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# Space Hybrid Paradigm Manual

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# Chapter 1

# Introduction

## 1.1 The Beginning

Welcome to Space Hybrid. Whether you are new to Role Playing Games or an experienced veteran I hope that you will find the game well worth the time and energy involved in learning ...

There were a number of reasons for the creation of Space Hybrid. The first and foremost was the need , as I saw it, for a Science Fiction Role Playing Game that could comfortably model a wide range of the science fiction works available. Whether attempting to run a campaign like that of E.E. Doc Smith's Lensman Series or the delightfully swashbuckling Star Wars movies the need for a consistent role playing system for all ...

The second was to produce a game system in which the consistency and clarity of the rules would allow the Games Master to react flexibly and smoothly to the ever changing requirements of the players without having to lay down abitrary barriers. ... As part of this process the discussion of the rules comes complete with designer's notes. These notes discuss why a specific rule has been enacted and what the rationale behind what they model.

The third goal was to produce rules that helped to cut bookkeeping down to reasonable levels. There is no way to avoid bookkeeping in a science fiction game, but Space Hybrid should allow the player to generate a character in something less than 24 hours and once generated the upkeep required should be minimal.

## 1.2 What and Where

The Space Hybrid game is broken into several books. Each book has a specific target in terms of audience and what that book is supposed to achieve.

The first book is the Space Hybrid Paradigm Manual. A paradigm is a model. The Space Hybrid Paradigm Manual is attempt to detail the rules and much of what the Games Master must know in order to design a compaign.

Not just the rules but guides on how to approach Gamesmastering and what will aid the GM in his task. If all has been done correctly a player should rarely need to reference thses pages.

The second book is the Space Hybrid Players Guide. It includes some of the rules and tables from the Paradigm Manual that are of use to the player in generating characters and playing.

The Third book or series of books in the Space Hybrid Instance Manuals. These are discussions of campaign specific information that can help the GM supplement his own universe.

I hope that Space Hybrid will bring you hours of enjoyment and diversion.
*Jim Mochel*

## 1.3 Read me in this order

## 1.4 How to Play

Space Hybrid is a role-playing game or RPG. An RPG can be considered to be a game based on improvisational acting. The players each assume the persona of a character they have designed and detailed out on a character sheet, and by interacting with the gamesmaster (GM) they create a story about those characters.

The key to all of this is the interaction between the gamesmaster and the player's characters (PC). The GM creates the background of the world in which the PCs find themselves. He or she sets the stage for the PCs by describing what they see, hear, otherwise sense.

## 1.5 Requirements for Play

Very little is required for a game. The rules books, the GM's notes and a set of percentile dice are all that is needed. There are however a number of items that will make the GMs life a great deal easier.

A hexmap of some type such as a battlemap is a very good idea. A Calculator would be useful. Markers would be awesome.

More detail on Gamesmatering can be found in the chapter titled Gamesmastering.

# Chapter 2

# Glossary

A great deal of work has gone into making Space Hybrid both easy to understand and to play. Unfortunately there is little that a Science Fiction Role Playing Game can do to avoid acronyms and abbreviations. This chapter describes the most basic and common of the acronyms, abbreviations and specialised terms that you will encounter over and over in the game rules.

**PC** Player Character The persona being acted out by the player

**NPC** Non-player Character A persona being acted out by the Games-Master

**GM** Games-Master The individual directing or guiding a game.

**Statistic or "stat"** The mathematiucal value representing a specific mental or physical attribute of the PC or NPC.

**Target Number (TN)** The number that a character is trying to roll under. Typically expressed as a percentile value.

**Success Number (SN)** The difference between the target number and the number actually rolled. In almost all cases the player wishes to roll below the target number so that: $SuccessNumber = target - roll$

**Critical Success** A roll with a Success Number greater than 50. This generally gives better results than a normal success.

**Critical Failure** A roll with a success Number less than -50. This generally gives poorer results than a normally failed roll.

**Open Ended Rolls** Rolls in Space Hybrid are open ended. If a high roll is made (00) then an additional roll is made and added to it. If a low roll is made (01) then the next roll is added to the effect number of the critical effect determined for this number.

**Shifted Results** [1]

**Ease Factor (EF)** The numeric Ease assigned a particular feat. The higher the Ease Factor, the easier the feat.

**Difficulty Factor (DF)** The numeric difficulty assigned a particular feat. Usually determined from the EF by $DF = 10 - EF$. The higher the DF the more difficult the feat. DF is always derived from EF and rarely directly used in calculations.

**Stat Basis (SB)** [2] The combination of one or more stats required to use a skill or perform an action. The Stat Basis is half of the stat in question. If multiple stats are mentioned the stat basis is $1/2$ of the average of the stats. Typically, when a stat basis is mentioned, it is referred to by the name of the stat or stats that make up its final value.

**Rank (RNK)** The numeric level the character has in the skill.

**Rank Bonus (RB)** The gain per rank in percentage chance to perform the skill

**Skill Roll (SR)** A roll to perform a specific action or use a skill.

**Learning Roll (LR)** A roll made to gain a rank in a skill.

**Gain Number (GN)** The value that tells what the positive effect is when a skill roll or learning roll is made.

**Loss Number (LN)** The value that tells what the negative effect is when a skill roll is failed.

**Targeted Action** An action in which the entity is trying to perform an activity that requires concentration but no interaction between the target and person performing the action.

## 2.1 Formats

In Space Hybrid the term "Formats" [3] has a very special second meaning. When discussing the manner in which a piece of important information is to be displayed the term format is used to represent that form of display[4].

When talking about the way in which missile weapons are listed in the Space Hybrid Instance Manual the rules will refer to the "Missile Weapon Format". The Missile Weapon Format is simply the standard way in which any listing of missile weapons will be displayed. All formats will be found in the Space Hybrid Paradigm.

[1] Should Shifted results exist ?
[2] Clarify this definition
[3] Is there a better term ?
[4] God, does this paragraph need help !

# Chapter 3

# Rolling the Dice

## 3.1 Outline

This chapter discusses the way in which dice are used in Space Hybrid.

## 3.2 The One True Roll

There is one main type[1] of die roll in Space Hybrid. The roll is made with percentile dice against a Target Number (TN). Normally the TN is derived by multiplying the Ease Factor (EF) of the roll times the Stat Basis (SB) of the roll. The difference between the Target Number and the actual die roll is the Success Number (SN). To determine the effects of greater than average or less than average success numbers the (Optimistically named ) Success Table is used. If the Gain associated with the roll is numeric, the effect of the Success Table is multiplied by the Gain associated with the roll. If the Gain associated with the roll has a non-numeric value, then the subjective result portion of the Success Table should be used and the GM has to make a judgement call. In SH, wherever we expect a subjective result to be typical, guidelines will be listed.[2]

### 3.2.1 Examples

As an example, let us look at a simple roll. The character must make a ease factor 7 roll against a stat basis of 8. The target number is thus: $7 * 8 = 56$. The character rolls a 4 on percentile dice. The target number - the roll is 52. So the success number is 52. This is enough to bring us into the 1.5 effect of the success table. If there was a specific numeric gain associated with this roll the character would have achieved 1.5 times that gain. The numeric quantity gain is referred to as Gain Number (GN).

[1] Excluding Rolls against a table

[2] discuss loss numbers also

Some typical rolls are displayed below.

- An EF = 4 roll, SB = 7, TN = 28
- An EF = 10 roll, SB = 8, TN = 80
- An EF = 6 roll, SB = 5, TN = 30

### 3.2.2 Calculating Succes

In calculating the effects of a SN one simply takes the expected gain of the roll and multiply by the Effect Number on the right hand side of the table.

In the case of non-numeric gains it is up to the GM to decide what is the overall gain of the roll.

Table 3.1: Success Table

| SN | SN | EN | Subjective Result |
|---|---|---|---|
| -200 | -176 | -3.0 | |
| -175 | -151 | -2.5 | |
| -150 | -126 | -2.0 | |
| -125 | -101 | -1.5 | Amazing Failure |
| -100 | -076 | -1.0 | Notable Failure |
| -075 | -051 | -0.5 | Solid Failure |
| -050 | -001 | +0.0 | Normal Failure |
| -000 | -000 | +1.0 | Near Failure |
| +001 | +050 | +1.0 | Normal Success |
| +051 | +075 | +1.5 | Solid Success |
| +076 | +100 | +2.0 | Notable Success |
| +101 | +125 | +2.5 | Amazing Success |
| +126 | +150 | +3.0 | |
| +151 | +175 | +3.5 | |
| +176 | +200 | +4.0 | |

# Part I

# Character Generation

# Chapter 4

# Character Generation

## 4.1 What a character is

A Player Character or PC for short is a description , both in terms of mathematical values (statistics) and in a written description of the skills possessed by the character, of a imaginary individual with his or her own physical and mental abilities, skills, history, etc ...[1]

This chapter, and the next few chapters discusses the method by which characters are generated. They includes all the tables needed and the information is presented in roughly the order needed to actually perform the character generation.

## 4.2 An Overview

The character generation process is broken up into four major sections.

- Initial Point Allocation
  - Allocate Primary Statistics
  - Calculate Secondary Statistics
  - Calculate Tertiary Statistics
- Education
  - Pick basic skills derived from education
- Background Generation
  - Pick a career or a set of careers
  - Pick the skills gained from those careers

[1] Describe what can and cannot be generated by the system (Persona and suchlike)

  - Rearrange Point Pool Gains

- Limits and Enhancements
  - Pick Limitations and Enhancements

# Chapter 5

# Generating Character Statistics

## 5.1 Outline

In Space Hybrid a the physical and mental attributes of a character are described by a series of numbers called statistics or stats. Physical Strength is a typical statistic. Generally the higher a given statistic is the more the character can do with skills that require the use of that stat.

In describing the statistics you will see both the name of the statistic in question followed by its abbreviation and a description of its origin and usage.

In generating the statistics of the character the player assigns 13 to each of the stats and has 9 points thereafter to spread among the 9 primary statistics. The player has complete freedom in choosing how the points are distributed.

The minimum statistic is 5. The maximum amount that may be placed into a statistic during the initial point allocation is 25. Racial and Gender statistic modifiers are added on later. The final value for a statistic varies based on race and background of the entity.

The statistics and the ranges they may assume are described in the next three sections.

## 5.2 Primary Statistics

**Physical Strength (PST)** Physical power of body. This is the overall value for the character's raw muscle power and is not tied to some particular set of limbs. Typically, actions such as lifting ae based on PST.

**Physical Endurance (PEN)** Physical resilience and Stamina of body. This is a measure of the character's overall endurance and ability to resist hardship as well as the ability to bounce back from hardship.

**Dexterity (DEX)** Eye and hand coordination and speed of hand movement. This is specifically tied to the character's manipulatory limbs.

**Physical Agility (PAG)** Physical agility of body. This affects the overall body actions of the character. It is also a measure of how sensitive the character is to the relationship between his body and the environment.

**Mental Strength (MST)** Raw mental power. It is a measure of the characters overall computational and reasoning strength. It is also associated with the character's strength of will.

**Mental Endurance (MEN)** Resilience and stamina of mind. It is an overall measurement of the minds ability to recover from shock or disorientation.

**Mental Agility (MAG)** Mental agility. This affects the overall mind actions of the character. It is also a measure of how aware the character is of the relationship between his mind and the environment. In another day and age this might be called "Cunning".

**Psi Potential (PSI)** Measure of how much of a character's MST can be used by the character in psionic actions. This is only a potential value. The PSI value does not reflect how much training the character has received, only how much power could be available to the character if indeed the character was psionically trained.

**Education (EDU)** Measure of the base life experience an entity has absorbed. This is not referring to just formal education but also to general life experience in his or her culture.

## 5.3 Secondary Statistics

**Physical Body (PBD)** The amount of physical damage a character can absorb. Derived from PST and PEN.

**Physical Strength Effect (PSE)** The amount of damage a character can inflict by basic use of strength. Derived from PST.

**Physical Fatigue (PFT)** The amount of energy a character can expend, either in damage or in work. Derived from PEN and PAG.

**Physical Awareness (PAW)** A measure of a chracter's connection and responses to his physical senses.

**Physical Movement (PMV)** A measure of the character's movemnt. Derived from STR and END and racial modifiers.

**Mental Body (MBD)** The amount of mental damage a character can absorb. Derived from MEN and MST.

**Mental Strength Effect (MSE)** The amount of mental damage a character can inflict by basic use of mental strength. Derived from MST.

**Mental Fatigue (MFT)** The amount of mental energy a character can expend, either in damage or in work. Derived from MEN and MAG.

**Mental Awareness (MAW)** A Measure of the character's connection and ability to quickly correalate concious and subconcious clues absorbed by his senses. Derived from PSI,MAG.

**Mental Movement (MMV)** A measure of the characters rate of movement in the purely mental realms of psionics and computer interfaces.

## 5.4 Tertiary Statistics

**Accuracy (ACC)** A measure of the character's effectiveness with projectile or missile weapons. Derived from STR and DEX. Could also be called Physical Accuracy.

**Physical Combat Ability (PCA)** A measure of a character's ability to inflict damage in Hand-to-Hand combat. Derived from STR,PAG,DEX.

**Physical Defense (PDF)** A measure of a character's ability to avoid taking damage in hand to hand combat. Derived from PAG,DEX.

**Focus (FCS)** A measure of the character's effectiveness with focused mental actions. Derived from MST and MAG. could also be called Mental Accuracy.

**Mental Combat Ability (MCA)** A measure of a character's ability to inflict damage in Mind to Mind combat. Derived from MST,MAG,PSI

**Mental Defense (MDF)** A measure of a character's ability to avoid taking damage in mental combat or highly stressful situations. Derived from EDU, MAG.

**General Awareness (GAW)** A measure of a character's connection and response to his Mental and physical senses. Derived from MAW and PAW.

## 5.5 Other Statistics

**Race** Self explanatory

**Gender** If Applicable.

**Height (HT)** Expressed in Centimeters. If the creature being described is quadrapedal, the height given is the height to the shoulder. See the section ...

