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# The Freeciv Game User's Guide

Freeciv is a turn-based strategy game, with some real-time elements, in which each player is the leader of a civilization, fighting to obtain the ultimate goals of a nation: The extinction of all other nations, being the first nation to plant a colony in another star system, or survival to the end of the game.

This manual describes the game of Freeciv, its concepts and game elements. Freeciv is a game generally based upon the games Civilization and its successor, Civilization II (tm). Players who are familiar with those games will find little in this manual new to them (but see [Differences From Civilization II](#)). Those without experience of those other games will learn here what the game is all about.

The Freeciv Server User's Manual and Client User's Manual both presume that the reader knows what goes on in the game. This manual presumes that the reader understands the concept of the game software being divided into server and client, and leaves the details of those programs to their respective manuals.

This manual describes version 1.8.0 of Freeciv, but the concepts are generally the same in all earlier versions. The default game is described, as implemented by the standard options; the server documentation and the ruleset documentation in the source distribution show ways to modify the game in large and small ways. What is shown here is the basic game which should be familiar to all readers. Much of it is taken from the on-line help that is contained in the game.

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## 1.0 Overview of the Game

The game of Freeciv is played in turns, which begin at the dawn of civilization, the year 4000 B.C.E., and run to the space age. Each turn represents a varying number of years: 50 years per turn until 1000 B.C.E., then 25 years per turn until 1 C.E., and so on, up to one turn per year in 1900 C.E. Time advances even faster than that once any civilization achieves the technology to build spaceships.

In each turn, you, as the immortal, absolute ruler of your civilization, direct the movements and actions of your explorers, colonists, armies, and ships. You establish new cities and the construction of buildings within them, including the erection of Wonders of the World. You assign the workers in your cities to their tasks, working the land and sea or providing special talents. You command the economic priorities of your nation, dictate their form of government, and aim their research along the paths you choose.

Starting from a tiny band of colonists and explorers, able only to see a small portion of the world's surface, you discover and dominate more and more of the world. You build ships and send them across the oceans, discovering new lands with unusual, foreign people, to which you send your armies to crush them. You speak for your race to the leaders of the other civilizations you find (if they are human players) in the style you wish, whether it be warlike or peaceful.

The game ends when one civilization achieves one of the ultimate goals. You win when either:

- You have eradicated the last city and the last unit of every other civilization, leaving all of humanity under your domination; or
- Yours is the first race to discover space flight, build a starship, and use it to plant a colony on a world of Alpha Centauri.
- You have the highest score of all civilizations at the end of the game (by default, 2000 C.E.).

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## 2.0 The World

The world on which this drama takes place models our Earth. Based on the choices of the players at initialization, the map may be of the real Earth, or the real Europe, or some other predefined map, or it may be a randomly generated map. Most games take place on a random map, developed by the program when the game starts. The world contains fertile land, deserts, oceans, polar icecaps, large continents and small islands.

The map of the world has laid over it a pattern of squares, to regularize terrain effects and movement. The world itself is a cylinder, with the polar regions regarded as the northmost and southmost limits of movement; movement east and west is unlimited. Each square contains one basic terrain type, with possible special features, cities, and moving units added to the square. The default world size is 80 squares across and 50 squares high, suitable for a fairly quick two player game; at this resolution all of modern France is about six squares. For five or more players you should consider a size such as 160 across and 90 high, where modern France occupies about 25 squares.

In addition to random maps generated at the start of a game, the `civworld` utility may be used to develop custom maps. This tool allows you to build a map for a specific place (e.g., Europe), with a specific map size and resolution, and initialized with terrain, rivers, and other features as meet your needs. Besides defining the map, `civworld` is for making a Freeciv scenario, a preestablished environment for a game other than the all-encompassing Freeciv game (e.g., a Medieval Europe scenario). The `civworld` utility is available in the collection of contributed software in <ftp://ftp.freeciv.org/pub/contrib>.

