

GURPS Space 2108, Technology & Characters

Starting Year

The starting year for the campaign and this document is [2108](#).

Technical Level

Earth's major powers are rated at [Tech Level 9](#), as are most of the space colonies being set up. On earth many poor countries (those that haven't disappeared) are of a much lower Tech Level. Although virtually everyone knows what technological advances have been made, not everyone has access to them or knows how to use them.

Communications

Slow Faster-Than-Light communication is possible but unreliable. Interference can be high and many messages are sent by courier. Land communications, via computers and satellites are cheap, reliable and easily available.

Computers

Artificial Intelligence was adopted in the 21st Century, but soon people realised the dangers. Following an attempted uprising, AI usage has been severely curtailed. Military vessels do not use AI, and the worth of developing bespoke computer systems was soon realised.

Energy

Energy resources vary from population to population. At the highest level most world and inter-world powers are using [cold fusion](#) to produce electricity. Lower status populations on earth have been supplied with solar panels and some UN run fusion power stations have been set up. The UN has placed strict controls on the energy sources used on earth, barring the wide spread use of petro-chemicals and wood burning sources. Outside of the UN's control anything goes and several large mining operations use petro-chemicals to power some of their operations. Fission power has also been outlawed within the UN's control.

Medicine

Vaccines for most known diseases are easily available. Suspended animation (Freeze Tubes, Sp91) has been developed to allow for space travel, imprisonment and for incurable diseases. At TL9 aging rolls (B83, Sp92) don't start until the character reaches 90 years old (this is 50 at upto TL7, and 70 for TL8). Bionic body parts can be purchased (Sp92ff). Details of 'wonder' drugs, artificial equipment and medical equipment can be found from Sp93ff.

Other Life Forms

None known in 2108

Cybertech, Robots & Cyborgs

Following a devastating war in 2065 between the US and China AI has been limited as real dangers were highlighted. Robotic enhancement is technically possible (see separate document), but few, outside of the Chinese central party, trust embedded tech in 2108.

Biotech

See separate document. This is open to characters.

Transport, Planetary

On Earth the use of petro-chemicals has been outlawed and various other technologies are used. Most motor vehicles are powered by reactionless thrusters, electric engines or hydrogen gas. Heavier transport is provided for by magnetic levitation trains. Aircraft with reactionless engines are also common, as are reactionless akranoplans. In poorer areas electric railways and trams are also common. External combustion engines are still in use but only under special UN licence. Aircraft capable of limited space flight are common and often used to shuttle between ground and orbiting space stations.

Civilian Planetary Vehicles

Vessel	Power	Max speed	Crew	Passengers	Endurance	Cargo	Cost
Hover Vehicle, Basic	Slow Fusion	110mph	1	4	42h	0.07t	\$2.95m
Hover Vehicle, Small	Fission Reactor	470mph	1	8	~	30t	\$6.38m

Transport, Space

Most space vessels use nuclear fusion powered reactionless drives to provide manoeuvrability. Some older or less expensive vessels also use this for their main drives. Recent developments have led to the creation of the hyper-ship. This vessel, which required large hyper-energy sails captures energy floating in hyper space to push it along, very much like a wind driven sailing ship. These vessels are very expensive and only employed by PLA(S) space agency (although NASA have one in development), and even then only in very limited numbers. This kind of transport is still very much in the experimental stages and several mishaps have already taken place. One of the main problems is getting into hyper space and it is not unknown for vessels to stall on entry.

The level of navigation required for space travel is 3-dimensional and complex. Astrogation training is very important and more reputable than being the pilot.

