AR 8 (combat armor); Spd 6m (4sq); St/Lb 44/14; Atk +11/+6 ranged (gauss rifle 2d12/20x2), +10/+5 ranged (FGMP-15 9d20/18x2), +8/+3 melee (cutlass 1d8+1/18x2), +8/+3 melee (fist 1d4+1/20); SV Fort +6, Ref +3, Will +5; SZ M; Str 12, Dex 12, Con 13, Int 10, Wis 10, Cha10, Edu 10, Soc 10.

Skills: Spot +9, Demolitions +6, Pilot +5, Forward Observer +5, Survival +4

Feats: Vessel (grav), Armor (light, medium, vac suit), Weapons (marksman, combat rifleman, swordsman, high energy), Weapon focus (cutlass, gauss rifle), Brawling, Zero-G Combat, Second Wind, Toughness, High Morale

Equipment: combat armor-14, chameleon-14, either gauss rifle or FGMP-15, personal medkit, communicator, 1-8 grenades, cutlass.

SECTION 4: ANIMALS

TALKAN'S GRAZER

Talkan's Grazer is one of those unlikely-looking creatures that nevertheless has made itself a big success on many worlds. This large, normally docile grazer is found on many worlds, wherever it has been transplanted by colonists seeking a food animal. Somewhat larger than a Terran cow, the beast is little more than an eating machine. Its tubby body and short limbs are covered in dowdy gray fur, which is long and grows thickly, giving rise to the

nickname "Steakhamster" among colonists of Solomani descent. The neck is quite long (though its proportions are normally hidden by fur) and the pointed, slender face can reach up and into bushes and even small trees to find edible shoots.

Talkan's Grazer normally moves in herds of 8-12 beasts, of which all will be female or immature. Defense of the herd is normally accomplished by flight or by the younger females of the group, which dash in from the sides of a predator and bite its flanks.

A Steakhamster bite can seriously injure a human, though normally they are extremely docile and thus make excellent herd-beasts. Talkan's Grazer is an incredibly stupid beast, however, and will occasionally try to eat something wholly inappropriate (for example cables, brickwork, or a herder).

The male of the species is completely untameable. Thus any world that has wild or domestic herds of Talkan's Grazers also has the odd wild male. These are territorial and solitary, driving off or killing rivals in vicious battles. Occasionally a Steakhamster male goes rogue and attacks humans. Hunters are sent out to bring down the beast in this case; a necessary task but one despised by most professional hunters. Some say this is because they respect the wild nobility of the beast, but the real reason is that hunters get faintly embarrassed at the prospect of hunting (and perhaps being killed by) a gigantic long-necked, feral hamster with an attitude problem.

Talkan's Grazer: Medium (400kg) Herbivore/Grazer; Init +0; Flee 4+, Attack 4+, Speed 30m; AC 9 (-1 large); AR 0; St/Lb 12/15; Atk +3 melee (bite 2d8/20); SV Fort +6, Ref +4, Will -1; SZ L; Str 13, Dex 11, Con 15, Int 2, Edu -, Wis 3, Cha 4, Soc -.
Skills: Balance +3, Jump +4, Spot +0
Feats: None
Special Abilities: None
Climate/Terrain: Deserts, Plains, Grasslands
Organization: Herds of 8-12 creatures.

AISK

The Aisk is a nasty little creature native to several worlds with a trace or very thin atmosphere. It resembles a large beetle (30-50cm long), with an armored shell. Within the shell are highly efficient lung/gasbags filled with a light gel-like substance.

The Aisk is a solitary scavenger, wandering its territory seeking organic matter to consume. Any kind of organic matter is acceptable - vegetable or animal, processed or raw. Thus careless travellers who throw trash about wherever they land may find one or more Aisk scavenging around their ship, or even trundling slowly up the boarding ramp in search of more edibles.

Aisk can survive quite extreme temperatures (high and low), but have little tolerance for pressure. Even a thin atmosphere will eventually kill one; standard and dense atmospheres will be fatal in a matter of hours.

Nevertheless, Aisk can and do get aboard ships and lay eggs, some surviving for several weeks on shipboard refuse. They can burrow into cable bundles and similar places, and their pincers can give a nasty nip if they are cornered. Aisk also pose two additional hazards - they are internally pressurized, and they burn well. If fire is used against one and its body is pierced, the gel from its lungs will catch fire and spurt out under pressure, turning the dying Aisk into a small ambulatory flamethrower. Treat as an area attack (3m radius) causing 1d6 Stamina and 1d4 Lifeblood damage to anything failing a Reflex save (DC15).

Aisk: Tiny (3kg) Scavenger/Reducer; Init +2 (+2 Dex); Attack 6+, Flee 7+, Speed 12m; AC 19 (+5 natural armor, +2 tiny, +2 Dex); AR 5 (natural armor); St/Lb 4/3 (1d8); Atk +2 melee (bite 1d3/20); SV Fort +0, Ref +16, Will -2; SZ T; Str 2, Dex 15, Con 3, Int 1, Edu -, Wis 5, Cha 2, Soc -.
Skills: Climb +4
Feats: None
Special Abilities: Fiery Death (see description)
Climate/Terrain: Any thin or trace atmosphere environment
Organization: Solitary

ZETTIL'S CUSS

This vicious and destructive aquatic beast is named for the xenobiologist who discovered it, and whose revulsion for such creatures is legendary. The Cuss is an eel-like creature, with manipulatory tentacles sprouting from under its "chin". It can grow to three or more meters long, though typical specimens are about a meter from jaw to tip of tail.