**Weight (WT)** Expressed in Kilograms. See section ...

**Appearence (APP)** A measure of how attractive a character is to others of his race.

## 5.6 Calculation of Statistics

Table 5.1: Primary Statistics

| Stat | Overall Range | Human Range | Human Average |
|---|---|---|---|
| PST | 3-30 | 5-25 | 15 |
| PEN | 3-30 | 5-25 | 15 |
| DEX | 3-30 | 5-25 | 15 |
| PAG | 3-30 | 5-25 | 15 |
| MST | 3-30 | 5-25 | 15 |
| MEN | 3-30 | 5-25 | 15 |
| MAG | 3-30 | 5-25 | 15 |
| PSI | 3-30 | 5-25 | 15 |
| EDU | 3-30 | 5-25 | 15 |

Table 5.2: Secondary Statistics

| Stat | Formula | Overall Range | Human Range | Human Average |
|---|---|---|---|---|
| PBD | $(PST + PEN)/2 \times RACMOD$ | 03-30 | 05-25 | 15 |
| PSE | $(PST)/5(rn.5)$ | 01-06 | 01-05 | 3 |
| PFT | $(END + PAG)$ | 06-60 | 10-50 | 30 |
| PAW | $(PAG)$ | 03-30 | 05-25 | 15 |
| PMV | $(PST + PAG)/4) \times RACMOD$ | 1.5-15 | 2.5-12.5 | 7.5 |
| MBD | $(MST + MEN)/2) \times RACMOD$ | 03-30 | 05-25 | 15 |
| MSE | $(MST)/5(rn.5)$ | 01-06 | 01-05 | 3 |
| MFT | $(MEN + MAG)$ | 06-60 | 10-50 | 30 |
| MAW | $(PSI + MAG)/2$ | 03-30 | 05-25 | 15 |
| MMV | $(MST + MAG)/4) \times RACMOD$ | 1.5-15 | 2.5-12.5 | 7.5 |

Table 5.3: Tertiary Statistics

| Stat | Overall Range | Formula | Human Range | Average |
|---|---|---|---|---|
| ACC | 3-30 | $(PST + DEX)/2$ | 05-25 | 14 |
| PCA | 3-30 | $(PST + DEX + PAG)/3$ | 05-25 | 14 |
| PDF | 3-30 | $(PAG + DEX)/2$ | 05-25 | 14 |
| FCS | 3-30 | $(MST + MAG)/2$ | 05-25 | 14 |
| MCA | 3-30 | $(MST + PSI + MAG)/3$ | 05-25 | 14 |
| MDF | 3-30 | $(MAG + PSI)/2$ | 05-25 | 14 |
| GAW | 3-30 | $(MAW + PAW)/2$ | 05-25 | 14 |

## 5.7 Racial Modifiers

The player must decide, with the GM's agreement, on the race that the character will be. Once that decision is made any racial modifiers must be applied to the statistics. From that point on, no statistic may be allowed to exceed the racial maxima.

## 5.8 Gender Modifiers

*GM's Note* Modifiers to statistics based on gender is often a sensitive topic and the GM should just dump the rule if it turns out to contreversial

Some races may have modifiers to the statistics of the PC based on their gender.

## 5.9 Cultural Modifiers

It is possible that the GM may have some cultures that are affected by modifiers to their statistics. If so, these modifiers should be applied at this time rather than later.

## 5.10 Determination of Height and Weight

If the character has no preference for the height of the characterit may be randomly generated usingf the following formula:

$Height = AverageHeight + \frac{2d10-11}{10} \times HeightVariation$

$Weight = AverageWeight + \frac{2d10-11}{10} \times WeightVariation$

These figures are based on an adult of the given race.

# Chapter 6

# Education

## 6.1 Outline

The begining character is assumed to have some form of education. The education may simply be general life experience or it may be formal educational training.

As a result of education the character gains EDU points in skill points. Those skill points may be used to buy basic education skills or other basic skills or skill packages.

The initial skills that can be gained by using these points are simple educational and cultural skills[1].

As a result of education the character automatically gets the following skills:

### 6.1.1 Automatically Gained Skills

1. EDU in basic education skills.
2. EDU in points toward skills in written and spoken language.
3. EDU in points toward Cultural Lores. Both local and larger scale.
4. EDU in points toward Lore:[Tech Index] of Culture.
5. 10 points toward manuevering skills for the native environment.

A limitation to highest rank reachable[2] is based on a 50% learning roll in that skill. In other words when spending Experience gained from base education and careers the character may not gain any ranks higher than those that he has a 50% chance of getting in an experience roll.[3] Expand and demystify this

A summary of that limitation is presented in table ....

As an example. Schlem the Schlump has an education of 9. He Redo this example

[1] Describe what this means for non-formally educated individuals

[2] should this be discussed here

[3] ee the section describing learning rolls

Table 6.1: Limit in Skill Ranks from Base Education

| Stat Basis | Rank (Upper Limit) |
|---|---|
| 3 | 0 |
| 4 | 0 |
| 5 | 0 |
| 6 | 2 |
| 7 | 3 |
| 8 | 4 |
| 9 | 5 |
| 10 | 5 |
| 11 | 6 |
| 12 | 6 |
| 13 | 7 |
| 14 | 7 |
| 15 | 7 |
| 16 | 7 |
| 17 | 7 |
| 18 | 7 |
| 19 | 7 |
| 20 | 8 |
| 35 | 9 |

automatically gains 9 points in skill rankings due to his education and applies them to Basic Science and Basic Social Science. He gets 9 points to spend in language and spends it all in his Native Language:Spoken. He uses his points toward lore to gain a complete knowledge of his planet. And gets an 8 in Lore:Tech Index 4 (The tech index of Schlump). He also gets 10 points in maneuvering in grav environment 1.0 G. The only points that he needs to worry about a limit on is the initial 9 points. Those points, unlike the other points gained, are the result of simple teaching and should be checked to make sure that the character has not overstepped what he can learn. In the case of those points he should look at his lowest stat ( EDU = 9) and should be careful not to go above rank 4 in any skill that requires EDU.

# Chapter 7

# Background Generation

## 7.1 Outline

This phase of character generation is where a majority of a character's skills and history will be developed..

## 7.2 History

In delineating a character's history it is assumed that he has embarked on a course of career or non-career that brings him into contact with chances to raise his skills, his status, and his material wealth.

Each of the available paths has its own advantages and disadvantages. Educational careers give one little chance to injure one's self but the possible monetary gains are low. Military careers are dangerous, but possibly fairly rewarding.

### 7.2.1 Careers

Each career is delineated by a simple set of numbers combined with a simple description. It has the following format:

Figure 7.1: Career Format

| Name:Res Period:B.Skill:B.Financial:(Stat—Skill—Wlth—Status) |
|---|
| Begin Detail |
| ... |
| End Detail |

### 7.2.2 Career Format Explanation

**Name** Self explanatory

**Resolution Period** The time between resolution rolls. Typically one to two years.

**Base Skill Points** The base skill points is how many skill points are normally recieved for that time period of endeavor.

**Base Financial Gain** The base amount of stads(standards) gained for a given Resolution period of a career.

**Career Ease Factors (Stat—Skill—Wealth—Status)**

**Stat** The EF for a GAW roll to determine the overall effect the career had during a given time period on an entities health. Critical success usually allows the raising of a physical primary statistic. Critical failure effects usually involves the loss of points from a physical stat. The GN = 0.5. and is applied to the Statistic Pool.

**Skill** The EF for a GAW roll to determine whether or not the character gained any skills during this time period. The GN = Base Skill Points associated with the career and is applied to the Skill Pool. Critical failure effects do not apply to this roll[1]

**Wealth** The EF for a GAW roll to determine whether or not the character gained in the material or financial area. GN = Base Financial Gain of the career.

**Status** The EF for a GAW roll to determine whether or not the character gained in the area of Status. Status is a rather subjective thing but typically, a military career leads to increases in rank and possible minor fame. A increase in status in a shadowy career would lead to the development of a "Rep". Obviously, the types of gain would need to be negotiated between the player and the GM. [2]

Typical Careers

**Pick Pocket** 1yr:4rnks:4,000stads:(5-6-4-6)

**Smuggler** 1yr:5rnks:10,000stads:(4-7-5-3)

**Terran Space Navy** 3yr:6rnks:14,000stads:(4-7-3-3)

**Grunt Mercenary** 1yr:5rnks:7,000stads:(4-7-3-5)

**Scouts** 1yr:6rnks:4,000stads:(4-8-4-5)

**Nurse** 2yr:8rnks:12,000stads:(6-7-5-3)

**Traffic Controller** 1yr:6rnks:25,000stads:(5-6-3-2)

[1] Should this be a shifted result

[2] All careers should have a rank gain cost in status points

**Advanced Education** 1yr:8rnks:2000stads:(6-7-3-3)

The example careers listed above would usually be fleshed out with additional detail such as a description of rank and status, etc.. [3] [4]

## 7.3 Designers Notes

The nominal maximum number of points that may be gained in each one year resolution period is:

Wealth 10 points Wealth values are table based as per career ? Should this be ?

Status 2 points

Skills 10 points

Health 2 points

[3] An important question is that of when a character is allowed to drop out of military and so on careers.

[4] PCs should keep track of the generation history as an aid in designing the character's history

# Chapter 8

# Buying Skills and Advantages

## 8.1 Outline

In the previous portion of the character generation process we added and subtracted points to four "pools". These four pools : Stats, Skills, Wealth, and Status are the basis of the final resolution of the character's skills, history, etc ...

The four pools each have a different basic function.

The Statistics pool or "Stat" pool, serves as the point pool for increasing a PC statistics or creating special abilities.

The Skill pool is the repository of points to be spent in gaining skills.

The Wealth pool contains points to be spent in gaining an idea of basic financial state.

The Status pool contains points to be spent in gaining all the possible trappings of status. Reputation, syncophants.

Players do have a limited amount of lateral movement for these points. The Wealth and Status pool can exchange to a maximum of EDU/2 The Statistics and Skill pools can exchange a maximum of EDU/2 points.

In addition a player can add and subtract to/from the pools by the usage of Advantages and Disadvantages.

# Chapter 9

# Environmental Enhancements, Special Abilities and Limitations

## 9.1 Outline

Enhancements are gains in either background or special abilities that can be paid for with points from one of the pools. There are two main types. There are special abilities or SPABS and there are Environmental Enhancements.

SPABS are natural aptitudes that are typically permanent and inherent to the character's makeup.

Environmental Enhancements are typically advantages that depend on the character to maintain them. Such as wealth and so on ...

### 9.1.1 Special Abilities

SPABS have both Depth and Scope to help govern their cost.

Depth refers to the numeric advantage given by the SPAB in a given area. The scope denotes the number of different areas that the spab may be applicable to.

### 9.1.2 Environmental Enhancements

Environmental Enhancements have both Depth and Scope to help govern their cost.

## 9.2 Costs

# Part II

# Skills

# Chapter 10

# Skills

## 10.1 Outline

This chapter discusses one of the most important parts of the system. Skills form the basis of almost every action a player character performs. It is discussed seperately from other subjects because it is a broad topic and one that will need to be referred to many times.

## 10.2 Definitions

Proficiency in a skill is delineated by a range of 0-20. Initially the character is given a set number of skill points which represent the skills that can be gained as part of his educational background. In addition the character can choose to become a member of a military service, continue his education, go into an immediate job, or wander. Each of these options will be covered in the appropriate section.

## 10.3 Skill Format

Skills have a simple format for describing them. The format described here is fairly detailed but most players will not need to concern themselves with most of the detail.

Most players will only need to know the Name, the SB, the RB, and the cost of a skill.

## 10.4 Skill Format Explanation

**Name** Self Explanatory

**Type** The concept of type is detailed by a root word that describes the base type and modifiers that describes the level of other interaction. So typically a skill type would be Basic Type, Interaction, Implementation. A simple Ballroom Dancing skill would have a Skill Type of Art, Assisted, Non-Tool Based . See below for descriptions of the categories.

**Stat Basis** The stat , or combination of stats, that represents the majority of the entities qualities utilized by that skill.

**Rank Bonus** The additional gain in the success chance per rank in the skill. This can usually be inferred from the skill type but it is usually explicitly stated in order to save time and energy.

**Cost** The experience point cost is the amount of experience points it takes to buy a roll in a skill. Typically , it also can be inferred from the type of the skill, but it is easier to have it explicitly listed.

**Typical Ease Factors** This is just a list of things that characters might want to do with a given skill, and what the typical Ease Factor is for that occurence.

**Basic Type** The overall term that described the very broad area of endeavour that the skill falls into. The basic type may be any of the following:

**Art** An activity that has as its aim an affect upon the aesthetic senses of its audience.

**Craft** An activity that is intended to mix Art with the production of some utilitarian object or effect.

**Science** A series of disciplines intended to increase a codified body of knowledge.

**Engineering** Any area of endeavour that attempts to apply a codified body of knowledge to the production of a desired physical effect.

**Technical Study** An area of endeavour that is focused upon creating and maintaining the end result of the corresponding engineering discipline

Figure 10.1: Skill Format

| |
|---|
| Name |
| Type = (Basic Type, Implementation, Interaction, Focus) |
| Stat Basis |
| Rank Bonus |
| Cost |
| Begin Detail |
| . . . End Detail |
| Typical Ease Factors |

**Physical Discipline** Any area of endeavour based on muscle memory training.

**Mental Discipline** Any area of endeavour based on purely mental manipulations without reference ...[1]

**Interaction** This area describes the various modifications upon the broad themes described above. Interaction may be any of the following:

**Assisted** Requires the work of one or more additional entity.

**Un-Assisted** Requires only one entity.

**Implemetation** Implementation describes any tools that need to be utilized in order to perform an action using the skill. It is based on the most common usage of a skill. It can be any of the following.

**Complex Tool Based** Requires some additional tools of a moderately complex nature that have been made especially for the skill.

**Simple Tool Based** Requires some additional tools other than the entities mind or body. Computers and calculators are good examples.

