PROGRESS LEVELS

A Progress Level (PL) is an indication of the state of technology that exists in a particular society or civilization (which, in a science fiction setting, may be located on a planet other than Earth). This state of technological development generally pervades all aspects of a culture, particularly at higher levels (PL 5 and beyond) when long-range communication is virtually instantaneous. Even at lower levels, it's unlikely—but not impossible—for a group of humans (or other sentient beings) to be at one Progress Level in some respects and at another one in other respects.
Progress Level may vary wildly from place to place on the same world or even the same continent.

PL 0: STONE AGE

The major achievements of a Stone Age society are the use of fire, the domestication of animals, and the invention of agriculture. An individual living in a Stone Age society is primitive, but he isn't necessarily gullible, stupid, or easily frightened by advanced technology. Common weapons in a PL 0 civilization include the club, the dagger, the spear, and the bow. Armor made from hide or leather is possible, as are wicker shields. Communication beyond the local tribe or settlement doesn't exist. Travel is accomplished by foot or by simple rafts or canoes. Simple pottery, stoneworking, and woodworking are possible.

PL 1: BRONZE/IRON AGE

Early human civilizations began to work metal toward the end of the Stone Age. The malleability of copper led to its becoming the first metal to be "tamed." Adding tin to copper created a much stronger alloy: bronze. This advance allowed for the crafting of tools and weapons of great durability. In turn, those improved tools made possible the working of iron, which soon replaced bronze as the metal of choice for tools and weapons.
In a Bronze/Iron Age society, advances in pottery, construction, and agriculture allow for the concentration of populations into larger and larger groups, with a corresponding upswing in the accumulation and sharing of knowledge. The rise of nations, citystates, and empires begins in the Bronze Age. Organized efforts to improve communications allow regional societies to exist. Galleys and small sailing vessels are capable of relatively long voyages, and some cultures may build extensive road or canal networks to link distant places. Improvements in agricultural efficiency permit the rise of artisans, craftsmen, professional soldiers, and other occupations that are not directly concerned with gathering food.
The sword replaces the club and the dagger as the preferred weapon of infantry. Chariots briefly dominate warfare before cavalry (aided by the introduction of the stirrup) renders chariots obsolete. The first true military forces or tactical systems appear. Armor can now be made from sewn plates or scales, metal links, or even forged breastplates, and a variety of metal melee weapons dominate the battlefield.

PL 2: MIDDLE AGES

Maturing civilizations experience a period of turmoil and adjustment at this Progress Level. Developments continue in architecture, commerce, metallurgy, and mathematics. Wider dissemination of information becomes possible thanks to more advanced printing techniques. Sea communications dominate in the later part of this stage of development, and sturdy seafaring carracks and galleons open the door to the next Progress Level.
As populations increase and knowledge of agriculture evolves, an increasing percentage of the population relocates into growing cities and towns. Toward the end of this Progress Level, the feudal system, in which a small class of nobles ruled a large population of agricultural workers, begins to collapse. Specialized crafts develop, universities appear, and the middle class is born. The first corporations emerge in the form of trade guilds. The evolution of strong systems of trade and finance tends to distribute a society's wealth more evenly among its members, diluting the power of the nobility.
Tools of warfare undergo a significant revolution. Sophisticated chain and plate armors protect warriors from harm, and elaborate fortifications become something of an art form. Toward the end of the Middle Ages, the introduction of simple gunpowder weapons signals the imminent end of knights, heavy armor, and organized armies of swordsmen.

PL 3: AGE OF REASON

The Age of Reason is an era in human history when the development of ideas and systems of thought takes precedence over technological invention. The scientific method improves humankind's understanding of the world. Experimentation becomes the means by which the physical properties of nature are systematically examined. The study of the various scientific disciplines—chemistry, electromagnetics, medicine, biology, and astronomy—flourishes. Instruments such as microscopes and telescopes enable scientists to greatly extend the range of their observations and discoveries. The new reliance on science generates waves on all levels of society. Superstition falls away, and exploration of the world reaches its apex. Society begins

to experiment with new forms of organization, such as democracy. Corporations and economic alliances continue to evolve. Economically, this Progress Level is a transition from the cottage industries of the Middle Ages to industrialization.
The cannon becomes the dominant factor in naval warfare, while massed musket fire and horse-pulled field pieces rule the battlefield. Even the reliable bow vanishes, replaced by the flintlock. Light melee weapons remain common.

PL 4: INDUSTRIAL AGE

In the fourth Progress Level, the theoretical knowledge of the previous era matures into widespread practical application. The harnessing of hydraulic, steam, and electric power creates an explosion of commerce and industry. Developments such as the telegraph, the telephone, and the radio make true global communication possible. Breakthroughs in manufacturing techniques allow the construction of heavy ironclad vessels, rail transportation, and architecture of previously unimaginable size. Pioneers venture high into the atmosphere and descend into the sea's depths.
Urbanization is complete as individuals gather in smaller environments where they can more easily exchange goods and information. Corporations expand in power, many establishing themselves throughout the explored world. Governments are based on political and economic factors.
The means of war change swiftly through the period. Aircraft and submersibles join the list of military assets. Reliable and accurate rifles, pistols, and machine guns become common. Mechanized war machines herald the first great change in the art of battle since the end of the knight.