Cusses often swim in packs, and will chase down quite large prey (including humans), seizing their victim with teeth and tentacles before biting it to death. Packs often enter a feeding frenzy that becomes a berserk killing spree; long after the pack is sated its members will keep on attacking anything nearby, sometimes including one another.

There is no known reason for the mindless hostility of this creature. Travellers are advised to use extreme caution when in Cuss-infested waters.

Zettil's Cuss: Small (25kg) Aquatic Carnivore/Chaser; Init +2 (+2 Dex); Attack If more, Flee 10+, Speed 24m; AC 13 (+1 small, +2 Dex); AR 0; St/Lb 9/5 (2d10); Atk +6 melee (bite 1d4/20); SV Fort -2, Ref +14, Will +2; SZ S; Str 5, Dex 14, Con 5, Int 2, Edu -, Wis 5, Cha 4, Soc -.
Skills: Spot +1
Feats: None
Special Abilities: None
Climate/Terrain: Fresh or salt water coastlines
Organization: Packs of 3d4

PSEUDOSAUR

The pseudosaur is named for its close resemblance to certain types of Terran dinosaur. It is an upright biped, standing 3 meters or so, with a powerful jaw and tearing claws. Pseudosaurs normally hunt in family groups of 3-5 individuals (including semi-mature and immature young). They are warm-blooded and can reach high speeds over a short distance.

Pseudosaurs are often hunted by people seeking a challenge; they certainly provide one. Pseudosaur hide is an expensive trade commodity, and is used to create impressive clothing items. The hide is dark, almost black, but possessed of a multcolored sheen in the right light. It is also extremely tough, and prized by some travellers for its durability in the field.

Pseudosaur hunting is not limited by any law save those of nature; the beasts are large, fast, and vicious, and many hunters do not come back.

Pseudosaur: Large (400kg) Carnivore/Killer; Init +1 (+1 Dex); Attack 4+, Flee 8+, Speed 15m; AC 12 (-1 large, +2 natural armor, +1 Dex); AR 2 (natural armor); St/Lb 24/12 (4d10+2); Atk +3 melee (claw 1d4/20), +10 melee (bite 2d8/20); SV Fort +3, Ref +7, Will -2; SZ L; Str 14, Dex 12, Con 12, Int 2, Edu -, Wis 5, Cha 11, Soc -.
Skills: Spot +1
Feats: None
Special Abilities: None
Climate/Terrain: Plains, Grasslands, Woodlands
Organization: Family groups of 3-5.

The NPCs presented in this appendix are taken from 76 Gunmen, a forthcoming issue in the **Traveller's Aide** *PDF supplement series available through the TravellerRPG.com website. The Traveller's Aide is available for order as single issues, or may be obtained through a 6 or 12 issue subscription!*

APPENDIX II: GLOSSARY

2000 Worlds: A major power in Charted Space, the 2000 worlds is ruled by the K'Kree. It lies to Trailing of the Imperium.
Ability Check: A check of 1d20 + the appropriate ability modifier vs. a DC.
Ability Modifier: The bonus or penalty associated with a particular ability score.
Ablat: Ablative anti-laser armor.
AC: Armor Class.
Aca: Academic.
Ace: Ace Pilot.
ACR: An Advanced Combat Rifle
Advanced Combat Rifle: A sophisticated but conventional projectile weapon built at high tech level. ACRs are capable of automatic fire.
Air/Raft: A small gravitic (grav) vehicle often used as personal transport.
Agility: Agility refers to a vessel's ability to make violent maneuvers while remaining under control of the operator.
Aht: Army, high-tech.
Alt: Army, low-tech.
Amber Zone: A world where greater than usual caution is advised. Reasons for Amber Zoning vary from natural conditions to war, famine or plague.
Amt: Army, mid-tech.
Ancients: A mysterious species that once ruled Charted Space. All that remains of them are artifacts and the occasional ruin.
AP: Armor Piercing ammunition. Improves the odds of a round penetrating any armor protecting a target if a shot hits.
AR: Armor Rating.
Armed Merchant Cruiser: A civilian vessel fitted with armament for some purpose. AMCs are sometimes used as commerce guards. They are no match for a real warship, but may be able to beat off corsairs.
Armor Class: A number representing a creature's ability to avoid being hit in combat. An opponent's attack roll must equal or exceed the target creature's Armor Class to hit it.
Armor Rating: A number representing the number of damage dice that will be reduced if hit in combat.
Aslan: A major race of Charted Space, named by early explorers for a vaguely leonine appearance.
Aslan Hierate: A major power in Charted Space, the Hierate lies to Spinward of the Imperium.
Assault Rifle: A lightweight mid-tech weapon developed from the autorifle.
Assault Shotgun: A heavy shotgun capable of full-automatic fire.
Assault Transport: A troop transport vessel designed to deliver ground troops straight into planetary combat.
Attack of opportunity: A single extra melee attack per round that a combatant can make when an opponent within reach takes an action that provokes attacks of opportunity.
Attack roll: 1d20 + base attack bonus + Dexterity modifier + size modifier + range penalty. The attack hits if the result is at least as high as the target's Armor Class.
ATV: All-Terrain Vehicle: A rugged tracked or wheeled vehicle capable of traversing a variety of terrain.
Autopistol: Also automatic pistol, self-loading pistol or just pistol: a handgun fed by a removable magazine.
Autorifle: A mid-tech weapon capable of fully-automatic fire.
Auxiliary: A merchant ship in use by the Navy, normally to undertake routine transport operations.
Battlecruiser: A heavily armed and fast but lightly protected vessel. In some ways an alternative to a battleship, but very vulnerable to spinal weapon fire.
Battleship: A very powerful warship capable of standing in the line of battle and destroying opposing vessels.
Battle Dress: Heavy powered personal armor. The ultimate in personal protection.
Battle Rider: A powerful non-Jump-capable warship designed to be carried into action aboard a Tender.
Bayonet: A blade, knife or spike designed to be fitted on the barrel of a longarm, creating a spear-like weapon. Bayonets can be used in the hand as a fighting knife or as a tool.
Bbn: Barbarian.
Belter: An asteroid miner.
Bgh: Big Game Hunter.
Black Powder Weapon: A handgun, musket, shotgun or rifle in which the propellant is loose black powder. Unreliable and inaccurate.
Blade: Any blades weapon may be referred to as a "blade". A Blade specifically is a heavy machete or short-sword0like weapon, uses as a fighting or survival tool
Blinded: Unable to see. A blinded character suffers a 50% miss chance in combat, loses any Dexterity bonus to AC, moves at half speed, and suffers a -4 penalty on Search checks and on most Strength- and Dexterity-based skill checks. Any skill check that relies on vision automatically fails. Opponents of a blinded character gain a +2 bonus to