**Non Tool Based** Requires no additional tools other than the entities mind or body.

**Focus** Focus is only associated with the sciences and it refers to whether the character studies the full science or specializes in some sub section of that science.

**Non Directed** Intended to add to a general body of knowledge

**Directed** Intended to add to a specific area of a body of knowledge.

## 10.5 Using Skills

### 10.5.1 Making A Skill Roll

To make a skill roll involves determing the Ease Factor for the action you wish to perform, multiplying it by the Stat Basis of the applicable skill, and adding in the Rank Bonus * Rank. In other words, Acrobatics is based on a SB of PAG/2. For an average individual that is a 7. Assuming that the character is attempting a simple forward roll the EF is 7. $7 * 7 = 49\%$. If the character is RNK 4 in the skill then the overall chance to perform the action is $49 + 4 * 5 = 69\%$. All skills have a rank bonus of 5

[1] How in the world do I describe this one

### 10.5.2 Modifiers to Using Skills

Obviously, a great deal of the work involved in determining the percentage chance to perform a skill is dependent on the EF assigned to the action. Most modifiers to that action will be added or subtracted from the actions EF. There is a wide range of modifiers that can affect the EF of the skill roll[2].

#### Knowledge of the skill

A character may be attempting to use a skill he has no familiarity with such as firing a pistol for the very first time. At such moments the character is subject to modifiers to his action for his lack of knowledge regarding that skill. Having no rank in a skill gives EF -4 on the skill roll[3].

#### Setup

The term setup means to wait and prepare for a given action. Typically it takes as long to set up for the action as it does to perform the action itself. This normally adds double the normal rank bonus to the percentage chance to perform the skill as well as adding 2 to the EF of the action.

Table 10.1: General Modifiers

| Situation | EF Modifier | Other Modifier |
|---|---|---|
| No rank in skill | -4 | |
| Setup | +2 | 2*RB |

#### Physical Condition

The character may attempt to use skills when he is injured or fatigued. Physical fatigue has the greates effect on physical actions but can also effect mental activities.

Table 10.2: Physical Condition Modifiers

| Situation | EF Modifier |
|---|---|
| Out of PFT | -2 physical |
| Out of PFT | -1 mental |
| 25% wounded in PBD | -2 Physical |
| 25% Wounded in PBD | -1 Mental |
| 50% Wounded in PBD | -4 Physical |
| 50% Wounded in PBD | -2 Mental |

[2]Add rules about the players being told the EF. The concept of faint unease enters here

[3]Note that this is different from not having familiarity with the specific tool you are dealing with

#### Mental Condition

Much as physical condition affects the physical actions, so too does mental condition affect mental actions. Mental condition can also affect the efficiency of physical actions.

Table 10.3: Mental Condition Modifiers

| Situation | EF Modifier |
|---|---|
| Out of MFT | -2 mental |
| Out of MFT | -1 physical |
| 25% wounded in MBD | -2 Mental |
| 25% wounded in MBD | -1 Physical |
| 50% wounded in MBD | -4 Mental |
| 50% wounded in MBD | -2 Physical |

#### Movement

When performing a physical action the character may be affected by his rate of movement or the rate of movemnt of some other object [4].

#### Environmental Conditions

This is a catchall area. Characters generally are at their best performance in conditions similiar to the environment in which they were raised. Any drastic modifications from that environement in terms of light, gravity, humidity, etc. . . can lower the character's performance.

Table 10.4: Environmental Condition Modifiers

| Situation | EF Modifier |
|---|---|
| Lighting 50% off | -2 |
| Lighting 75% off | -3 |
| Gravity 50% off | -2 |
| Gravity 100% off | -3 |

### 10.5.3 Relations Among Skills

In situations where the character does not possess a skill that directly relates to the action to be performed the entity may choose to use a related skill.

A typical example would be in using two different types of handguns. The character has rank 10 in Slug Pistol but is using a Stun Weapon. The stun weapon is fairly different from the Slug Pistol so the character can only apply

[4] Place the movement modifier tables here

1/5 of his expertise in Slug Pistol to using this pistol. So he has an effective rank 2 in the weapon.

As a rule the following relations apply.

Table 10.5: Skill Relations

| | |
|---|---|
| Similiar in many respects | 2/5 |
| Dissimiliar in many respects | 1/5 |
| Really Stretching it | 1/10 |

### 10.5.4 Unfamiliar Tools

If the skill requires the use of tools and the tool that the character is utilizing is unfamiliar, then the action occurs at a -2 EF. This usually only happens if the differences between the version of the tool the character normally uses and the current one actual effect how it is used. A gun with a different mass than the entity is used to is unfamiliar, whereas a gun of the same model and same manufacturer is not. To eliminate this unfamiliarity modifier requires that the entity famaliarize himself with the tool with a EF -3 roll against the SB of the skill with a gain of +0.5 EF. The character may never reduce the unfamiliarity modifier below -0.5 unless he takes a skill in using that tool.

## 10.6 Gaining Skills

There are two ways to gain skills. The first is to use a skill and have its usage give you enough experience points to buy a roll for that skill. The Second is to use general experience points to use in training for that skill.

## 10.7 Advancing in Skills

Advancement is always due to EPS. Character gains EPS. Spends EPS in order to get a roll in his skills. The cost of going up in a skill is listed with the skill.

### 10.7.1 Experience Points Gain from usage.

Each character that sucessfully uses a non-ranked skill for the first time ever or who uses that skill critically gains 25 experience points or EEPS. A character who uses a non-ranked skill successfully or who critically fails in the non-ranked skill gains 15 experience points. A character who succeeds normally in using a ranked skill gains 10 EEPS [5].

[5] What is the rate of gain ?

### 10.7.2 Learning Rolls

The EF for making a Learning Roll in a skill is (10 - Rank) + (Training Mods). This is multiplied by the SB of the skill in order to get the percentage chance to go up in the skill. All the normal success table rolls apply.

### 10.7.3 Training in Skills

**Training Alone** Adds $+.05EF/10hours$

**Training under Teacher** Adds $+(.1 * TeachersRank)/10hours$

Training in a skill has the directly modifies the Ease Factor of the Learning roll for that skill.

## 10.8 Designing Skills

If a character wishes to learn a skill not supplied by the rule system the GM must figure out the appropriate values for that skill. Typically the GM will break the skill down into its basic type, implementation, interaction, and focus. After doing so he will use that breakdown to calculate its experience point cost.

The first step is to determine the skill's stat basis. In order to do so the GM must decide what action comprises 50% or more of the activity the character undertakes when using that skill. Once he has determined what that action is he must decide what stats are used by that activity.

In general each skill is measured against the tertiary stats first , then the secondary and finally the primary. MSE and PSE are never used as SB's. MVM based skills are self evident.

Most scientific or purely mental skills are FCS based. Lovemaking is PCA.

For actions in which the character is non skilled the SB's are fairly simple. For perception rolls use GAW or MAW or PAW. For analysis rolls use MCA for entity manipulated situations. Use FCS for non-entity manipulated situations. For memory rolls roll MST.

If the most common action is a mental one but has a physical component then the skill is not based on FCS,MCA, or MDF alone.

If the action is a physical skill but has a mental component then the skill is not based on ACC,PCA, or PDF alone.

Skills that are not based on the tertiary stats are usually either MAW or PAW. Any skills where the most common action is a perception roll has to be based on one of the awareness stats. If the action could not be performed at all if the entities primary physical sense were removed then the skill is PAW based[6].

### 10.8.1 Experience point costs

Note that the Appropriate Tech Index that the skill was learned at must be recorded.[7]

## 10.9 Filter Skills

There is a category of skills which affects the use of other skills in an environment they were not designed to be used in. These skills are called filter skills. A Filter skill is any skill that can allow for the full expression of other skills in an environment other than that for which those skills were designed for.

Typical fiolter skills include the following: 0-g maneuver, Tech Level Lore, Culture Lore, Horsemanship and other vehicular combat skills, Armor Wearing, Computer operations.

For situations in which the character is attempting to apply a skill in a environment he is not familiar with and that skill *must interact with that environment, then the rank in the filter skill becomes the upper limit on the effective rank of the skill being used.*

[6]Is the last really true

[7]How to handle upgrading skills for new TI's ?

Table 10.6: Generic EFs for Actions

| | |
|---|---|
| Basic Identification of Actions Needed | 10 |
| Judgement of Quality | 9 |
| Basic Perception Roll w/in area of SKill | 8 |
| Basic Action ( makes up 60% or more of the actions made by someone using this skill) Anyone of basic compentence would know this action well. | 7 |

Table 10.7: Costs of Skill Components

| Name | Exp Cost |
|---|---|
| Mental Disciplines | 300 |
| Art | 250 |
| Science | 200 |
| Engineering | 150 |
| Crafts | 100 |
| Technical Study | 75 |
| Physical Disciplines | 50 |
| Unassisted | 0 |
| Single Assisted | 25 |
| Multiple Assisted | 50 |
| Non-Tool Based | 0 |
| Tool Based | 50 |
| Complex Tool Based | 100 |
| Directed | 0 |
| Non-Directed | 50 |

Table 10.8: Costs of Common Skill Types

| | |
|---|---|
| Mental Disciplines | 300 |
| Unassisted, non-tool based | 300 |
| Unassisted, Tool Based | 350 |
| Unassisted, Complex Tool Based | 400 |
| Single Assisted, Non-Tool Based | 325 |
| Single Assisted, Tool Based | 375 |
| Single Assisted, Tool Based | 425 |
| Arts | 250 |
| Unassisted, non-tool based | 250 |
| Unassisted, Tool Based | 300 |
| Unassisted, Complex Tool Based | 350 |
| Single Assisted, Non-Tool Based | 275 |
| Single Assisted, Tool Based | 325 |
| Single Assisted, Tool Based | 375 |
| Science | 200 |
| Directed | 200 |
| Non-Directed | 250 |
| Engineering | 150 |
| Directed | 150 |
| Non-Directed | 200 |
| Crafts | 100 |
| Unassisted, non-tool based | 100 |
| Unassisted, Tool Based | 300 |
| Unassisted, Complex Tool Based | 350 |
| Single Assisted, Non-Tool Based | 275 |
| Single Assisted, Tool Based | 325 |
| Single Assisted, Tool Based | 375 |
| Technical Study | 075 |
| Directed | |
| Non-Directed | |
| Physical Disciplines | 050 |

# Chapter 11

# Skill Packages

## 11.1 Introduction

*What we have discussed up till now has been single skills. Quite often though it may be better to offer skill packages. A skill package is a collection of conceptually related skills that have an experience point cost less than the total cost of all the skills. All skills in a skill package may be used normally with the exception that package skills have a lower Rank Bonus and an EF modifier of -2.*

## 11.2 Generation Cost

*Something not previously discussed is the concept of generation cost. Generation Cost is the cost in points it takes to raise a skill or skill package to a given ranking during the character generation process. The generation cost of single skills is always one. The generation cost of each package varies with the number of skills contained within it.*

## 11.3 Experience Point Cost

*Each skill package has an overall Experience point cost that is the result of adding the cost of the most expensive skill together with the cost of all the other skills times some factor. The actual value of this factor is used to name the type of skill package.*

*Quarter Experience* $1 \times Most\ Expensive\ Skill + 1/4 \times All\ Others$ *All skills within this package have a RB = 2%, EF = -2*

*Half Experience* $1 \times Most\ Expensive\ Skill + 1/2 \times All\ Others$ *All skills within this package have a RB = 3%, EF = -2*

*Three Quarter Experience* $1 \times Most\ Expensive\ Skill + 3/4 \times All\ Others$ *All skills within this package have a RB = 4%, EF = -2*

## 11.4 Making A Skill Roll

*Skill rolls for skills within a package are made as normal with the appropriate modifiers for the package skills.*

## 11.5 Modifiers to Using Skills

*All normal modifiers that apply to single skills apply to skills in a package.*

## 11.6 Learning Rolls

*The SB of the learning roll for a skill package is the least favorable of all the SBs in the skills that make up the package. A skill package suffers an additional EF -1 to Learning Rolls.*

## 11.7 Modal Packages

*Modal packages ( pronounced Mō-dal ) are packages of Mental or Physical disciplines that require concentration to maintain, leading to the exclusion of any action that requires skills outside the package. Many of the martial arts styles are modal packages. Modal packages do not have the EF = -2 modifier that most packages do but they require a skill roll to enter and exit the mode of concentration.*

## 11.8 Unfamiliar Tools

*All normal modifiers for unfamiliar tools apply to package skills.*

## 11.9 Gaining Skills

*Skill Packages may only be gained by training in the package from someone who already has that skill package.* [1]

## 11.10 Experience Points Gain from usage.

*All normal experience point gains from usage apply to skills in a skill package with the exception that a character may never get eeps for being non-ranked in a skill package*[2]*.*

*A typical skill package would be :*

[1] Include rules for actually designing skill packages.