PL 5: INFORMATION AGE

The Industrial Age relied on chemical power, but in the Information Age, computer technology and electronics rule supreme. Satellite information systems and the Internet connect the globe digitally. This Progress Level also sees the introduction of fission power and weapons reducing the importance of fossil fuels. The automobile replaces the locomotive as the common form of travel. The first steps toward space travel involve massive chemical rockets, unmanned probes and satellites, and short-term manned missions.
The technology of the era allows greater citizen participation in government. The emergence of international alliances begins to dissolve borders between nations. Corporations gather power and begin to threaten government authority. Technology has a greater effect on individual lifestyles than on society as a whole. Most weapons at this time are refined versions of Industrial Age equipment. Rifles, machine guns, and heavy howitzers are still used by the world's soldiers. Computerized targeting systems and guided weapons make warfare much more precise and efficient. Strategic weapons, tested but never used, exhibit the species' power to exterminate itself in minutes.
Humanity experienced its Information Age as anxious years full of minor crises. The tension gradually alleviates through the age, and as the era ends new superpowers form.

PL 6: FUSION AGE

The development of fusion power provides an efficient, nonexpendable energy source that almost obliterates the need for chemical fuel sources. Advanced space exploration and colonization become possible. Computers become even more accessible, reliable, and powerful, leading to the development of virtual systems and widespread access to the global Internet. Slowly, society experiences another revolution as individual nations are replaced by world powers. Megacorporations number among these new superpowers as the line between the national citizen and corporate employee is rendered indistinct. Armed with the means to eradicate the entire species, the world powers keep conflicts to the level of skirmishing and posturing, and integration of the Information Age's improvements proceed peacefully.
Scientific advanced in genetic engineering lead to artificial evolution and the first government- and corporate-sanctioned attempts to genetically manipulate human beings. Early results are encouraging, with the manifestation of positive and negative mutations in the species toward the end of the age. Scientists also perfect cloning technology, and the first human clones are created.
In the later years of this age, the first crude applications of gravity induction technology appear, in the form of civilian and military vehicles that can move through the air without using physical propulsion or consumption of fuel.
Chemical-powered explosives and firearms remain the weapons of choice; fusion technology can't be effectively miniaturized for personal combat. Nevertheless, advanced chemistry and superconducting technology change the materials and capabilities of many weapons. True spaceships become possible, propelled by powerful fusion drives, but still require a reaction mass to traverse space.
The age sees the tenuous settlement of other planets and asteroids within the same star system.

PL 7: GRAVITY AGE

As this Progress Level opens, the invention of two key technologies herald humanity's climb to the stars. The gravity induction reactor systematically replaces fusion power as an even more efficient source of energy that can be miniaturized

with great ease. With the use of the mass reactor, world powers explore, divide, and colonize the entirety of the local star system. For the most part, life on the home planet is unchanged.
The second advance of the era brings perhaps the greatest upheaval in the history of human civilization. The introduction and integration of gravity induction technology leads to the creation of the induction engine, which allows starships to bridge the gap between the stars. Political and economic reorganization occurs as the species spreads far from home.
Projectile firearms are in their last days, as crude energy weapons become available. Powered armor is available to warriors of this age. Personal (melee) weapons enjoy a resurgence, due in large part to a shift in military tactics—armed conflict between individuals seldom occurs on an army scale, but more frequently involves engagements of small units in conditions when ranged weapons are not necessarily effective.
Computer technology links every society, settlement, and outpost of a star system in a single information net, creating an unparalleled and expedient exchange of knowledge and data for business, entertainment, and research.

PL 8: ENERGY AGE

The continuing miniaturization of induction engine technology allows power plants the size of marbles to harness the basic forces of creation. Powerful personal force screens and energy weapons dominate the battlefield, as projectile weapons finally disappear after ruling the battlefield for a thousand years. Miniaturized sensors, shields, and engines allow mass production of small, practical starfighters. At the other end of the spectrum, advanced construction techniques allow humans to build enormous, self-sustaining cities in space.

PL 9 AND HIGHER

Generally, these Progress Levels are beyond reach or comprehension, although isolated worlds or undiscovered species may exist that have access to them. In many cases, the signature technologies of an earlier age are abandoned in favor of more elegant and more powerful technologies.
Practical control of matter at the subatomic level, the ability to travel through time, or the power to "fold space" to shorten travel distances may be possible at this stage of technological development.

Purchasing Items of Lower or Higher Progress Level
Progress Levels are relative, and depending on the economics of a campaign, a GM may choose to make certain items of a higher or lower Progress Level unavailable, cheaper, or more expensive to purchase. For the sake of game balance, GMs who want to make lower-PL and higher-PL items available to characters should adjust the purchase DCs of items as follows.
• –2 to Purchase DC for each Progress Level lower than the current Progress Level, except in the case of valuable antiques.
• +5 to Purchase DC for equipment from the next highest Progress Level (the limit for purchasing cutting-edge technology).

Low Progress Levels in the Future
Most modern campaigns are set at Progress Level 5. Consequently, campaigns set in Earth's future typically feature societies with access to Progress Level 6 technology or higher. However, characters in a futuristic setting may still encounter technologically backward societies, possibly through the exploration of time travel, a journey to another world, or some other plot device. For this reason, the lower Progress Levels are included here.

Gravity Induction
Control of gravity is one of the key features of Progress Level 7. The development of gravitonic science and gravitonic engineering leads to a host of miraculous devices: levitating cars, interplanetary drives that require no reaction mass, and a wide range of military tools. Just as the application of electricity was spurred by the discovery of the induction principle, the creation of devices that induce gravitational energy leads to an effective control over weight.
Gravity induction relies on the phenomenon first set forth in Einstein's Theory of Special Relativity: An object's mass approaches infinity as the object's velocity approaches the speed of light. By using a cyclotron to accelerate a tiny particle to near-light speed, the gravity generator creates gravitons between the particle and the surrounding mass. These gravitons can be siphoned off, redirected, or stored by use of the induction coil.
At PL 7, gravity inducers can be miniaturized to the size of hockey pucks for special applications. An inducer powerful enough to negate a human's gravitational attraction to the Earth is about the size of a discus, while the induction motor in a flying car requires a gravity generator about the size of a spare tire.