their attack rolls, since they are effectively invisible.
Blt: Belter.
Boat: A small craft. Also, a small defensive spacecraft (as in System Defense Boat).
Bombardment Ship: A vessel deigned to undertake planetary bombardment. This is typically a "cruiser" role.
Broadsword: A sword weapon designed for use in both hands.
Capital Ship: A major warship, for example a battleship, battlecriuser, fleet carrier or dreadnaught.
Carrier: A naval vessel whose main striking power lies in subordinate craft (typically fighters) carried aboard.
Centimeter: A metric measurement of distance or length; 10 millimeters or 1/100 of a meter.
CEV: Combat Environment suit.
Cha: Charisma.
Charisma: An ability. Charisma measures a character's force of personality, persuasiveness, personal magnetism, ability to lead, and physical attractiveness. It represents actual personal strength, not merely how others perceive one in a social setting.
Charted Space: The region of space inhabited by humans and thousands of other races, both major and minor. Charted space encompasses 128 sectors and more than 80,000 worlds.
Client State: An independent political unit (one or more worlds) that has the patronage of a larger power. The relationship is usually beneficial and is normally economic in nature, though political and defensive arrangements will normally exist.
Close Escort: A very small naval vessel optimized for the protection of other vessels.
Cloth: Ballistic cloth; a type of bullet-resistant armor.
cm: Centimeter.
Combat Armor: A sealed suit of heavy armor; the modern equivalent of plate armor. Very effective against weapons, and also provides protection against hostile environments.
Comm: A personal communicator. Many comms include other features like data and banking access facilities.
Commerce Raider: A legitimate warship attacking commercial traffic as part of military operations, and not for profit.
Con: Constitution.
Constitution: An ability. Constitution represents a character's health and stamina.
Contragravity, CG: The antigravity units used to life space vessels and grav vehicles.
Coreward: See Galactic Directions.
Corsair: A pirate vessel. Many Vargr consider piracy a respectable trade, and use the term "Corsair" to refer to themselves and their vessels.
Courier: A small, fast vessel designed for carrying messages.
Cr: Imperial Credit.
Cruiser: A major warship, capable of carrying a powerful spinal mount weapon. Cruisers undertake many tasks. Various types exist: strike, armored, light, heavy and battle to name but five. Each has a particular role. Also, the Imperial Navy sometimes designates some very small vessels as "cruisers". This refers to the long cruises they undertake while on patrol rather than their capabilities.
Cutlass: A heavy, curved sword weapon used in one hand. The traditional dress weapon of the Imperial Marine Corps.
Cutter: A 50-ton small craft with a detachable module bay.
Dazed: Unable to act normally. A dazed character can take no actions, but can defend against attacks normally.
Dazzled: Unable to see well because of over stimulation of the eyes. A dazzled creature suffers a -1 penalty on attack rolls until the effect ends.
DC: Difficulty Class.
Deafened: Unable to hear. A deafened character suffers a -4 penalty to initiative, automatically fails Listen checks, and has a 20% chance of spell failure when casting spells with verbal components.
Destroyer: A small to medium sized warship designed for independent and flotilla operations. Destroyers normally protect larger vessels, but may sometimes undertake operations in their own right.
Dewclaw: a retractable claw found under the thumbs of an Aslan.
Dex: Dexterity.
Dexterity: An ability. Dexterity measures hand-eye coordination, agility, reflexes, and balance.
Difficulty Class: The target number that a player must meet or beat for a check or saving throw to succeed.
Domain: A region of space containing 4 sectors, administered by an Archduke.
Downport: A starport situated on-planet, or the ground components of a port with both orbital and ground facilities.
Dreadnaught: The newest and most powerful battleships are termed Dreadnaughts.
Dromedary: A naval supply ship capable of delivering both fuel and dry stores.
Droyne: A major race of Charted Space, Droyne are found on many scattered worlds but have no major interstellar polities.
ECM: Electronic Counter-Measures.