Civilian Space Vessels

Vessel	Acceleration	Re-Entry	Crew	Passengers	Endurance	Cargo	Cost
Armed Brig ☉	0.38g	1,409mph	30	6**	~	21t	\$236m
Cargo Ship, Small ☉	0.0011g	~	11	4	~	14,200t	\$25m
Ferry, Small ☉	0.1954g	968mph	28	350	~	17,280t	\$247m
Shuttle, Basic*	0.0072g	110mph	1	4	42h	0.5t	\$3m
Shuttle, Cargo	0.18g	750mph	1	0	~	36t	\$6.75m
Shuttle, Courier ☉	0.27g	750mph	1	1	~	2.5t	\$8m
Shuttle, Passenger	0.18g	700mph	1	8	~	2.5t	\$6.8m
Yacht, Basic* ☉	0.0001g	56mph	1	5	82,000h	2.33t	\$3.97m
Yacht, Luxury ☉	0.13g	537mph	1	6	~	33t	\$8.3m

☉ Capable of deep space flight using Freeze Tubes.

* The basic shuttle and basic yacht both use non-nuclear fusion drives. Everything else is powered by fission or fusion reactors and thrusters.

** In cells.

Refuelling Space Vessels

Fuel Source	Fuel Type	Refuel Cost	Defuel Cost	Notes
Fusion Reactor	Hydrogen	~	~	Ship reactors have an inbuilt 200yr hydrogen supply
Fission Reactor	Uranium	MW×\$8,000	MW×\$2,000	Spent uranium can be processed into weapons
Slow Fusion Drive	Hydrogen	\$350 per ton	~	
Optimised Fusion Drive	Hydrogen	\$350 per ton	~	

Weaponry (Guns)

Weaponry depends on the location and tech level of the local populace. The UN, major world powers and the space agencies all have access to [laser](#) and [blast](#) small arms, although the latter are only really practical for CQB. Needle weapons have never become popular and conventional ‘slug’ small arms have still been widely produced, both by less technological societies, military powers with low budgets and for use in locations where laser weapons were not effective. Some forces still use old weaponry or very basic weaponry to equip their militias.

World powers on Earth, and some of the space agencies, still maintain reasonably large military forces. These forces are equipped with a number of high-tech heavy weaponry and nuclear proliferation is still strong, although tightly controlled. The space agencies maintain several large combat craft for patrol and escort duties. These later ships tend to be equipped with laser and railgun weapons as particle beam weapons tend to be too bulky and expensive.

Basic Weapons	Type	Dmg	SS	Acc	½D Atms.	½D Vac.	RoF ¹	Shts	Rcl	HO	Wgt	Ammo Wgt
Pistol, Light	Crush	2d+1	9	6	150	**	3~	15	-1	+1	1	0.25 per 15
Pistol, Heavy	Crush	3d	9	4	200	**	3~	20	-2	-1	2.75	0.5 per 20
Submachine Gun	Crush	3d	12	8	200	**	12*	60	-1	-4	5.9	1.6 per 60
Assault Rifle	Crush	6d-1	12	10	530	**	12*	100	-1	-5	7	1.75 per 100
Laser Pistol, Holdout	Imp ^(*)	1d-1	10	4	50	50	1~	5/B	0	+3	0.25	B = 0.05
Laser Pistol*	Imp ^(*)	1d	9	7	200	200	4*†	20/C	0	0	2	C = 0.5
Laser Pistol, Heavy*	Imp ^(*)	2d	9	8	300	300	4*†	12/C	0	-2	3	C = 0.5
Laser Rifle, Military*	Imp ^(*)	2d	12	15	1,500	1,500	8*†	140/D	0	-6	9	D = 5
Blaster, Pistol	Imp ^(*)	6d	10	3	75	15	3~	5/C	-1	-1	2	C = 0.5
Blaster, Rifle	Imp ^(*)	6d*3	15	10	300	60	3~	15/D	-1	-6	12	D = 5
Under Barrel GL	<i>As Gr</i>	<i>As Gr</i>	10	7	500	**	1	3	0	-	+4	1ea

Laser Sight : +2 Acc at 100yds. SS penalty is -1 50yds and -2 at 100yds. SS remains -4 beyond 100yds. *Built In.
HUD/Goggles Sight : -5 SS. Requires A Cell battery if not linked to bigger system. Does not combine with laser sight.