[2] Put in notes on buying out skills from a package

```
Aikido (3/4 package)

 Dodging In       (SB=PAG)
 Dodging Away     (SB=PAG)
    Grapple          (SB=PCA)
    Balance Throw    (SB=PCA)
    Joint Throw      (SB=PCA)

 Cost ( 50 + 3/4(50+50+50+50) ) = 200
    Generation Cost = 1+3/4(1+1+1+1) = 4

 Skill PAckage SB: PAG|PCA
 RB=4%
```

# Part III

# Extra-Ordinary Powers

# Chapter 12

# Psionics

## 12.1 Outline

*This chapter outlines one of the more interesting areas of SF gaming: Pyschic Phenomenom or Psionics. What is to be noted is that no comfortable way could be found to make a truly generic set of psionic abilities. A great deal of the limitations described here are indeed implementation specific and could be changed on GM's whim.*

## 12.2 Definitions and Description

*Psionics is the application of mental force to directly affect an entitie's surroundings. The use of psionics is dependent upon the total concentration of the psionic.*

## 12.3 Areas of Psionics

*Energetics, Telekinetics, Temporokinetics, Phanokinetics, Biokinetics*

## 12.4 Gaining Psionics

*All entities have the potential for psionics. All Psionic Skills are mental disciplines. To determine the character's area of talent roll on table*

## 12.5 Usage of Psionics

*There are several things of note to be mentioned. The first and foremost is that it is always easier to affect inanimate objects with Psionics.*

*When attempting to affect other entities the percentage chance to succeed is lowered by the defending entities MDF. An actively defending individual lowers it by 2 * MDF.*

*The second thing of note is that even affecting yourself is somewhat difficult. A Roll must be made to lower MDF.*

### 12.5.1 Skill Rolls

*Attempting to use Psionics requires a skill roll just as any other skill. The same EF modifiers apply as to any other action.*

### 12.5.2 Concentration Checks

*If the Psionic is disturbed in any way the entity must make an EF 2 roll against that psionic skill in order to continue their concentration. This concentration may be made up to three times per pulse. If more than that is needed , give it up. Psionics may use special aids in concentrating including: Meditation, Ear Plugs, Drugs etc...*

### 12.5.3 Mental movement

*Mental movement governs that distance in M/sec that can be covered by a psionics powers while concentrating.*

### 12.5.4 Range of Psionics

*The range on Psionics is typically equal to the MST in meters.*

*The character may choose fixed ranged when he declares the psionic action or he may declare for cost based range.*

### 12.5.5 Damage of Psionics

*The base "damage" comes from the Mental Strength Effect (MSE).*

### 12.5.6 Base effect

*Cost based*
*or Fixed*

### 12.5.7 Knowledge

*No Knowledge(Instinctual usage)*
*Trained Only(No Training)*
*Everyone is trained*

### 12.5.8 Drain Rolls

*After a psionic has used a psionic skill he rolls a "drain" to see if he expends the cost of the psionic skill. A drain roll is an EF 2 roll against the skill. Someone who fails the psionic skill roll will take an EF -1 to the drain roll, a critial failure of the skill roll causes an EF -2 on the drain roll. Of course, you can critically fail a drain roll.*

*Psionics are described and treated in a manner similiar to Thrown weapons.*

Figure 12.1: Psionic Format

**Name** Self Explanatory

**Cost** The cost in MEN for using the skill.

**Psionic Accuracy Decrement**

**Psionic Damage Multiplier**

**Psionic Damage Decrement**

**Experience Point Multiple**

## 12.6 Psionic Format Explanation

**Name** *Self Explanatory*

**Cost** *Usually the cost in MFT.*

**Psionic Accuracy Decrement (PAD)** *The loss in accuracy for a given distance*

**Psionic Damage Multiplier (PDM)** *The multiple times the users base that is used to produce a characters damage.*

**Psionic Damage Decrement (PDD)** *The loss in damage associated with range in a psionic attack*

**Experience Point Multiple (EPM)** *The Experience point cost necessary to raise the skill*

**Areas of Psionics**

**Telekinetics** *Telekinetics is the use of the mind to impart kinetic energy to an object. The use of psionics to toss objects around is a telekinetic action.*

**Temporokinetics** *Temporokinetics is the use of the mind to affect the spatial integrity of the surrounding area. Teleportation is a temporokinetic action.*

**Biokinetics** *The use of a mind to directly influence a biological system. Placing oneself in suspended animation is a typical biokinetic feat.*

**Energetics** *The use of the mind to directly affect the molecular nature of a material. Setting fire to paper or dissolving a glue would be typical actions of an energetic.*

**Phanokinetics** *The use of Psionic power to increase an enitities sensitivity to the patterns and gestalt of its environment. Telling when a entity lies due to relatively subtle logic flaws in a statement is a typical Phanokinetic action.*

# Chapter 13

# KI

## 13.1 Introduction

*This chapter discusses two techniques to increase the effectiveness of an individual. One technique is typified by a very nebulous region of skills called KI skills.*

*The other technique is that of meditation. Meditation is the act of excludng all outside disturbances from affecting your concentration.*

## 13.2 Description

*In many respects there may be more believers in psychic phenomenom than there are in KI. A KI skill is one that uses the ability of the entity to focus his will on a specific action. Ki skills are mental disciplines designed to augment a physical action. Specifically they allow the expenditure of mental fatigue in order to increase the EF of a physical skill.*

## 13.3 Gaining KI Skills

*KI skills are gained in the normal manner for Mental Disciplines.*

## 13.4 Using KI Skills

*All KI skills have a direct effect upon the EF of the action being fiocused on. They are limited in duration to the time it takes to perform the action. The actual EF of the KI skill is at a -3.*

## 13.5 Meditation

*Meditation is the act of excludng all outside disturbances from affecting your concentration.*

# Part IV

# Playing Mechanics

# Chapter 14

# General Playing Mechanics

## 14.1 Introduction

*This chapter discusses various critical pieces of the game system that effect just about every character. They are not specific to either combat or non-combat situations.*

*In situations that involve any type of conflict, whether physical, mental or verbal, the decision on who acts first may be critical*[1]*.*

*The total model of Space Hybrid centers around an reaction/action sequence. The character determines when his reaction will occur and at that time declares his action. The action speed is added to the time of the reaction and the total is when the actual action finishes. Once the action has occured the character rerolls initiative unless he is acting on a preset action.*

## 14.2 Time Scale

*Time is typically broken down into the following common units:*

Table 14.1: Time Scale

| | |
|---|---|
| Pulse | 1/5 Second |
| FivePulse | 1 Second |
| TenPulse | 10 Pulses = 2 seconds |
| Round | 50 Pulses = 10 seconds |

*In general the more tense or critical an action is, the smaller the unit of time that is used by the GM.*

[1]Note in the design notes that we have intentionally removed first action determination from the Combat section

## 14.3 Initiative or Reaction

*Each entity that is involved in a conflict of any type must roll an EF -3 (not actively alert), EF +0 (Alert), or EF +2 (Actively expecting trouble) initiative roll. Using the Initiative Roll Table the character uses the SB and the EF to get the value that is added to a d10 roll and that is the time (generally in counts) it takes before a character can react. Characters can specify that they wish to utilize a specific form of Awareness such as PAW. If they do so the add an additional EF +2 to rolls requiring that Stat but get an EF -4 modifier to all other rolls utilizing the complementary stats.*

*All initiative rolls are also open ended upon a roll of 10 or 1.* [2][3]

Table 14.2: Initiative Roll Table

| | -10 | -9 | -8 | -7 | -6 | -5 | -4 | -3 | -2 | -1 | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 3 | 18 | 17 | 17 | 17 | 16 | 16 | 16 | 15 | 15 | 15 | 15 | 14 | 14 | 14 | 13 | 13 | 13 | 12 | 12 | 1 |
| 4 | 19 | 18 | 18 | 17 | 17 | 17 | 16 | 16 | 15 | 15 | 15 | 14 | 14 | 13 | 13 | 13 | 12 | 12 | 11 | 1 |
| 5 | 20 | 19 | 19 | 18 | 18 | 17 | 17 | 16 | 16 | 15 | 15 | 14 | 14 | 13 | 13 | 12 | 12 | 11 | 11 | 1 |
| 6 | 21 | 20 | 19 | 19 | 18 | 18 | 17 | 16 | 16 | 15 | 15 | 14 | 13 | 13 | 12 | 12 | 11 | 10 | 10 | 9 |
| 7 | 22 | 21 | 20 | 19 | 19 | 18 | 17 | 17 | 16 | 15 | 15 | 14 | 13 | 12 | 12 | 11 | 10 | 10 | 9 | 8 |
| 8 | 23 | 22 | 21 | 20 | 19 | 19 | 18 | 17 | 16 | 15 | 15 | 14 | 13 | 12 | 11 | 11 | 10 | 9 | 8 | 7 |
| 9 | 24 | 23 | 22 | 21 | 20 | 19 | 18 | 17 | 16 | 15 | 15 | 14 | 13 | 12 | 11 | 10 | 9 | 8 | 7 | 6 |
| 10 | 25 | 24 | 23 | 22 | 21 | 20 | 19 | 18 | 17 | 16 | 15 | 14 | 13 | 12 | 11 | 10 | 9 | 8 | 7 | 6 |
| 11 | 26 | 24 | 23 | 22 | 21 | 20 | 19 | 18 | 17 | 16 | 15 | 13 | 12 | 11 | 10 | 9 | 8 | 7 | 6 | 5 |
| 12 | 27 | 25 | 24 | 23 | 22 | 21 | 19 | 18 | 17 | 16 | 15 | 13 | 12 | 11 | 10 | 9 | 7 | 6 | 5 | 4 |
| 13 | 28 | 26 | 25 | 24 | 22 | 21 | 20 | 18 | 17 | 16 | 15 | 13 | 12 | 11 | 9 | 8 | 7 | 5 | 4 | 3 |
| 14 | 29 | 27 | 26 | 24 | 23 | 22 | 20 | 19 | 17 | 16 | 15 | 13 | 12 | 10 | 9 | 8 | 6 | 5 | 3 | 2 |
| 15 | 30 | 28 | 27 | 25 | 24 | 22 | 21 | 19 | 18 | 16 | 15 | 13 | 12 | 10 | 9 | 7 | 6 | 4 | 3 | 1 |
| 16 | 31 | 29 | 27 | 26 | 24 | 23 | 21 | 19 | 18 | 16 | 15 | 13 | 11 | 10 | 8 | 7 | 5 | 3 | 2 | 0 |
| 17 | 32 | 30 | 28 | 26 | 25 | 23 | 21 | 20 | 18 | 16 | 15 | 13 | 11 | 9 | 8 | 6 | 4 | 3 | 1 | - |
| 18 | 33 | 31 | 29 | 27 | 25 | 24 | 22 | 20 | 18 | 16 | 15 | 13 | 11 | 9 | 7 | 6 | 4 | 2 | 0 | - |
| 19 | 34 | 32 | 30 | 28 | 26 | 24 | 22 | 20 | 18 | 16 | 15 | 13 | 11 | 9 | 7 | 5 | 3 | 1 | -0 | - |
| 20 | 35 | 33 | 31 | 29 | 27 | 25 | 23 | 21 | 19 | 17 | 15 | 13 | 11 | 9 | 7 | 5 | 3 | 1 | -1 | - |

*The concept of suprise as such does not really exist as a seperate state. A character who is suprised is one who was not actively watching who got a poor roll at EF -3.*

## 14.4 Preset Reactions

*A character may decide to preset a reaction. A preset reaction is attempt to make yourself sensitive to a specific stimuli to the exclusion of all other stimuli. The advantage is that it allows an additional EF +2 to an initiative roll and a -3 to all subsequent initiative rolls. The disadvantage is that it adds EF -3 to any other perception roll.*

[2]The Formula for initiative is quite simple : $Init = Roll_d10 + (15 - (SB * EF)over10$

[3]Should this be an open ended roll

*Gunfighters waiting on someone elses draw of a weapon would preset a reaction. A character must be actively watching in order to preset a reaction*[4].[5]

*A Preset reaction may only be held for MST in the time scale that the players are working in before a drain roll is required.*

*If a character fails one of a series of preset actions he must roll EF-3 against GAW to avoid losing the series*[6].

> *Isaac (GAW = 20) expects to be attacked while walking in the alley. He states that he is actively watching for attack and , when he is attacked, he will dodge. When he is attacked he gets to roll initiative.*
>
> *Since he is actively watching he gets an EF +2 modifier to his initiative roll in addition to the EF +2 modifier for the preset. His total is* $EF = 7 + 2 + 2 = 11$. *The Initiative Table shows a 4 in the EF=11, SB=10 position. He rolls a 5 so 5+4 = 9. So at count 9 Isaac will start to perform a dodge.*
>
> *Reginard (PAW = 18) is tucked around a corner in the alley listening for someone to mug. He is using only his hearing and is actively listening. When he hears someone just around the corner he is going to jump around the corner and slash at him with a dagger.*
>
> *Because he is actively listening he gets EF +2. Because he is concentrating on PAW he gains an additional EF +2. Because he is using a preset he gets an EF +2. The total is* $EF = 7 + 2 + 2 + 2 = 13$. *The initiative table says that the Initiative modifier for SB=9 and EF = 13 is 3. He rolls a 6 which, when added to the 3 modifier, gives a reaction of 9. So at 9 Reginard starts to do his attack.*

[4]This is necessary because you are dealing with a reaction rather than an action.

[5]When are presets declared?

[6]Is a preset series broken or is it simply slower as a result of the need to recover?

Table 14.3: Initiative Roll Modifiers

| Situation | Modifier |
|---|---|
| Blinded | -5 EF |
| Deafened | -3 EF |
| Drunk/Stoned | -5 EF |
| Asleep | -4 EF |
| Poor Lighting | -3 EF |
| Not Actively Watching | -3 EF |
| Alert | +0 EF |
| Kata Action | +0.5 EF |

## 14.5 Actions

*Actions normally begin at the count given by the initiative roll. The decision about what action is to be performed, if not already made, must be made at this point. The speed of the action is determined and the character takes this action on a pulse given by Initiative + Action Speed.*

> *Rashid "the Twitch" (GAW=24) is walking past an alley when he notices the altercation in the alley. He is not actively watching (EF -3), so he rolls on the EF= 4 column. This gives him an initiative modifier of +10. Rashid rolls an 8 and is thus unable to start his action until count 18.*

## 14.6 Speeds of Actions

*Most actions have a speed associated with them. All simple actions , unless otherwise noted, have a standard speed of 5 counts.*

Table 14.4: Speeds of Basic Actions

| Action | Speed |
|---|---|
| Lift Light object | 5 |
| Lift Heavy Object | 10 |
| Any Simple Physical Action | 5 |
| Perception | 5 |

> *Isaac starts his dodge on 9, the speed of the dodge is 5 counts so Isaac starts his dodge on 9 and ends it on count 14.*
>
> *Reginard starts his jump and attack at 9, both actions take 5 counts and they are occuring simultaneously so the actions start at 9 and end on 14.*

## 14.7 Speeding up Actions

*Speeding up an action to 1/2 as long, causes the action to have 1/2 the Ef. Round to the Worst. At no point can an action take less than 1/3 of its base speed.*

## 14.8 Drawing a Tool or Weapon

*This most often applies to drawing a weapon but can also apply to other tools.*

*In general, when a weapon is in hand, all normal weapon speeds apply.*

*In order to get a weapon into ones hand it takes* $2 \times Speed_{weapon}$ *in pulses.*

*In order to get a weapon in hand faster than* $2 \times Speed_{weapon}$ *requires a fast draw or ready roll against the weapon's skill. A successful ready roll brings the tool or weapon to bear at* $Speed_{weapon}$.