Edu: Education.
Education: An ability. Education represents the accumulated general knowledge accumulated over the life of the character, either through formal or informal education.
Energy Points: A measurement of the amount of energy that must be supplied to an object for it to operate, or the amount of energy that is supplied by a given type of power plant.
Energy Weapon: A ranged weapon that uses energy rather than physical projectiles to cause harm. Examples include lasers, plasma and fusion guns.
Entangled: Entanglement impedes movement, but does not entirely prevent it unless the bonds are anchored to an immobile object or tethered by an opposing force. An entangled creature moves at half speed, cannot run or charge, and suffers a -2 penalty to attack rolls and a -4 penalty to its effective Dexterity score.
EP: Energy Points.
Escort: A small naval vessel designed for the protection of other vessels, patrol work and similar light tasks. Escorts cannot survive in battle with a major combat vessel.
Exhausted: Tired to the point of significant impairment. A fatigued character becomes exhausted by doing something else that would normally cause fatigue. An exhausted character moves at half normal speed and suffers an effective ability decrease of -6 to both Strength and Dexterity. After 1 hour of complete rest, an exhausted character becomes fatigued.
Far Trader: A small merchant ship capable of Jump-2 or more.
Fatigued: Tired to the point of impairment. A fatigued character can neither run nor charge and suffers an effective ability decrease of -2 to both Strength and Dexterity. After 8 hours of complete rest, fatigued characters are back to normal.
Feat: A quality or special ability of a character.
Fighter: A small, maneuverable naval craft intended primarily for patrol and screening work.
Flat-footed: Especially vulnerable to attacks at the beginning of a battle. Characters are flat-footed until their first turns in the initiative cycle. Flat-footed creatures cannot use their Dexterity bonuses to AC or make attacks of opportunity.
FGMP: Fusion Gun, Man Portable.
Foil: A light cut-and-thrust weapon, somewhat similar to a rapier. The Foil is the traditional weapon of the nobility.
Fortitude save: A type of saving throw, related to a character's ability to withstand damage thanks to his physical stamina.
Free Trader: Any small merchant ship. Also a specific design of ship – small, with limited Jump capability. Personnel making their living aboard such a ship may also call themselves Free Traders.
Freighter: A large cargo-only starship. "Bulk Freighters" are characterized by very large cargo holds, and transport things like ore, grain etc.
Freightliner: A large mercantile vessel that carries cargo and passengers.
Frightened: Fearful of a creature, situation, or object. Frightened creatures flee from the source of their fear as best they can. If unable to flee, they may fight, but suffer a -2 morale penalty to all their attack rolls, weapon damage rolls, and saving throws.
g: gram.
G: Gravity.
Galactic Directions: North and South do not work when referring to direction within the galaxy. Instead, the following conventions have achieved widespread acceptance when referring to astrographic directions. Toward the galactic core is coreward; away from it, in the direction of the rim, is rimward. In the direction that the galaxy is rotating is spinward, while the opposite direction is trailing.
Garden World: An Earthlike planet where humans can thrive unaided.
Gauss Weapon: A pistol, rifle or support weapon in which a projectile is accelerated to extreme velocities by an electromagnetic field.
Gas Giant: A huge, Jumpier-like planet.
Gram: A metric measurement of weight, 1/1000 of a kilogram. One pound (US) is equal to roughly 450 grams.
Grav Vehicle: A vehicle that uses contragravity lifters rather than wheels or tracks.
Gravitics: The science of manipulating gravity. Also the contragravity units of a vehicle may be referred to as "the gravitics".
Gravity: Use in reference to either the gravitational pull of a stellar body or the acceleration rate of a smallcraft or starship in normal space.
Gunship: A large craft, similar to an SDB, but carried aboard certain types of carrier or tender for offensive and escort operations.
Handcomp: A hand computer
Handgun: A revolver, autopistol, gauss pistol etc.
HE: High Explosive ammunition.
HEAP: High Explosive, Armor Piercing ammunition.
HEAP: High-Explosive Dual-Purpose (HE and fragmentation) ammunition.
HEV: Hostile Environment suit.