Chemical Propellant (Guns!) Weapon Notes : At TL8+ these are small caseless weapons. ** bullets fired in space will travel indefinitely but will push the firer backwards. The temperature and lack of atmosphere will make a firearm extremely unreliable (Malfunction on 14-18).

Laser Weapon Notes : Half damage in smoke, fog or rain. Blocked by smoke grenades or dense smoke. Double damage to eyes.

Blasters Weapon Notes : These are very energy hungry (as per Sp81) and prone to atmospheric and vacuum problems. Range and Shots have been adjusted accordingly. They are still very useful for CQB though!

Rounds in Group	Roll Made By ...							Burst : divide the RoF into 3 or 4 round bursts. Roll one attack for each burst (assuming no other actions in the turn). The recoil is added to the first attack, increasing for each burst. Resolve the armour penetration and damage for each individual round separately. Critical hits only affect the first round in a burst. † Laser Burst : As laser's don't have recoil roll one attack for all bursts/rounds. Roll all the damage together for a hit and resolve penetration as one hit.
	-1	0	1	2	3	4	5+	
1	0	1	1	1	1	1	1	
2	0	1	1	1	1	1	2	
3	1	1	1	1	2	2	3	
4	1	2	2	3	3	3	4	

¹ Bursts of 3 or 4 rounds, see page 120. ~ is SA only, * is selective

Weaponry (Grenades & Explosives)

See B121 for rules on explosives. More information can be found on p22ff of GURPs High Tech and p67ff of GURPs Ultra Tech..

Explosive	Wgt (lb)	Concussion	Fragmentation	Timer
Fragmentation Grenade	1	6d×2 (<i>Crush</i>)	2d (<i>Cut</i> : *1.5)	Imp or 1-5s
Concussion Grenade	1	6d×2 (<i>Crush</i>)	n/a	Imp or 1-5s
Anti-Armour GL Grenade	1	4d (10) (<i>Crush</i>)	n/a	Impact
TNT (TL5)	1	6d×2 (<i>Crush</i>)	n/a	Var.
Plastic Explosive (TL7)	1	6d×3 (<i>Crush</i>)	n/a	Var.
Plastex-B (TL9)	¼	6d×2 (<i>Crush</i>)	n/a	Var.
Notes	Concussion damage is rolled, it is reduced to a ¼ for every 2 yards range		Fragmentation range is the concussion dice × 5 in yards. Roll PD to avoid being hit, +1 per yard from bomb	

Vacc-Suits & Armour

Armour	Torso		Limbs		Hands/Feet		Head		Face		Wgt	
	PD	DR	PD	DR	PD	DR	PD	DR	PD	DR	BA	CA
Vacc-Suit (Sealed)	0	1	0	1	0	1	2	3	2	3	5	
Vacc-Suit (Sealed), Heavy Duty	2	3	2	3	2	3	4	20	2	15	10	
Body or Combat Armour, Light	4	25	2	17	2	15	4	20	2	15	20	24
Body or Combat Armour, Medium	6	35	4	25	4	17	4	23	2	15	30	36
Body or Combat Armour, Heavy	6	55	4	40	4	25	5	35	2	25	45	54
Light Clamshell Cuirass	4	25	~	~	~	~	~	~	~	~	7	
Medium Clamshell Cuirass	6	35	~	~	~	~	~	~	~	~	12	
Heavy Clamshell Cuirass	6	50	~	~	~	~	~	~	~	~	18	
Infantry Helmet with HUD, Comms & Multiview Visor	~	~	~	~	~	~	4	20	~	~	2	
... vs <i>Impaling if Reflec</i>	~	~	~	~	~	~	6	2	~	~	~	
Light Monocrys Vest	2	8	~	~	~	~	~	~	~	~	3	
... vs <i>Impaling Attack</i>	1	2	~	~	~	~	~	~	~	~	~	
Medium Monocrys Vest	2	16	~	~	~	~	~	~	~	~	5	
... vs <i>Impaling Attack</i>	1	2	~	~	~	~	~	~	~	~	~	
Heavy Monocrys Vest	2	24	~	~	~	~	~	~	~	~	7	
... vs <i>Impaling Attack</i>	1	2	~	~	~	~	~	~	~	~	~	
Reflec Armour Jacket	6	2	6	2	~	~	~	~	~	~	1	
... vs <i>Regular Attack</i>	0	0	0	0	~	~	~	~	~	~	~	