*When count 18 comes around Rashid attempts to fast draw his Isaac starts his dodge on 9, the speed of the dodge is 5 counts so Isaac starts his dodge on 9 and ends it on count 14.*

## 14.9 Resolving an Action

*Actions usually require only a skill roll to be made.*

*The Isaac starts his dodge on 9, the speed of the dodge is 5 counts so Isaac starts his dodge on 9 and ends it on count 14.*

## 14.10 Resolving Multiple Actions

*For each "Task" there are a number of actions that can be performed. If the actions involved in the task are simple the GM may choose to resolve them with one roll rather than resolving each individual action. This may best be done when each action is simple ( i.e. EF ¿= 6).*

*Jogging across the street and leaping a small fence is something suited to being a task. Normally though, the GM would not normally even ask the character to roll. a task roll simply because the actions are all very easy. But if the character stands the chance of being exposed to someone looking for him then a roll should be made.*

*The EF for the "Task" Roll is given by*

$$EF_{Task} = 5 - (1/2 \times Number\ of\ Actions)$$

*The Gain Value for task roll is excellent success. This is a"Shifted Result" roll. It is shifted to the less severe result. A Normal failure is a success, a Normal Critical Failure is a Normal Failure, etc ...*

*The experience points gained from a task roll match whatever the final roll is. Those points may be distributed among any of the skills used in the task.*

## 14.11 PFT Cost of Actions

*An individual can use a great deal of energy in performing actions in combat or doing other simple tasks. For each period of activity* when the activity is over a drain roll is made. The drain roll is an EF=6 roll against PEN. The Loss is PFT based on what type of action he is engaging in.

All normal modifiers apply to this roll. So if someone is 50% wounded in PBD his Drain roll is made at $EF = 7 - 3 = 4$. [7] [8] [9]

[7] How to handle decay of Drain Roll EF with time

[8] What are the time interval breakdowns for PFT loss

[9] Should there be drain rolls for each strike in combat ?

Table 14.5: PFT Loss Numbers for a given activity

| Activity | LN |
|---|---|
| Close Combat | 8 |
| Melee Combat | 6 |
| Walk | 2 |
| Jogging | 4 |
| Running | 8 |
| Dash | 10 |

## 14.12 MFT Cost of Actions

An individual can use a great deal of energy in performing actions in studying or doing other simple tasks. For each period of activity *when the activity is over a drain roll is made. The drain roll is an EF=5 roll against MEN. The Loss is PFT based on what type of action he is engaging in.*

*All normal modifiers apply to this roll. So if someone is 50% wounded in MBD his Drain roll is made at* $EF = 5 - 2 = 3$.

Table 14.6: MFT Loss Numbers for a given activity

| Activity | LN |
|---|---|
| Psionic Combat | 8 |
| Training | 6 |

## 14.13 Physical Movement

*Each character has a statistic named Physical Movement. This is the character's movement in meters/second at a dash. There are a total of five different types of movement that a character may utilize. Each type of movement has its own movement rate which is derived from the character's movement statistic. Ideally the player will have the full range of movements listed on his character's sheet.*

Table 14.7: Movement Types

| Movement Type | Rate of Movement (meter/second) |
|---|---|
| No Move | $0 * Movement$ |
| crawls, slow walks | $0.50 * Walk$ |
| Walking | $0.50 * Jog$ |
| Jog | $0.50 * Run$ |
| Run | $0.50 * Dash$ |
| Dash | $1.00 * Movement$ |

*As an example, Joe Daring has a PST of 16 and a PAG of 16. His movement is $\frac{(16+16)}{4=8}$. So Joe can Dash at 8 m/sec, run at 4 m/sec, jog at 2 m/sec, walk at 1m/sec and crawl at .5 m/sec.*

*If the movement is being resolved during a time scale of greater than every pulse one can get the distance traveled by simply multiplying the movement of the individual times the time spent moving. The time spent accelerating is ignored as being negligible.*

*Let us say that Joe Daring spends 15 seconds running down a deserted street. If he does'nt run out of street he will have covered 4 * 15 = 60 meters. If this seems a bit short, keep in mind that a run is not a full dash. At a full dash Joe would have covered twice the distance and would be slowing down pretty drastically due to losing wind.*

### 14.13.1 How to Handle Acceleration

*In dealing with movement on a pulse by pulse scale we need to actually deal with acceleration. The sequence is quite simple. Whatever the final movement rate is that the character intends to use is considered the target movement rate. When the character first starts moving he makes an acceleration roll in order to start moving at the movement rate just below the target movement rate. Once the roll is made the character is now moving at that lower rate. On his next initiative the character may attempt to accelerate to the target movement. Note that the gain number is the movement rate. If an acceleration roll is failed the end result is that the character drops to the next lowest available movement rate. Of course each of these acceleration rolls has its own EF modifier.*

Table 14.8: Acceleration Modifiers

| Movement to Accelerate to | EF Modifier |
|---|---|
| Dash | -5 |
| Run | -3 |
| Jog | -2 |
| Walk | 0 |
| Crawl | +2 |

*Reed Johnson has a movement of Dash 10, Run 5, Jog 2.5, Walk 1.3, Crawl .6*

### 14.13.2 Movement Modifiers

## 14.14 Mental Movement

*This is a measure of the character's speed of mental travel. It is usually only used in Psionics and Computer usage.*

Table 14.9: Targeted Action Movement Modifiers

| | |
|---|---|
| Slow move: crawls, slow walks (combat ) | EF -1 |
| Normal move: Walking | EF -2 |
| Double Move: jog | EF -3 |
| Triple Move: Run | EF -4 |
| Fast move: Dash | EF -5 |
| Vehicular Movement | EF -6 |

## 14.15 Opposing Skill Rolls

*An opposing skill roll in a roll in which the character attempts to undo an action done previously by another character. Typically the SN of the original action is taken as a negative modifier to the current skill roll.*

## 14.16 Stealth and Concealment

*Opposing Skill Rolls*

## 14.17 Deception and Detection

*Opposing Skill rolls*

# Chapter 15

# NPC-PC Interaction

## 15.1 Reaction Rolls

*A reaction roll is a roll made to determine a Non player character's reaction to some action on the part of a PC or NPC. It should never be rolled by a PC*[1].

*A Reaction Roll upon encountering a PC for the first time has horrendous numbers of variables attached to it but as a rule of thumb the roll is EF 7, SB=8 with a gain of getting the NPCs basic respect.*

## 15.2 Presence

*Presence is the outward reflection of an entitie's awareness of his environment. It is also known as Aura and Charisma. Presence is usually the end result of the player's role playing but it can be enhanced by the intentional decision to "make an entrance" or "make an impression".*

*To do so the character must decide whether he wishes to make a general attempt at establishing a presence or whether he wants to establish himself as a physical or mental personality of note. Remember that Albert Schwietzer had as much of a presence as Darth Vader.*

*The actual presence roll is made at an EF-3, SB = GAW or PAW or MAW depending on the type of presence the character wishes to establish. The gain is 8. The actual gain is used as the SB of the Reaction Roll.*

## 15.3 Morale

*Morale rolls are typically made when an NPC realizes that a conflict ( physical, Mental, or verbal ) is not going as planned. At that point, usually after a perception roll, the NPC has to make a morale roll. Morale rolls are SB = GAW, MAW, PAW.*

[1] Should PC's should be penlized for doing so ?

# Chapter 16

# Combat Mechanics

## 16.1 Outline

*The combat section details the types of actions that may be taken while in combat. The chapter on General Play Mechanics must be understood before working with the combat details.*

## 16.2 Description

*Combat normally occurs on a pulse by pulse basis. The process is fairly simple: Determine First Reaction. For each of those reactions in order determine the action or attack, the damage from the attack ( if any), the secondary effects of that damage ( if any). Take a breath. Continue.*

## 16.3 First Action Determination

*As detailed in the chapter on General Play mechanics.*

## 16.4 Attack

### 16.4.1 Calculating Chances to Hit

*The attack is assigned an Ease factor. There are a wide range of factors that modify an attack. All the typical modifiers for any action are in effect plus some special. Melee weapons base all their attacks on PCA. Missile and thrown weapons base all their attacks on ACC.*

*Mental actions performed against inanimate objects is based on FCS and mental attacks against an entity are based on MCA.*

### 16.4.2 All out attack

*A character may choose to perform an all out attack and thus gain EF +2 to his attacks and lose his MDF or PDF. This is simply an extension to the concept of applying Total Concentration as detailed in the General Play Mechanics chapter.*

### 16.4.3 Called Shots

*In any physical targeted action there is the potential to specify the location of the strike. That of course entails modifiers to the actions EF. Shots to the head EF -7, To the Chest -4, To the Hand -9. To the Arm or Leg Ef -6.*

### 16.4.4 Hit Location

*The target number is calculated , the roll is made. If the attack is a success then the damage is applied against the armour and then the target.*

*All hits are checked against the hit location table.*

Table 16.1: Hit Location

| Roll | Location |
|---|---|
| 01-06 | Head |
| 07-30 | Chest |
| 31-48 | Abdomen |
| 49-56 | Groin |
| 57-64 | Right Upper Leg |
| 65-72 | Left Upper Leg |
| 73-78 | Right Lower Leg |
| 79-84 | Left Lower Leg |
| 85 | Right Foot |
| 86 | Left Foot |
| 87-89 | Right Upper Arm |
| 90-92 | Left Upper Arm |
| 93-95 | Right Lower Arm |
| 96-98 | Left Lower Arm |
| 99 | Right Hand |
| 100 | Left Hand |

### 16.4.5 Indirect Fire

*Indirect fire (i.e. a Lob) requires an additional EF -2.* [1]

[1] does a lob get range modifiers ?

## 16.5 Damage

### 16.5.1 General Notes

*All damage is calculated and then applied to the location specified by the hit location table. If that area is armoured the damage is first applied to that armour. Damage is then applied against the appropriate type of Fatigue such as PFT or MFT and then against the PBD or MBD of the entity.*

*If the weapon has any secondary effects suchs as knockback or radiation they are applied and calculated.*

### 16.5.2 Critical Damage

*Any attacks that cause critical damage apply the additional damage to the PBD or MBD after armour.*

### 16.5.3 Types of Damage

*There are several types of damage. There is Crushing, Cutting, Piercing, Projectile, Laser, Energy, and explosive damage. Each one is typically associated with a specific weapon type.*

#### Crushing Damage

*Crushing damage is damage caused by low speed blunt weapons such as a club, a staff, a fist, or a chair.*

#### Cutting Damage

*Cutting damage is caused by the use of slicing or chopping motions with an edge weapon. Both types of damage are lumped together into one category because the protection offered by various tyupes of armour is similiar for the two actions.*[2]

#### Piercing Damage

*Piercing damage is caused by low speed pointed objects entering the body along the axis of the point.*

#### Projectile Damage

*Projectile damage is caused by objects moving at high speeds. The only real difference between piercing or crushing and projectile damage is that the weapon moves at a high speed and imparts a high amount of kinetic energy to the target.*

[2] You are welcome to argue this with me if you would like, Xanda.

#### Laser Damage

*Laser damage is caused by optical lasers. Damage caused by non-optical lasing devices such as Masers and Xlasers is classified as Energy damage.*

#### Energy Damage

*Energy damage (abbrev. NRG) is typically associated with non-optical electromagnetic weapons. The reason that all of these wavelengths are associated together is that the protections for all of thenm are similiar.*

#### Explosive Damage

*Explosive damage is, quite logically, caused by explosions. It is the result of a expanding wave front of gasses or minute particles.*

### 16.5.4 Secondary effects

*There are several types of secondary effects. There is knockback, bleeding, and Shock.*

#### Knockback

*Knockback is the result of a high amount of kinetic energy being imparted to the entity taking the damage. It is only necessary when more than half of the entities PFT or PBD is taken away in a single attack by a crushing or projectile attack and is always assocaited with an explosive attack. The Knockback resistance roll is EF -1 with a gain of no Knockback. If failed the entity is knocked back 1 meter. The stat basis is typically PST or PAG whichever is greater.*

#### Bleeding

*Bleeding is the result of a cutting or piercing attack that has done actual PBD damage. The Bleeding resistance roll is EF4 with a target of no bleeding. If failed the end result is 1 point of PFT loss to bleeding per 10 pulses. The stat basis is PEN.*

#### Shock

*Shock is the state brought on by massive disruption of the nervous system of the entity. There are two types: Mild Shock and Major shock. Mild shock is also known as being stunned. Major shock is known as being unconcious. Shock secondary effects are caused by taking more than 1/2 of your PBD or MBD or by specific energy weapons such as Charged particle or TASER weapons.*

## 16.6 Defenses

### 16.6.1 Passive Defense

**Rolling with the blow**

*The act of rolling with the blow involves an attempt to take the allotted damage but absorb it in such a way that the normal secondary effects such as stun or knockback do not take effect. The action requires no time but does require that the defender be aware of the attack and declare that he wishes to roll with the attack. The base roll goes against PAG for physical attacks and MAG for mental attacks. It adds EF +5 to the System Shock roll if any is made.*

### 16.6.2 Active Defense

**Evasion** *GN = 2 * PDF in defense.*

**Dodge** *SB = PAG, GN = 3 * PDF in defense, 5 Pulses Recovery roll is needed if a failure occurs*

**Parry** *The parray can be done with shield or weapon. EF -2, SB = Wpn SB, GN = 2 * Wpn SB in defense, speed as per wpn. EF -3 against Thrown EF -7 against Projectile EF -15 against NRG*