High-Energy Weapon: Particularly powerful energy weapons, such as Plasma and Fusion guns.
Highport: An orbital starport, or the orbital component of a starport with both orbital and ground facilities.
Hive Federation: A major interstellar power lying to rimward-trailing of the Imperium.
Hivers: A major race of Charted Space.
Humaniti: The current spelling of humanity, used when referring to humans in a general sense. The term refers to the human species and subspecies rather than the quality of being humane, which can be applied to any sentient species.
Iceball: A cold, normally airless world.
Imperial Credit: The mostly commonly used form of currency used in the Traveller universe.
Imperium: In the OUT, the main human interstellar civilization, the 3rd Imperium, is usually just referred to as the Imperium.
Int: intelligence.
Intelligence: An ability. Intelligence determines how well a character learns and reasons.
IR: Infrared.
Jack: A padded, resilient jerkin providing some protection against melee weapons.
k: Kilometer.
K'Kree: A major race of Charted Space. K'Kree are militant herbivores descended from herd animals.
kg: Kilogram.
KCr: Kilocredit. One thousand Imperial credits.
Kilogram: A metric measurement of weight; 1000 grams or approximately 2.2 pounds (US).
Kilometer: A metric measurement of distance or length; 1000 meters or approximately 0.62 miles (US).
Kph: Kilometers per hour.
LAG: A Light Assault Gun.
Launch: A 20-ton small craft used for passenger and cargo transfers, and as a lifeboat.
LI: Light Intensifying.
Lifeblood: A measure of the amount of lethal (impaling, cutting, etc) damage a character can take before dying.
Lighter: A large cargo transfer craft, normally or more than 100 tons displacement, may be termed a Lighter.
Liner: A large passenger vessel, which may sometimes carry a small amount of cargo in addition to its passengers.
LMG: A Light Machine Gun.
Logistics Ship: A transport vessel designed to carry dry stores for the support of ground or naval units.
Longarm: A firearm designed to be used in both hands.
m: Meter.
Mar: Marine.
mm: Millimeter.
Mainworld: The most important planet in a system, normally the source of the system name.
Major Race: A species that developed the Jump Drive independently; sometimes used to describe a powerful race that did not.
MCr: Megacredit. One million Imperial credits.
Mct: Merchant.
Megacorporation: A huge, Imperium-wide corporation. Megacorporations have their own private military forces and wield powerful political influence.
Merchant Ship: Any commercial starship.
Mesh: Metal or ceramic mesh woven into a tough garment, providing good protection against melee weapons.
Meson Gun: A powerful but short-ranged variant of the particle accelerator, often used as a main starship armament.
Meter: A metric measurement of distance or length; 100 centimeters or approximately 3 feet (US).
Millimeter: A metric measurement of distance or length; 1/1000 of a meter.
Minor Race: A race that did not develop the Jump drive independently but learned of it from outsiders (or has never achieved interstellar flight). Also, a race without any real power or influence.
Monitor: A large and powerful spacecraft designed for system defense.
Mry: Mercenary.
Musket: A low-tech smoothbore weapon muzzle-loaded with black powder and ball.
Nauseated: Experiencing stomach distress. Nauseated creatures are unable to attack, cast spells, concentrate on spells, or do anything else requiring attention. The only action such a character can take is a single move (or move-equivalent action) per turn.
Nav: Navy.
Nbl: Noble.
Noble: A member of the planetary or Imperial nobility.
Nonintelligent: Lacking an Intelligence score. Mind-affecting spells do not affect nonintelligent creatures.
OTU: An acronym for the Official Traveller Universe.
Panicked: A panicked creature must drop anything it holds and flee at top speed from the source of its fear, as well as any other dangers it encounters, along a random path. In addition, the creature suffers a -2 morale penalty on saving throws. If cornered, a panicked creature cowers and does not attack, typically using the total defense action in combat.