Vacc-Suit : HUD, Short Range Comms, Helmet Light. Fully air sealed for space / hazardous environment use – Requires air tank (Std is +20lb for 4 hours / Enhanced is +11lb for 20 hours). Note, if the user takes damage the suit is breached.

Vacc-Suit, Heavy Duty : HUD, Short Range Comms, Helmet Light. Fully air sealed for space / hazardous environment use – Requires air tank (Std is +20lb for 4 hours / Enhanced is +11lb for 20 hours). Note, if the user takes damage the suit is breached.

Body Armour : HUD with Sight (-5 SS), Short Range Comms, Multiview Visor (Light Intensification, Thermal Imaging, Anti-Glare) and Helmet Light. Unsealed.

Combat Armour : HUD with Sight (-5 SS), Short Range Comms, Multiview Visor (Light Intensification, Thermal Imaging, Anti-Glare) and Helmet Light. Fully air sealed for space / hazardous environment use – Requires air tank (Std is +20lb for 4 hours / Enhanced is +11lb for 20 hours). Note, if the user takes damage the suit is breached.

Space Fleets

- **PLA(S)** : People's Liberation Army (Space), China. The primary and by far and away largest fleet in the universe. They are fully capable of deep space operations.
- **NASA** : US. Somewhat left behind in the space race, especially following limited wars and espionage from the PLA(S). Still capable of limited deep space operations.
- **ESN** : European Space Navy, Europe (France, Germany, Spain, Poland and Holland). Fairly small and often disrupted by internal disagreements over budgets and committee decision making. Mostly limited to the routes between Earth and the colony of Caerilium.
- **RSN** : Royal Space Navy, UK. Very small and limited space force, mostly equipped with small warships and survey vessels used for limited escort and exploration. No real deep space capability.
- **Corporate** : Several corporations maintain small fleets of space vessels. Whilst most are commercial, some also have military vessels for security purposes.

Passive Defence (B98)

The basic rules on B98 state that PD is added to the characters *Dodge*, *Parry* and *Block* scores to give his active defence. Thus someone in heavy armour can dodge better than someone in none! Also, by adding the two together (PD & Dodge), it massively changes the % odds of success (an unarmed character with a Dodge of 6 has a success chance of 9.3%, but add PD4 armour and this jumps to 50%! Even if the armour should make dodging harder). GURPs 4e solves this by ditching PD.

My solution is : **Passive Defence is rolled separately to Active Defence.**

- 1) Roll *Dodge* or *Parry* without the PD added.
- 2) If this fails, the character gets a second chance with their Armour PD +2.

Blocking is the Shield's PD + ½ the user's skill. Again, worn armour becomes a second roll.

Health Rolls (B126)

Health to 4hp	Act normally
3hp – 1hp	½ Move
0hp – Negative Health	Roll Health (±Will Mods) each round to avoid unconsciousness
Negative Health	Roll Health (Only) to avoid death. Every 5hp damage prompts another roll (or more)
×5 Neg. Health	Automatic Death

Starting Characters

Print the character generation documents from the back of the basic book.