**Block** *Can be done with Weapon or Shield. EF -2, SB = Wpn SB, GN = Wpn Damage in armour, speed as per wpn.*

**Disarm** *EF = -3, SB = Weapon SB, GN = Save against disarm, speed as per wpn..*

## 16.7 Fancy Maneuvers

Table 16.2: Melee Combat modifiers

| | |
|---|---|
| Spinning | EF -1.5 DAM 1.5* SPD 1.5* |
| Jumping | EF -2.5 DAM 1.5* SPG 1.5* |
| Speeding the strike | EF -0.0 DAM inverse to SPEED |
| Two Handed | EF -0.0 DAM 2.5* SPD 1.5 |

### 16.7.1 Feint

*A feint is used to distract an opponent or to trigger an opponents preset actions.*

*The main thing to remember that a feint is, in effect, a deception roll. It involves a weapon skill roll to convince the other individual that an attack is being made. The feint roll takes and EF of -4. All who are within range may roll a EF -3 roll to save against being fooled by the feint.*

## 16.8 CLose Conflict

### 16.8.1 Outline

### 16.8.2 Closing

*Closing entails getting in to a range with the opponent that precludes the use of most melee weapons.*

*A roll is made against PCA. If the opponent is aware of the attack and has a viable initiative he may actively resist the closing action . To do so he must make an skill roll using a weapon or just against PDF.*

*It is treated as any other attack form and all active defenses can be performed against it.*

*Once a character has closed with an opponent he may proceed to grapple, to throw, or to overbear.*

### 16.8.3 Overbear

*An overbear is simply performed by closing with an opponent and then making a normal attack using SB=PCA. Like any other attack it may be repulsed or actively countered.*

*The gain for such an attack is to have the opponent on the ground. Damage for an overbear attack is simply equal to the attackers PSE.*

### 16.8.4 Throw

*A throw is simply performed by closing with an opponent and then making a normal attack using SB=PCA. Like any other attack it may be repulsed or actively countered.*

*The gain for such an attack is to have the opponent on the ground. Damage for an overbear attack is simply equal to the attackers PSE * 2.*

*EF -3.*

### 16.8.5 Grapple

*A grapple is simply an attempt to get a hand hold on the opponent. It is like any other attack in that it may be countered normally.*

*A successful grapple gives a EF +3 modifier to any other close combat attack such as throw, overbear, and Hold.*

### 16.8.6 Hold

*A hold is initiated by a grapple action and the initial strength of a hold is given by the SN of the grapple. If the attempt to hold or immobilize someone is the sole aim of the attack then the attacker may choose to improve the hold by rolling again. For each attempt to improve the hold the attacker may only add 1/2 of the SN of the roll. No*

*hold may be greater in strength than 5 * PST of the holder. The opponent may reduce the strength of a hold by the SN of any grapple skill rolls he makes*[3].

[3]Does a successful attack afect an opponents initiative

# Chapter 17

# Weapon Formats

## 17.1 Melee Weapons

Figure 17.1: Melee Weapon Format

**Name**

**Type (T)**

**Length (L)**

**Mass (M)**

**Speed (S)**

**Accuracy (A)**

**Damage Multiplier (DM)**

**Technological Index (TI)**

**Tech Level Breakpoints** (MASS-LENGTH-ACC-DM)

**Description**

**Comments**

## 17.2 Format Explanation

**Name** *Self Explanatory*

**Type (T)** *Whether the weapon does (most commonly) Crushing, Slicing, or Piercing*

**Length (L)** *The overall size in centimeters of a weapon.*

**Mass (M)** *The mass of the unit in kilograms*

**Speed (S)** *The time it takes, in pulses, to use the weapon in a combat action.*

**Accuracy (A)** *Any additional bonus the weapon gets to hit for its workmanship or materials. This is usually very small.*

**Damage Multiplier (DM)** *The multiple times the users base that is used to produce a characters damage.*

**Technological Index (TI)** *The tech level in which the weapon made its 1st appearance.*

**Tech Level Breakpoints:** *(MASS-LENGTH-ACC-DM)*

## 17.3 Hand to Hand Techniques

Figure 17.2: Hand to Hand Technique Format

**Name**

**Type**

**Speed**

**Damage Multiplier**

## 17.4 Format Explanation

**Name** *Self Explanatory*

**Type (T)** *Whether the weapon does (most commonly) Crushing, Cutting, or Piercing*

**Speed (S)** *The time it takes, in pulses, to use the technique in a combat action.*

**Damage Multiplier (DM)** *The multiple times the users base that is used to produce a characters damage.*

## 17.5 Missile and Projectile Weapon

Figure 17.3: Missile and Projectile Weapon Description Format

**Name**

**Configuration (Cfg)**

**Action (Act)**

**Type (T)**

**Caliber (Cal)**

**Energy (NRG)**

**Length (L)**

**Mass (M)**

**Speed (S)**

**Accuracy (A)**

**Accuracy Decrement (AD)**

**Damage (D)**

**Damage Decrement (DD)**

**Technological Index (TI)**

**Tech Level Breakpoints** (MASS-LENGTH-WA/WAD-WD/WDD)

## 17.6 Format Explanation

**Name** *The most common and correct names are given. In the cases of weapons that are very common in ther effects, only the most notable will be described.*

**Configuration (Cfg)** *The physical form the weapon has. Typically : Heavy Rifle, Rifle, Carbine, Pistol*

**Action (Act)** *The type of trigger pull vs firing mechanism. Typically Single Shot, Auto Burst, Auto, Semi Auto, Revolver.*

**Type (T)** *Chemical Propellant, CW Laser, Pulse Laser, Focused Sonic, Rocket, Gauss*

**Caliber (Cal)** *The Apeture of the weapon*

**Energy (NRG)** *The amount of energy the weapon delivers.*

**Length (L)** *The overall size in centimeters of a weapon.*

**Mass (M)** *The mass of the unit in kilograms*

**Speed (S)** *The time in which the weapon can be brought to bear on a target. This is the normal time involved in bring a weapon to bear on a target and needs to be doubled if the weapon is being brought to bear on any target for the first time ( ie brought to the aiming position ) and needs to be tripled when the weapon is being drawn from a holster.*

**Accuracy (A)** *Any additional bonus to the chance to hit the weapon may have as a result of its design.*

**Accuracy Decrement (AD)** *A measurement of how much the to hit chance of the weapon is lowered for a given amount of distance.*

**Damage (D)** *The base amount of damage done by a given weapon*

**Damage Decrement (DD)** *How much the damage of a given weapon is lowered for a given amount of distance.*

**Technological Index (TI)** *The Technological Index in which the weapon made first 1st appearance.*

**Tech Level Breakpoints** *(MASS-LENGTH-WA/WAD-WD/WDD)*

## 17.7 Thrown Weapon Format

Figure 17.4: Thrown Weapon Description Format

**Name**

**Length (L)**

**Mass (M)**

**Accuracy (A)**

**Accuracy Decrement (AD)**

**Damage Multiplier (DM)**

**Damage Decrement (DD)**

**Technological Index (TI)**

**Technological Level Breakpoints:** (MASS — LENGTH — WA/WAD — WDM/WDD)

## 17.8 Format Explanation

**Name** *Self Explanatory*

**Length (L)** *The overall size in centimeters of a weapon.*

**Mass (M)** *The mass of the unit in kilograms*

**Accuracy (A)** *The additional bonus the weapon gets to hit for its workmanship or materials. This is usually very small.*

**Accuracy Decrement (AD)** *The decrement per a given portion of the range that the weapon travels through*

**Damage Multiplier (DM)** *The multiple times the entitie's PSE base that is used to produce a characters damage.*

**Damage Decrement (DD)**

**Technological Index (TI)** *The Technological Index in which the weapon made its 1st appearance.*

**Tech Level Breakpoints:** *(MASS-LENGTH-WA/WAD-WDM/WDD)*

## 17.9 Explosive Description Format

*These are specific to blocks of explosive and weapons whose main function is as an explosive device. Shrapnel is treated as a projectile weapon.*

Figure 17.5: Explosive Description Format

**Name**

**Type**

**Damage (DM)**

**Damage Decrement (DD)**

## 17.10 Format Explanation

**Name** *Usually self explanatory*

**Type** *The type of process that causes its explosion. There are a wide variety : Propellant, Brisant, Gas, Electrochem, Fission, Fusion.*

**Damage (DM)** *Each package has a base damage In the case of bulk explosive the value will be given in damage / unit mass.*

**Damage Decrement (DD)** *The decrease in damage per unit distance. This measure is based on a situation with no atmosphere. Double the damage decrement for an Earth normal atmosphere.*

Table 17.1: Explosive Affect Modifiers

| | |
|---|---|
| Placed Charge | DAM = 2.5* |
| Shaped Charge | DAM = 3.5* |

# Chapter 18

# Armour and Shield Formats

## 18.1 Armour Format

Figure 18.1: Armour Description Format

**Name**

**Mass (M)**

**Physical Agility Modifier (PAM)**

**Protection** (CR/CUT/PRC/PRJ/NRG/LASER/EXP)

**Technological Index (TI)**

**Tech Level Breakpoints** (MASS-(CR/CUT/PRC/PRJ/NRG/LASER/EXP)

]

## 18.2 Format Explanation

**Name** *Self Explanatory*

**Mass (M)** *The mass of the unit in kilograms*

**Physical Agility Modifier (PAM)**

**Protection** *(CR/CUT/PRC/PRJ/NRG/LASER/EXP)*

**Technological Index (TI)** *The Technological level in which the armour made its 1st appearance.*

**Tech Level Breakpoints** *MASS-(CR/CUT/PRC/PRJ/NRG/LASER/EXP)*

## 18.3 Shield Format

Figure 18.2: Shield Description Format

**Name**

**Mass (M)**

**Dexterity Modifier (DXM)**

**Parry (PAR)**

**Block (BLK)**

**Protection** (CR/CUT/PRC/PRJ/NRG/LASER/EXP)

**Technological Index (TI)**

**Tech Level Breakpoints:** MASS-(CR/CUT/PRC/PRJ/NRG/LASER/EXP)

## 18.4 Format Explanation

**Name** *Self Explanatory*

**Mass (M)** *The mass of the unit in kilograms*

**Dexterity Modifier (DXM)**

**Parry (PAR)**

**Block (BLK)**

**Protection** *(CR/CUT/PRC/PRJ/NRG/LASER/EXP)]*

**Technological Index (TI)** *The Technological Index in which the weapon made its 1st appearance.*

**Tech Level Breakpoints:** *MASS-(CR/CUT/PRC/PRJ/NRG/LASER/EXP)*

# Part V

# Technology

# Chapter 19

# Research

## 19.1 Outline

## 19.2 Description

*Research is an attempt to locate information that is already discovered but not readily available. Experimentation is an attempt to discover previously unknown information by using various experiments to collect data.*

*Research is critical to many of the exploration and discovery scenarios of role playing that are so easy to envision in a Space Age game. The greatest problem is to determine whether or not the character has the research resources to allow a relatively simple time of it.*

## 19.3 Forms of Research

*There are several simple forms of research qestions that can be asked.*

### 19.3.1 Retrieval Queries

*Directly get some information. The easiest type of Question.*

### 19.3.2 Calculational Queries

*Given information, perform numeric manipulations on them.*

### 19.3.3 Inference Queries

*Given information, infer something from them. This is difficult but fairly straight forward.*

### 19.3.4 Formulate Queries

*Formulating the correct question to perform research on falls into the realm of experimentation. This is the most difficult of all pieces of work.*

## 19.4 The Steps involved

*There are three steps to doing research*

### 19.4.1 Formulate

*In most situations this is done by the PC on an ad hoc basis and treated on the fly by the GM. Only in special circumstances should the GM require the character to roll in order to Formulate the query.*

### 19.4.2 Retrievel

*Retrieval is a direct search in the appropriate database of information or related DB's. Typically done with the aid of a computer if available.*

### 19.4.3 Calculate

### 19.4.4 Correlate

Figure 19.1: Typical EFS involved

| | |
|---|---|
| Simple Search/Retrieval | 5 |
| Simple Calculation | 5 |
| Simple Inference | 4 |

*In many respects the most important thing to remember that unless the character is doing a lot of in depth research there should be no need to resort to these rules.*

# Chapter 20

# Computers

## 20.1 Outline

## 20.2 Description

*Computers are a bitch to model and require some care. In general computers are modeled in the following manner. There are a number of assumptions made including: Ram is cheap. Software and algorithms become fast enogh to make multi gigabyte searches manageable. Storage Space is cheap . Software is not cheap.*

## 20.3 Computer Description

Figure 20.1: Computer Description Format

**Name**

**Interface Type** (Visual-Mental-Aural-Tactile)

**Interface Ability**

**Interface Rank**

**Processes**

**IO**

**Retrieval**

**Storage**

## 20.4 Computer Description Format Explanation

**Name** *Usually the most common name and the model specification.*

**Interface Type** *(Visual—Mental—Aural—Tactile)*

**Visual** *Light Board, Teletype, CRT, Holography, Kiniesthiolotic Scanner*

**Mental** *Droud Plug, Induction Helmet, Empathy Board, Psicoder*

**Aural** *Vocoder, Sonic Interference Induction.,*

**Tactile** *Feelie Board, Nerve Induction Board*

**Interface Ability Abstract Language**

**Native Language**

**Direct Connect**

**Interface Rank** *The effective rank that the interface maintains as a "Hardware Filter Skill" . Basically a measure of how much of a characters skills may be effectively transferred to the computer environment. This rating operates as an additive modifier to the character's Comp Ops skill.*

**Processes (PRC)** *The combined "pool" denoting the number and complexity of the processes that can be performed by the CPU. Usually expressed in terms of the DF * Number of processes. Such that a 10 Processes * 6 DF/Process =¿ PRC = 60. Thus someone asks a EF 4 question. This is a DF = 6 so the computers rating is now 54.*

**IO** *The rating denoting the combined number and size of information transfers that ca be performeds. Usually not of consequence except when dealing with large data transfers. If it does become of consequence , it simply subtracts from the EF of the process involved.*

**Retrieval** *Discusses the DF * Number of Retrivals that the CPU can handle easily. DFs of retrievals are based on the query and the size of the Database being searched.*