Paralyzed: Unable to move or act physically. Paralyzed characters have effective Dexterity and Strength scores of 0 and are helpless.
Particle Accelerator: A powerful energy weapon with a longer range than a meson gun, often used as a main starship armament.
Pinnace: An aerodynamic 40-ton small craft.
PGMP: Plasma Gun, Man Portable.
Portacomp: A powerful but portable computer unit.
Prf: Professional.
Prone: Lying on the ground. An attacker who is prone has a -4 penalty to melee attack rolls and cannot use a ranged weapon (except for a crossbow). Melee attacks against a prone defender have a +4 bonus, and ranged attacks against a prone character have a -4 penalty.
Pres: presence.
Presence: A special ability applied to Vargr only. Presence measures the status of a Vargr among their racial peer.
PSI: Psionic Strength.
Psionic Strength: The measure of a character's potential psionic ability. Normally unknown until tested at a Psionics Institute.
Q-Ship: An armed vessel disguised as a merchant or similar harmless craft.
RAM: Rocket Assisted, Multi-Purpose grenades.
Red Zone: A world to which access is prohibited for a variety of reasons. Examples include worlds under sanction, highly dangerous planets and prison worlds.
Reflec: Reflective anti-laser armor.
Reflex save: A type of saving throw, related to a character's ability to withstand damage thanks to his agility or quick reactions.
Revolver: A handgun fed from a revolving internal cylinder, typically containing six rounds.
Rifle: Any longarm with a rifled barrel is a "rifle". Specifically, a Rifle is a mid-tech bolt-action or semi-automatic weapon fed from an internal magazine, or loaded singly.
Rifle-Musket: A rifled black powder weapon; more accurate than a musket.
Rift: An area of space where stars are very sparse. Rifts can be major obstacles to navigation.
Rimward: see Galactic Directions.
Rockball: A planet that is little more than a ball of rock. Typically Rockballs have very thin, trace or no atmosphere, and no life. They may be hot or cold.
Rog: Rogue.
Save: Saving throw.
Saving throw: A roll made to avoid (at least partially) damage or harm.
Sct: Scout.
Scout/Courier: A small vessel designed for a variety of roles, including messenger and exploration craft.
Sector: A region of space 4 by 4 subsectors in size, normally forming an administrative region.
Ship's Boat: A small, fast 30t small craft used for personnel and cargo transfers.
Shotgun: A smoothbore weapon that normally fires pellets or flechettes. Various types exist but the standard is a pump-action weapon fed by a 6-round internal magazine.
Shuttle: Any cargo or passenger–carrying small craft can be termed a Shuttle, but the term us normally reserved for craft or around 100t.
SI: Structural Integrity.
Sidearm: A light weapon carried for self-defense. Typically a handgun but may also be a melee weapon.
Skill: an ability or area of knowledge or expertise which can be improved over time.
Slow Boat: A cheaper and less maneuverable version of the Ship's Boat.
Slow Pinnace: A cheaper and less maneuverable version of the Pinnace
Smallcraft: A small space-going that is not equipped with a Jump drive and is incapable of interstellar travel.
SMG: A Submachine Gun.
Soc: social standing.
Social standing: An ability. Social standing represents the status of a character in common society. A social standing score of 16 or higher is considered nobility.
Sophont: A sentient being.
Solomani: One of the races of Humaniti, originating on Terra. Also, a person from a culture strongly influenced by old Terran traditions.
Solomani Confederation: A powerful interstellar state lying to Rimward of the Imperium.
Solomani Hypothesis: The generally accepted idea that all Humaniti originated on Terra, and was transplanted throughout the universe by the Ancients, for reasons that remain unclear.
Spacecraft: Any vessel capable of interplanetary flight but not Jump. See also smallcraft.
Spaceport: A minor port that deals mainly with interplanetary rather than interstellar vessels.
Speeder: A fast version of the Air/raft.
Spinal Mount: A starship weapon mount running along the entire length of a ship, allowing for a very powerful weapon system to be installed.
Spinward: see Galactic Directions.

Subsector: A region of space 8 by 10 parsecs in size, normally forming an administrative region.
Subsidized Merchant: Any trade ship can obtain a subsidy and operate as a subsidized merchant, but the term normally refers to a specific type of vessel - a smallish starship carrying both cargo and passengers. "Subbies" normally ply a set route.
Stamina: Equivalent to Hit Points, Stamina is a measure of how much non-lethal damage a character can take before collapsing.
Starport: A port serving interstellar travel; also the main spaceport on a planet.
Starship: Any space-going vehicle of 100 tons displacement or greater, and equipped with a Jump drive.
Startown: The town, village or city adjacent to most starports. Startowns have a reputation for being somewhat rough and ready; not all of them deserve this.
Str: Strength.
Strength: Strength measures a character's muscle and physical power.
Stunned: A stunned creature can't take actions and loses any positive Dexterity modifier to AC. Each attacker gains a +2 bonus to attack rolls against that creature. In addition, stunned characters immediately drop anything they are holding.
Sword: Any bladed hilt weapon used in one hand; swords come in many specific types.
System: A star system includes one or more stars, orbited by other bodies including planets, asteroids and comets.
Take 10: To reduce the chances of failure on certain skill checks by assuming an average die roll result (10 on a 1d20 roll).
Take 20: To greatly reduce the chances of failure for certain skill checks by assuming that a character makes sufficient retries to obtain the maximum possible check result (as if a 20 were rolled on 1d20).
Talent: A specific Psionic ability.
Tanker: A naval vessel capable of skimming and refining fuel, and supplying it to other vessels.
TAS: Travellers' Aid Society.
Tender: A naval vessel designed to support the operations other vessels. Examples include Xboat Tenders, which support Jump-Capable express boats, and Battle Tenders, which transport Battle Riders into action.
Tfr: TAS Field Reporter.
TH: Thrust.
TL: Tech(nology) Level.
Ton: When used in reference to a smallcraft or starship, this refers to displacement tonnage or roughly 14 cubic meters of space. When referencing weight, this refers to metric tonnage (1000kg) unless otherwise noted.
Trailing: see Galactic Directions.
Traveller's Aid Society: An organization that supports and assists Travellers in the Imperium and some neighboring regions. TAS offers news, information and discounted accommodation to its members.
Travellers' Aide: A regular gazette published by QLI, providing information on specific aspects of Travelling and Charted Space. Travellers' Aide has been the subject of some legal questions on the part of TAS, but has retained its distinct identity.
Trv: Traveller.
USP: Universal Ship Profile.
UWP: Universal World Profile. A shorthand notation of the raw basic details of a world.
Vac Suit: A sealed suit designed to protect the wearer from hostile environments or vacuum.
Vargr: A major race of Charted Space, Vargr are descended from Terran canines.
Vargr Extents: A region of space lying to Coreward of the Imperium, divided between several Vargr states.
Vilani: One of the races of Humaniti, originating on Vland. Also, a person from a culture heavily influenced by Vilani traditions.
vl: Volume.
Volume: A unit of measure used when designing vehicles and starships under the T20 rules.
Will save: A type of saving throw, related to a character's ability to withstand damage thanks to his mental toughness.
Wis: wisdom.
Wisdom: An ability. Wisdom describes a character's willpower, common sense, perception, and intuition. While Intelligence represents one's ability to analyze information, Wisdom is more related to being in tune with and aware of one's surroundings.
Xboat: An express message boat. Xboats have Jump but no maneuver drives, and rely on tenders to support and retrieve them.
Zhodani: One of the races of Humaniti, whose culture embraces psionics.
Zhodani Consulate: A powerful interstellar state lying to Spinward-Coreward of the Imperium.