<i>Starting Points</i>	Veteran Elite (SO52)	200	Attribute Max	100	(All at min. 11)
	Elite (SO52)	150	Attribute Max	90	(All at min. 11)
	Hero (Normal start)	100	Attribute Max	60	
	Experienced	75	Attribute Max	45	
	Above Average	50	Attribute Max	30	
	Average	25	Attribute Max	15	
<i>Suggested Advantages</i>	Improved G-Tolerance (CI26, 5/10/15/20/25pt)				
<i>Suggested Disadvantages (Max -40)</i>	Duty (Military, -10pt)				
<i>Suggested Skills</i>	Astrogation, Beam Weapons (Spec B49), Computer Operation, Electronics, Engineering (Specs B60), Free Fall, Gunner (Spec B50), Guns (Spec B51), Mechanic (Specs B54), Piloting (Specs B69), Tactics, Vacc Suit				

Encumbrance Chart

Encumbrance	None	Light	Medium	Heavy	Extra-Heavy
Dodge/Move/Stealth Penalty	0	-1	-2	-3	-4
1	2	4	6	12	20
2	4	8	12	24	40
3	6	12	18	36	60
4	8	16	24	48	80
5	10	20	30	60	100
6	12	24	36	72	120
7	14	28	42	84	140
8	16	32	48	96	160
9	18	36	54	108	180
10	20	40	60	120	200
11	22	44	66	132	220
12	24	48	72	144	240
13	26	52	78	156	260
14	28	56	84	168	280
15	30	60	90	180	300
16	32	64	96	192	320
17	34	68	102	204	340
18	36	72	108	216	360
19	38	76	114	228	380
20	40	80	120	240	400

Military Rank (B22, if appropriate)

Pts	OR	Rating	Requirements	Monthly Income	CoL
0	1	Recruit	~	\$750	\$75*
0	2	Able Rate	~	\$1,000	\$450
3	3	~	~		
6	4	Leading Hand	Leadership 8+	\$1,400	\$650
9	5	Petty Officer	Leadership 10+, Tactics 8+	\$1,600	\$700
12	6	~	~		
15	7	Chief Petty Officer	Leadership 10+, Tactics 8+	\$2,000	\$900
18	8	Warrant Officer 2	Leadership 12+, Tactics 8+	\$2,200	\$1,000
21	9	Warrant Officer 1	Leadership 14+, Tactics 8+	\$2,400	\$1,100

CoL : Note the Cost of Living for military personnel is lower than ordinary citizens because it is partially state funded.

UY : If a LH or below commissions they become midshipman and the points already spent on rank are returned (minus the 5 points for a midshipman).

SUY : If a PO or above commissions they become lieutenants. Any points spent on rank above 15 are returned.

Pts	OF	Crtsy	Officer	Requirements	Monthly Income	CoL
0	0	~	Officer Cadet	~	\$1,000	\$100*
0	1	~	Midshipman	Leadership 8+	\$1,200	\$550
5	1	~	Sub-Lieutenant	Leadership 8+, Tactics 10+	\$1,500	\$700
10	2	~	Lieutenant	Leadership 8+, Tactics 10+	\$1,900	\$850
20	3	4	Lieutenant Commander	Leadership 12+, Tactics 12+	\$2,800	\$1,250
25	4	5	Commander	Leadership 12+, Tactics 12+, Strategy 12+	\$3,500	\$1,600
30	5	6	Captain	Leadership 14+, Tactics 12+, Strategy 12+	\$4,000	\$1,800
35	6	7	Commodore	Leadership 14+, Tactics 12+, Strategy 14+, Age!	\$5,500	\$2,500
40	7	8	Rear Admiral	Leadership 14+, Tactics 12+, Strategy 14+, Age!	\$7,000	\$3,150

Courtesy Rank (CI23)

Officers of OF3 and above, who have formerly held Military Rank, may retain their Rank as a “courtesy rank,” for a point cost of 1 per level of Rank. Courtesy rank is for social situations only.

In addition, honorary ranks of captain, commodore and rear admiral are also given out officially by the military.