**Storage** *Discusses the Permanant storage area. Usually rated in terms of gigabytes.*

## 20.5 Artificial Intelligence

*A form of software that allows the CPU to partially interpret what the user has asked. In effect, the CPU learns something about the user and adds in various additional parameters to the query as needed. As a result AI is a direct aid in the Formulation Of Questions and Queries.*

## 20.6 Asking Questions of a computer

*The types of queries that are used are the same as for the chapter on Research.*

### 20.6.1 Retrieval Queries

*Directly get some information. The easiest type of Question. EF = 10.*

### 20.6.2 Calculational Queries

*Given information, perform numeric manipulations on them.*

### 20.6.3 Inference Queries

*Given information, infer something from them. This is difficult but fairly straight forward.*

### 20.6.4 Formulate Queries

*Given the following information what questions do I need to ask to get the following. Rarely done and somewhat complex.*

*There are three steps to asking a detailed question*

### 20.6.5 Formulate

*In most situations this is done by the PC on an ad hoc basis and treated on the fly by the GM. Usually the query is formulated as a request to retrieve data. Only in special circumstances should the GM require the character to roll in order to Formulate the query.*

### 20.6.6 Retrieve

*Retrieval is a direct search in the appropriate database of information or related DB's.*

### 20.6.7 Calculate

### 20.6.8 Correlate

### 20.6.9 Examples

*The PC asks the question. If the interface is natural language the character simply asks a question. This is a base EF of 5. For each complexity, subtract from the EF until we have the chance of asking the question appropriately. AI software will add to the EF and a complex interface will subtract from this. The final roll ius made , taking into account the rank in using the computer and the SN is determined. The S of this roll is added to the SN of the actual query result.*

*The EF is purely the result of the combined EFs involved in the query.*

Table 20.1: Typical EFS involved

| | |
|---|---|
| Simple Database search | 5 |
| Simple Calculation | 5 |
| Simple Inference | 4 |
| Simple Formulation | 3 |
| Additional Factor Same type | -1 |
| Additional Factor Different Type | -2 |
| Database is larger than retrieval rating | (-1/Magnitude) |
| Database is smaller than retrieval rating | (+1/magnitude) |
| Software is specific to problem | (EF +3) |
| Software is specific to type of problem | (EF +2) |
| IO is greater than IO rating | (-1/Magnitude) |
| AI Interface software | EF +1-+4 to formulation |

### 20.6.10 Query 1

*The query involves a Database search (EF = 5). It is a small database ( 7 Megabytes ). It is well below the retrieval rating of the system. So that adds 2 to the EF. The database is specific to what is being looked for ( EF + 2) .The end result is a EF 9 skill roll. Most high tech level pocket calculators can handle this one. Database search (EF = 5). A small database ( EF + 2). Add in a simple calculation (EF -2), add in a correalation (EF -2) and add in an inference (EF -2).*

*Again, these rules should rarely be needed*

# Chapter 21

# Robots

# Chapter 22

# Cyborgs

## 22.1 Description

*Cyborgs are the result of having a sentient beings mind implanted into a manufactured body. The process itself is traumatic and it is costly.*

## 22.2 process

*The mind is gradually detached from its various guiding functions and retrained using an electronic interface. The electronic interface gradually takes over the function of providing input for the mind to process. As time goes on the new bodie's inputs are gradually brought on line and the interface is programmed.*

## 22.3 Requirements

*The mechanical body cannot have a DEX or PAG greater than that of the original organic body. This is simply because the mind retains an strong "image" of the reaction speed inherent in an entities body and any major discrepancy between the original and final speeds will have a very bad effect on all action rolls involving either statistic.*

## Chapter 23

# Androids

# Chapter 24

# Healing and Medical Treatment

## 24.1 Healing Physical Fatigue

*To recover physical fatigue (PFAT) requires a Physical Endurance roll, EF 4, towards a gain of 1 Fatigue. This roll can be made once every 5 minutes. After the first roll is made the EF of each subsequent roll goes up by 1.*

## 24.2 Healing Physical Endurance

*To recover Physical Endurance (PEN) requires a Physical Endurance roll, EF -2, towards a gain of 1 PEN. This roll can be made once every 10 hours. After the first roll is made the EF of each subsequent roll goes up by 1.*

## 24.3 Healing Mental Fatigue

*To recover mental fatigue (MFT) requires a mental Endurance roll, EF 4, towards a gain of 1 Fatigue. This roll can be made once every 5 minutes. After the first roll is made the EF of each subsequent roll goes up by 1.*

## 24.4 Healing Mental Endurance

*To recover mental Endurance (MEN) requires a mental Endurance roll, EF -2, towards a gain of 1 MEN. This roll can be made once every 10 hours. After the first roll is made the EF of each subsequent roll goes up by 1.*

*Healing can be augmented via medication, regeneration treatments, or meditation.*

# Chapter 25

# General Equipment Descriptions

Figure 25.1: General Equipment Description Format

**Name**

**Tech Index**

**Energy Usage**

**Energy Source**

**Mass**

**Structural Points**

**Description**

**Associated Skills**

**Cost**

**Purpose**

**Additional Elements**

## 25.1 General Equipment Description Format Explanation

**Name** *Self Explanatory*

**Tech Index** *The name of the appropriate Tech Index follwoed by the number for the Tech Index at which it first appeared.*

**Energy Usage** *The amount of energy thge equipment uses per unit time. If applicable.*

**Energy Source** *Describes the most common power source in use for that device at the Tech Index of introduction*

**as** *In Kilograms*

**Structural Points** *Structural points are the inanimate objects equivalents to PEN. 10 PEN is equivalent to 1 structural Point (SP). This is the amount of damage it takes to destroy the item totally.*

**escriptio** *A detailing of how the item imnpacts the senses.*

**Associated Skills** *If the object requires a specific skill to use, it will be listed here.*

**Cost** *The cost in standards of the item.*

**Purpose** *can be any of the following:*

**Support**

**Transport**

**Communications**

**Shelter**

**Observation**

**ECM**

**Entertainment**

**Manufacturing**

**Miscellaneous**

**Additional Elements** *Depending on the purpose, the item may have some additional elements needed to describe it. Some additional elements could be Range, Speed, Passengers, Armour,*

# Chapter 26

# Space Travel

## 26.1 Space Craft

## 26.2 Size

## 26.3 Shape

### 26.3.1 Streamlined

### 26.3.2 Non-Streamlined

## 26.4 Power Plants

## 26.5 Weapons

*Ships weapons are described in the same way as normal missile weapons.*

# Chapter 27

# Medicine

## 27.1 Description

## 27.2 Diagnostics

## 27.3 Surgical

## 27.4 Pharmaceuticals(Drugs)

Figure 27.1: Pharmaceutical Description Format

| Name-Form-Application-Action-Onset-Duration-Damage/Gain |
|---|

## 27.5 Pharmaceutical Description Format Explanation

**Form** *(Solid—Liquid—Gel—Paste—Gas)*

**Application** *(Topical—Ingestion—Injection—Inhalant)*

**Action** **Physical Fatigue Healing PFH**
**Physical Body Healing PBH**
**Mental Fatigue Healing MFH**
**Mental Body Healing MBH**
**Anti Bacterial ATB**
**Anti Viral ATV**
**Inoculantion INC**

**Painkiller PKL**
**AntiToxin ATX**
**Paralytic PAR**
**Stimulant STM**
**Depressant DEP**
**Toxin TOX**
**Hallucinogenic HAL**
**Aphrodasiac APH**

## 27.6 First Aid

# Chapter 28

# Stellar Systems

## 28.1 Stellar Class

**O** *Main Spectral Lines are Ionized He, Ni, O, Si, Weak H.* $\tau \approx 40,000K$ deg

**B** *Main Spectral Lines Neutral H and He, Ionized O, Si, Ionized He absent .* $\tau \approx 18,000K$ deg

**A** *Main Spectral Lines* $H_2$ *strong, Ionized Mg, Si, Ionized Ca, Fe, Ti begin to appear. He absent.* $\tau \approx 10,000K$ deg

**F** *Ionized Ca(II), SOme Ionized and neutral metal ions ( Fe, Mn, Cr).* $H_2$ *Weak.* $\tau \approx 7,000K$ deg

**G** *Main Spectral Lines Ionized Ca strong, Neutral metals increasing and ionic forms decreasing. Molecular bonds of CH and CN appear .* $\tau \approx 5,500K$ deg

**K** *Main Spectral Lines Neutral metals strong. Molecular bonds stronger, H very weak or absent.* $\tau \approx 4,000K$ deg

**M** *Main Spectral Lines Neutral metals strong. TiO bands* $\tau \approx 3,000K$ deg

**R-N** *Main Spectral Lines Neutral metals strong. TiO bands Absent CH, CN, and* $C_2$ *bands strong.* $\tau \approx 3,000K$ deg

**S** *Main Spectral Lines Neutral metals strong. ZrO, LaO, and YO bands strong* $\tau \approx 3,000K$ deg

## 28.2 Stellar Systems

## 28.3 Stellar Type

*Stellar type = fxn(Size)*

## 28.4 Stellar Mass

*1-10 (order of magnitude) Size dtms Mass*
*Size dtms Radiation*
*Size dtms Number of Planets dtms planetary mass*

## 28.5 Spectral Class

*1-20 Solar Spectral Class Curve = FXN( Solar Mass)*

## 28.6 Radiation Curve

*Different curves for various spectral types. ( Intensity versus Frequency )*

## 28.7 Dependent Bodies

*Number of Dependant Bodies = FXN( Solar Mass)*

# Chapter 29

# Dependent Bodies

## 29.1 Mass

*Mass = FXN( % roll, Number of planets)*

## 29.2 Orbital Period

## 29.3 Rotation Period

## 29.4 Gravity

## 29.5 Atmosphere Density

*Atmosphere = FXN( Planetary Mass)*

## 29.6 Atmospheric Composition

*Composition = FXN( Planetary Mass)*

## 29.7 Hydrosphere

## 29.8 Lithosphere Density

## 29.9 Lithosphere Composition

*Composition = FXN(Mass and Number of planets)*

## 29.10 Biosphere Density

*Density = FXN ( ATmosphereic Composition, Hydrospheric Compos, Lithospheric Comp)*

## 29.11 Biosphere Composition

# Chapter 30

# Biosphere Notes

## 30.1 Biological Description

Figure 30.1: Biological Description Format

## 30.2 Biological Description Format Explanation

**Sentience** **Sentient (S)**
**Non-Sentient (NS)**

**Basic Classification** **Animal (A)**
**Vegetable (V)**

**Basic Composition** **Carbon - Simple (CS)**
**Carbon - Complex (CC)**
**Silicon - Simple (SS)**

**Silicon - Complex (SC)**

**Boron (BS, BC)**

**Magnesium (MS, MS)**

**Cobalt (CoC, CoS)**

**Copper (CuS, CuC)**

**Form** *WHo Knows*

| | | |
|---|---|---|
| | 0 | $10^0$ |
| **Mass** | 1 | $10^1$ |
| | 2 | ... |

**Locomotion**

| *Code* | *Locomotion* |
|---|---|
| *LC0* | *Lithosphere Contact, No Limbs* |
| *LC1* | *Lithosphere Contact, One limb (Pseudopod)* |
| *LC2* | *Lithosphere Contact, Biped* |
| *LC3* | *Lithosphere Contact, Triped* |
| *LC4* | *Lithosphere Contact, Quadraped* |
| *LC5* | *Lithosphere Contact, Pentaped* |
| *LC6* | *Lithosphere Contact, Hexaped* |
| *LC7* | *Lithosphere Contact, Septaped* |
| *LC8* | *Lithosphere Contact, Octaped* |
| | |
| *AC0* | *Atmospheric Contact, No Idependence of motion* |
| *AC1* | *Atmospheric Contact, Active Vertical Independence* |
| *AC2* | *Atmospheric Contact, Active Horizontal Independence* |
| *AC3* | *Atmospheric Contact, Totally Independent* |
| | |
| *NB0* | *Hydrosphere Contact, No Independence* |
| *HB1* | *Hydrosphere Contact, Vertical Independence* |
| *HB2* | *Hydrosphere Contact, Horizontal Independence* |
| *HB3* | *Hydrosphere Contact, Totally Independent* |

**Form Support**

| *Code* | *Form of Support* |
|---|---|
| *0* | *None* |
| *1* | *External Dependent* |
| *2* | *Internal Dependent* |
| *3* | *External* |
| *4* | *Internal* |

**Manipulative Members**

| *Code* | *Number of Limbs* |
|---|---|
| *0* | *None* |
| *1#* | *Number of Locomotive Limbs* |
| *2#* | *Seperate Limbs* |

**Sensory Systems (TYPE:SPECIALIZATION:SENSITIVITY) Type**

*0 Esper*
*1 Electromagnetic*
*2 Atmospheric Vibrations*
*3 Lithospheric Vibrations*
*4 Hydrospheric Vibrations*
*5 Atmospheric Chemical*
*6 Lithospheric Chemical*
*7 Hydrospheric Chemical*

**Specialization (0-10)** *By specialization we refer to how general the sensory system is. A system with a specialization of 0 is very general. A sensory system with a specialization of 10 is designed to be sensitive to only a very specific stimulus.*

**Sensitivity (0-10)** *Refers to the general EF Bonus associated with that specific sense.*

**Communications**

*0 Esper*
*1 Electromagnetic*
*2 Atmospheric Vibrations*
*3 Lithospheric Vibrations*
*4 Hydrospheric Vibrations*
*5 Atmospheric Chemical*
*6 Lithospheric Chemical*
*7 Hydrospheric Chemical*

**Niche Grazer**

**Predator**

**Scavenger**

**Parasite**

**Symbiote**

# Chapter 31

# Technological Indexes

## 31.1 Outline

## 31.2 Description

*There are a large number of technological Indexes. The ones listed are the ones that are assumed to be most useful. The values of each index extend from 0-25.*