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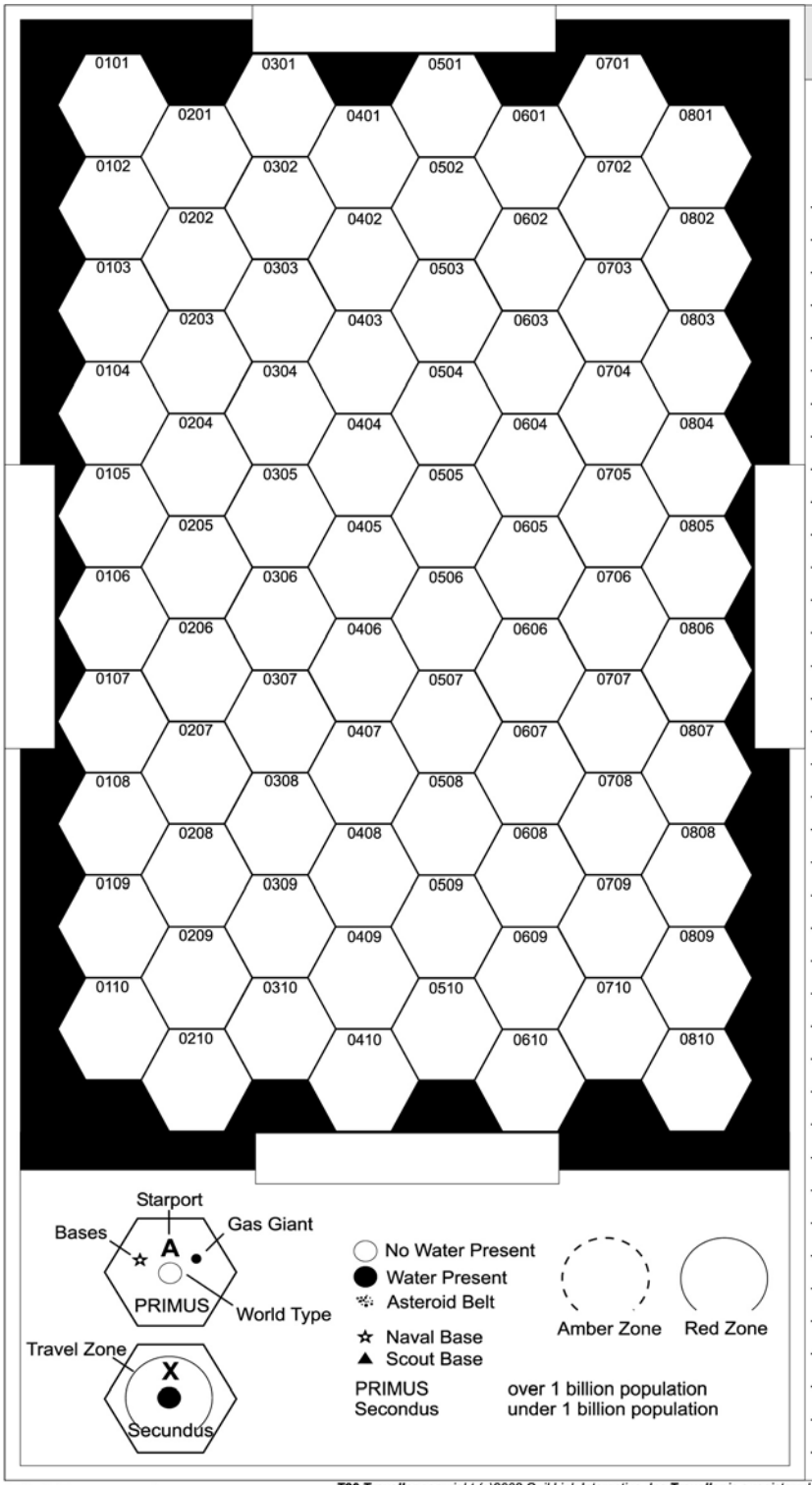