## 31.3 Scientific Technological Indices

### 31.3.1 Physics Tech Index (PTI)

*0* *Instinctive Knowledge*
*25*

### 31.3.2 Biological Tech Index (BTI)

*0* *Instinctive Identification of own species*
*25* *. . .*

### 31.3.3 Chemical Tech Index (CTI)

*0* *Fire*
*25* *. . .*

### 31.3.4 Mathematics Tech Index(MTI)

*0* *Instinctive Understanding of qualitative Values*
*25* *. . .*

## 31.4 Engineering Technological Indices

### 31.4.1 Weapon Tech Index (WpnTI)

*0* *Native Weaponry*
*1* *Clubs*
*2* *Simple*
*25* *Handheld Antimatter Grenades*

### 31.4.2 Energy Tech Index (NrgTI)

*0* *Muscle*
*25* *Ambient Cosmic Ray Absorption*

### 31.4.3 Medical Tech Index (MedTI)

*0* *Kiss the Boo-Boo*
*25* *...*

### 31.4.4 Mechanical Tech Index (MchTI)

*0* *Pound on it to make it move.*
*25*

### 31.4.5 Material Tech Index (MatTI)

*0* *Native Skill*
*25* *...*

## 31.5 Sociological

## 31.6 Educational Index (EduI)

*0*
*25*

## 31.7 Law Extent Index (LexI)

*0* *Available Laws cover only a tiny portion of activities*
*25* *All areas of endeavour are affected by existing laws*

## 31.8 Law Enforcement Index (LenI)

*0* *No laws are automatically enforced - Enforcment personell at large*
*25* *Laws are automatically enforced - No discretion is allowed*

## 31.9 Theological Index (TheoI)

# Chapter 32

# Trade and Economics

Figure 32.1: Material Description Format (Consumer and Bulk)
Name-Type-Nature-Avail-Origin-Usage-Description-Comment

## 32.1 Material Description Format (Consumer and Bulk) Explanation

**Name** *Self Explanatory*

**Type** *(Raw-Processed-Finished) Denotes the current level of refinement of the material*

**Nature** **Animal (An)**

**Vegetable (Veg)**

**Mineral (Min)**

**Synthetic (Syn)**

**Electronics (Elec)**

**Metals (Mtl)**

**Gemstones (Gem)**

**Availability [General/At Origin** *]*

**Very Common (VC)**

**Common (C)**

**Uncommon (UC)**

**Rare (R),**

**Very Rare (VR)**
**Special (Spc)**

**Origin(Multisystem— Multiplanet— Planet Name)**

**Usage** *Food, Pharmaceutical, Construction, Art, Clothing, Ornament*

**Description** *How the material impacts the senses*

**Comment** *Other special notes*

# Chapter 33

# Governments

*There are a large number of types of government. Corporate, Anarchy, Fuedal, Caste, Oligarchy, Democracy Tribal, Representative Democracy, Socialist, Dictatorship, Communist Empire Theocracy....*

# Chapter 34

# Cartography

## 34.1 Planetary Topography

*Typically planetary surveys and maps are concerned with three different things: Topography, Mineral, and Cultural points of interest.*

### 34.1.1 topography

*Most Topographic areas are delineated by colors with density of Vegetation indicated by crossthatch pattern.*

| | |
|---|---|
| *Cultivated Vegetation* | *Yellow* |
| *Uncultivated Vegetation* | *Light Green* |
| *Uncultivated Heavy Vegetation* | *Dark Green* |
| *-Vegetation Bearing Lithosphere* | *Orange* |
| *Hills* | *Light Brown* |
| *High Hills* | *Brown* |
| *Mountains* | *Dark Brown* |
| *Mixed Lithosphere/Hydrosphere* | *Marsh Pattern* |
| *Flowing Hydrosphere* | *Blue with flow symbol* |
| *Solid Hydrosphere* | *White* |
| *Still, Shallow Hydrosphere* | *Light Blue* |
| *Still Hydrosphere* | *Blue* |
| *Still, Deep Hydrosphere* | *Dark Blue* |

### 34.1.2 Population and Cultural

*Habitation* *Circle with rough density of population indicator* $10^0, 10^1, \ldots$

*Capital* *Circle with Cross in it.*

*Military* *???*

*Bridge* *bowtie*

# Part VI

# Appendices

# Appendix A

# Weapons Design

## A.1 Outline

*Weapons design in Space Hybrid is a strange mixture of the empirical and the theoretical.*

## A.2 Description

### A.2.1 Weapon Speed

*Weapon speed is a measure of how quickly the weapon may be brought to bear on its target. This same calculation applies to both projectilke type weapons and melee weapons.*

*To calculate the Speed of a weapon is a fun formula. It is:*

$$Speed = 2.3 * (Ranking)^{(0.7)} + 1$$

*Ranking is a little less hairy but no less mysterious:*

$$Ranking = (M * L * Sym)$$

*Let us first look at ranking. Ranking is a measure of how wieldy the weapon is. It is composed of The Mass of the weapon times the Length of the weapon times the symmetry of the weapon. The symmetry is 1 if the weapon has a plane of a reflection perpindicular to the axis of its use andf a 2 if it has no plane of reflection perp. to its usage.*

*Some sample weapons and their rankings are given below.*

*The Formula for the weapon speed is an attempt to map the speed ranking to an actual Weapon Speed.*

Table A.1: Sample Weapons

| Name | Mass(Kg) | Length(M) | Symmetry | Ranking |
|---|---|---|---|---|
| Knife | 0.15 | 0.2 | 2 | 0.06 |
| Dagger | 0.35 | 0.35 | 2 | 0.25 |
| Short Sword | 1.0 | 0.5 | 2 | 1.00 |
| Broadsword | 2.5 | 0.90 | 2 | 4.5 |
| Foil | 0.5 | 1.0 | 2 | 1.0 |
| Sabre | 1.0 | 0.9 | 2 | 1.8 |
| B.Axe | 3.0 | 1.0 | 2 | 6.0 |
| Mace | 2.5 | 0.9 | 2 | 4.5 |
| Spear | 1.5 | 2.0 | 2 | 6.0 |
| Lance | 2.5 | 3.0 | 2 | 15.0 |
| Halberd | 3.0 | 2.5 | 2 | 15.0 |
| 1/4 Staff | 1.0 | 2.0 | 1 | 2.0 |
| PPK | 0.8 | 0.17 | 1.5 | 0.20 |
| Colt .45 | 1.46 | 0.22 | 1.5 | 0.48 |
| Uzi | 4.2 | 0.47 | 1.5 | 2.96 |
| Rifle | 4.5 | 1.10 | 1.5 | 7.43 |

## A.3 Projectile Weapons

### A.3.1 NRG and Damage

*In discussing chemical propellant, the current tech level uses gunpowder that generates 300 Cal(Kg) per pound of powder. That translates to roughly 1,255,200J, 5 cubic ft of gas (45% gases, 55% vaporised Salt ).*

$$KE_{(total)} = 2765J/gm$$

*1lb of blasting gelatine ( 8% Nitrocellulose/ 92% Nitroglycerine ) generates 9 cubic ft of gas. 680 Cal(Kg) or 2,845,120J.*

$$KE_{(total)} = 6,266J/gm$$

*We need to take into account the efficiency of NRG transmission between the gases and the projectiles.*

*At Weapon TI 5 Simplest gunpowder exist eff = 0.05*
*AT Weapon TI 15 eff = 0.45*

*Thus the maximum energy in joules for ( gunpowder ) is*

| *Tech Level* | *NRG* |
|---|---|
| *5* | *138J* |
| *8* | *470J* |
| *15* | *1,244J* |

$$DMJ = NRG/(crosssectionalsurfaceareaofprojectile)$$

$$= NRG(Joules)/(\pi * r^2 d)r = 1/2D$$
$$= NRG/(\pi * 1/4D^2)$$
$$= K_{(dmj)} * NRG/D^2$$

*For a 9 mm projectile, with 1 gram of propellant.*

| *Tech Level* | *DMJ* |
|---|---|
| *5* | *13 * K(dmj)* |
| *8* | *24 * K(dmj)* |
| *15* | *39 * K(dmj)* |

*Currently K(dmj) = 0.5*

*Black Powder Energy vs Tech Index*
*Base NRG 2765 Joules*

| *T.I.* | *Efficiency* | *NRG(Joules)* |
|---|---|---|
| *5* | *0.05* | *138* |
| *6* | *0.09* | *249* |
| *7* | *0.13* | *359* |
| *8* | *0.17* | *470* |
| *9* | *0.21* | *581* |
| *10* | *0.25* | *691* |
| *11* | *0.29* | *802* |
| *12* | *0.33* | *912* |
| *13* | *0.37* | *1023* |
| *14* | *0.41* | *1134* |
| *15* | *0.45* | *1244* |

*Chemical Propellant Energy vs Tech Index Base NRG 5540 Joules*

| *T.I.* | *Efficiency* | *NRG(Joules)* |
|---|---|---|
| *5* | *0.05* | *277* |
| *6* | *0.09* | *499* |
| *7* | *0.13* | *720* |
| *8* | *0.17* | *942* |
| *9* | *0.21* | *1163* |
| *10* | *0.25* | *1385* |
| *11* | *0.29* | *1607* |
| *12* | *0.33* | *1828* |
| *13* | *0.37* | *2050* |
| *14* | *0.41* | *2271* |
| *15* | *0.45* | *2493* |

*The above tables describe the efficiency of conversion from potential to kinetic energy in combustion. There is another factor to be taken into account regarding the efficiency of transmission of the energy from the explosion to the projectile. That depends in great part on the type of action and how well made that action is. In SH we blithely ignore all such problems and declare (For Now) that all actions have a 100 percent effeciency of transmission.*

## A.4 Accuracy Decrement Class (ADC)

*An accuracy decrement class is the term to describe the group of projectiles with a specific Acccuracy Decremnt. The higher the ADC the lower the Accuracy Decrement associated with that projectile.*

*The table below describes a specific set of relationships between the Length/Diameter ration of the projectile, the ADC, and the Maximum velocity that can be sustained while in that ADC. The maximum velocity is expressed as a ration of the maximum velocity for a given ADC versus the maximum velocity for ADC 1. .DS Accuracy Decrement Class vs Projectile Length:Diameter*

| | 1:1 | 2:1 | 3:1 | 4:1 | 10:1 |
|---|---|---|---|---|---|
| 1 | 1 | 1 | 1 | 1 | 1 |
| 2 | 2 | 2 | 2 | 2 | 3 |
| 3 | 4 | 4 | 4 | 5 | 6 |
| 4 | 5 | 6 | 7 | 8 | 9 |
| 5 | 7 | 8 | 9 | 11 | 14 |
| 6 | 9 | 11 | 12 | 14 | 19 |
| 7 | 11 | 13 | 15 | 18 | 26 |
| 8 | 13 | 16 | 19 | 23 | 33 |
| 9 | 16 | 19 | 22 | 28 | 40 |
| 10 | 18 | 22 | 26 | 33 | 49 |

*In the table below the maximum velocity is expressed in m/sec*

| X | 200 | 150 | 100 | 75 | 50 |
|---|---|---|---|---|---|
| 1 | 200 | 150 | 100 | 75 | 50 |
| 2 | 400 | 300 | 200 | 150 | 150 |
| 3 | 800 | 600 | 400 | 375 | 300 |
| 4 | 1000 | 900 | 700 | 600 | 450 |
| 5 | 1400 | 1200 | 900 | 825 | 700 |
| 6 | 1800 | 1650 | 1200 | 1050 | 950 |
| 7 | 2200 | 1950 | 1500 | 1350 | 1300 |
| 8 | 2600 | 2400 | 1900 | 1725 | 1650 |
| 9 | 3200 | 2850 | 2200 | 2100 | 2000 |
| 10 | 3600 | 3300 | 2600 | 2475 | 2450 |

*From the above tables (psuedo empirically derived) we can extract equations that fit give the maximum velocity for each ADC within a given set of L/D projectiles.*

| L/D | Equation |
|---|---|
| 1:1 | $Velocity_{(Maximum)} = ADC^{(1.36)} * 0.88$ |
| 2:1 | $Velocity_{(Maximum)} = ADC^{(1.38)} * 0.99$ |
| 3:1 | $Velocity_{(Maximum)} = ADC^{(1.58)} * 0.87$ |
| 10:1 | $Velocity_{(Maximum)} = ADC^{(1.89)} * 0.75$ |

*A little creative curve fitting can be done against the L/D ratio and both the exponent and the constant to give formulas for both.*

| L/D | Exponent | Constant |
|---|---|---|
| 1.0 | 1.36 | 0.88 |
| 0.5 | 1.38 | 0.99 |
| 0.3 | 1.58 | 0.87 |
| 0.1 | 1.89 | 0.75 |

*Thus the equations are:*

$$Exponent = (L/D)^{-0.15} * 1.3$$

$$Constant = (L/D)^{-0.07} * 0.9$$

*These equations give the fitted values:*

| L/D | Exponent | Constant |
|---|---|---|
| 1.0 | 1.3 | 0.90 |
| 0.5 | 1.4 | 0.86 |
| 0.3 | 1.5 | 0.83 |
| 0.1 | 1.8 | 0.75 |

## A.5 Damage Decrement Class

*Yes Virginia, there is a corresponding DDC to the ADC. The higher the DDC the Higher the Damage Decrement is.*

*The DDC is based on the ration of Mass to diameter as follows:*

| $M/D^{(gms/cm)}$ | DDC |
|---|---|
| 0.05 | 1 |
| 0.10 | 2 |
| 0.15 | 3 |
| 0.30 | 4 |
| 0.50 | 5 |
| 0.75 | 6 |
| 1.05 | 7 |
| 1.05+ | 8 |

*Thus DDC = (M/D2)̌0.5̇* 7*

| $Mass/Dia^2$ | *DDC* |
|---|---|
| *0.02* | *1* |
| *0.08* | *2* |
| *0.18* | *3* |
| *0.32* | *4* |
| *0.51* | *5* |
| *0.73* | *6* |
| *1.00* | *7* |
| *1.31* | *8* |
| *1.65* | *9* |
| *2.04* | *10* |

# Index