A	B	C	D
E	F	G	H
I	J	K	L
M	N	O	P

SUBSECTOR

Domain: _____

Sector: _____

WORLD UWPs

TAS Form 6.1

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Subsector Map

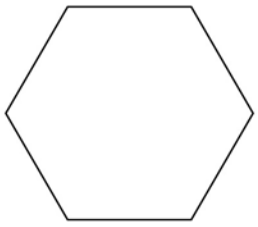
STAR SYSTEM WORKSHEET

A3

System Primary | Star Type and Size | Color and Spectral Class

Orbit		GG	PB
1	-	○	○
2	-	○	○
3	-	○	○
4	-	○	○
5	-	○	○
6	-	○	○
7	-	○	○
8	-	○	○
9	-	○	○
10	-	○	○
11	-	○	○
12	-	○	○
13	-	○	○
14	-	○	○
15	-	○	○
16	-	○	○
17	-	○	○
18	-	○	○
19	-	○	○

Star System Name



Domain

Sector

Subsector

Hex Number

Mainworld ■

Mainworld Trade Classification

Bases Present

IS Form 8.1 Star System Worksheet

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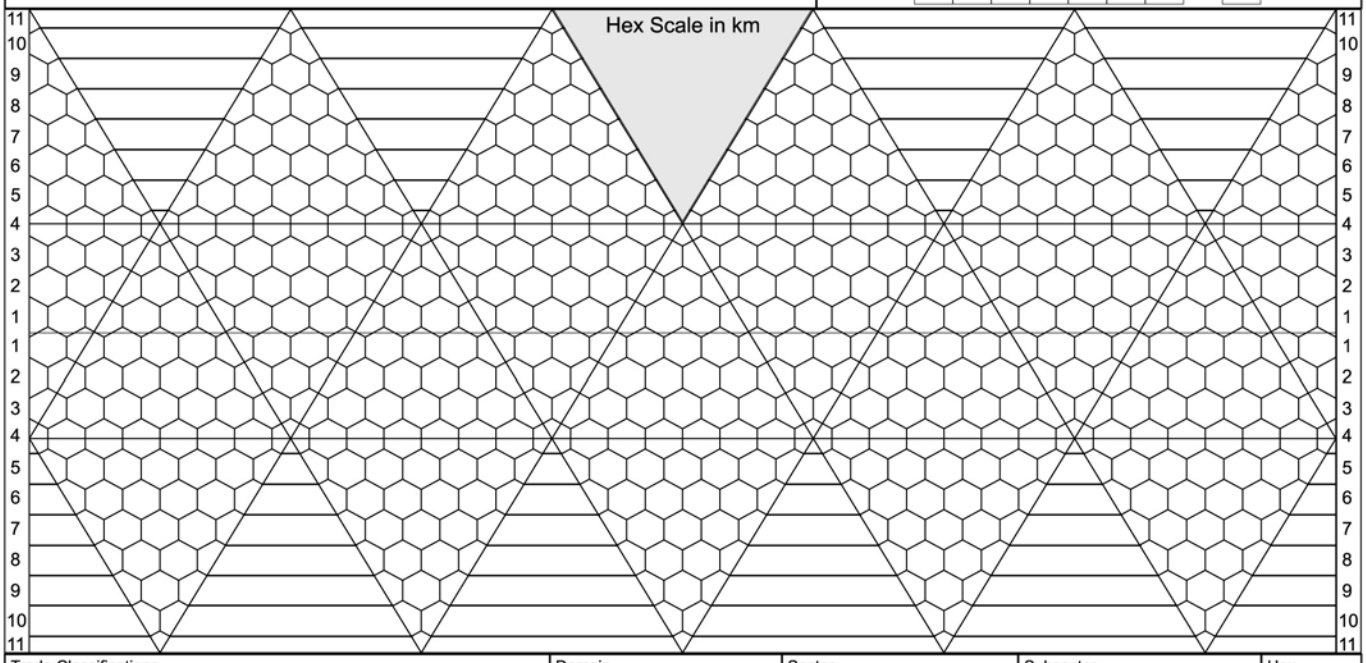
Binary Companion | Star Type and Size | Color and Spectral Class

Orbit		GG	PB
1	-	○	○
2	-	○	○
3	-	○	○
4	-	○	○
5	-	○	○
6	-	○	○
7	-	○	○
8	-	○	○
9	-	○	○
10	-	○	○
11	-	○	○
12	-	○	○
13	-	○	○
14	-	○	○
15	-	○	○
16	-	○	○
17	-	○	○
18	-	○	○
19	-	○	○

Trinary Companion | Star Type and Size | Color and Spectral Class

Orbit		GG	PB
1	-	○	○
2	-	○	○
3	-	○	○
4	-	○	○
5	-	○	○
6	-	○	○
7	-	○	○
8	-	○	○
9	-	○	○
10	-	○	○
11	-	○	○
12	-	○	○
13	-	○	○
14	-	○	○
15	-	○	○
16	-	○	○
17	-	○	○
18	-	○	○
19	-	○	○

World Name	UWP



Trade Classifications	Domain	Sector	Subsector	Hex

Travel Zone Classification	Primary Star Type	Binary Star Type	Trinary Star Type	Orbit	Year Length	Gas Giants	Planetoid Belts

Starport Type		Bases Present
Size		Gravity G / Natural Resources
Atmosphere		Climate / Max Temp. / Night Temp.
Hydrographics		Biodiversity / Biodiversity
Population		PopX / Total Population
Government		World Trade Balance
Law Level		Description
Tech Level		

IS Form 8.2 World Worksheet

SATELLITES

	-
	-
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	-

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