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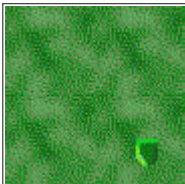
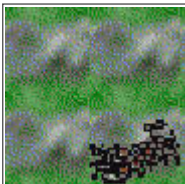
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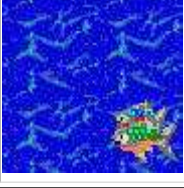
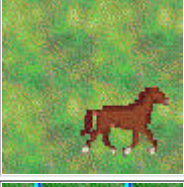
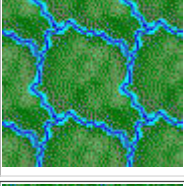
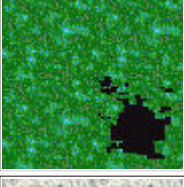

## 2.1 Terrain

The different terrain types are important to you, as they all have different characteristics regarding their use by nearby cities and by moving units. Each type of terrain is capable of producing various amounts of valuable commodities: food (grain, vegetables, game, fish), production resources (minerals, wood, fuel, horsepower), and trade (the generalized concepts of economic activity, communications, and travel). Some squares have special features provided by nature, which give additional benefits. Terrain types also have different impediments to movement and benefits for defenders in combat.

The following table describes each terrain type, giving for each the number of points of **F**ood, **P**roduction, and **T**rade that a city may obtain from the square if it is worked (see [Working the Land and the Ocean](#)). It also gives the **M**ovement point cost for a unit (see [Movement](#)), and the **D**efense multiplier (see [Combat](#)). Last are the turns required to **I**rrigate, **M**ine, or **T**ransform the terrain.

Many terrain types may be improved by irrigation, mining, clearing, or forestation by Settler and Engineer units, or transformed into other terrain by Engineers. This will be detailed later in [The Works of Man](#). A square may be irrigated, or mined, or neither, but not both.

Appearance	F P T	M D	I M T	Description
	0 0 0	2 1	0 0 24	Arctic squares are found at the north and south polar regions. They have no economic value and are hard to move through. With Seals (as shown), they yield 2 food. They may not be irrigated or mined; they may be transformed into Tundra.
	0 1 0	1 1	5 5 24	Desert squares appear mostly near the equator. They produce a modest amount of metal ores. With an Oasis, they also yield 3 food. Deserts may be irrigated or mined; they may be transformed into Plains.
	1 2 0	2 1.5	5 0 24	Forest squares produce vegetation and small game, and a substantial amount of lumber. They are slow to move through, but aid a defender in battle. With Game, they yield 3 food. Forests may be cleared ("irrigated") into Plains, but not mined; they may be transformed into Grassland.
	2 0 0	1 1	5 10 24	Grassland is what you look to for feeding your inland cities, with good rain and level soil allowing vigorous farms. With special Resources they also yield 1 production point from deposits of minerals. Grasslands may be irrigated, or forested ("mined") into Forest; they may be transformed into Hills.
	1 0 0	2 2	10 10 24	Hills produce some game for food; with Coals they also yield 3 production points. They are slow to move through, but aid a defender in battle. Hills may be irrigated or mined; they may be transformed into Plains.

	1 0 0	2 1.5	15 15 24	Jungle squares produce some food from fruit; with Gems they also yield 4 trade points. They are slow to move through, but aid a defender in battle. They may be cleared ("irrigated") into Grasslands, or forested ("mined") into Forests; they may be transformed into Plains.
	0 1 0	3 3	0 10 24	Mountains produce a modest amount of metal ores, but are very hard to move in and good to defend in. With Gold, they also yield 5 trade points. They may be mined but not irrigated; they may be transformed into Hills.
	1 0 2	1 1	0 0	Ocean squares produce some food from fish, and allow substantial amounts of commerce and travel for nearby cities. With special Fish areas, they yield an additional 2 food points. Only sea and air units may move on the ocean; land units must ride ships as passengers. The ocean may not be irrigated, mined, or transformed.
	1 1 0	1 1	5 15 24	Plains squares produce some food from game and farming, and some lumber and animal work power. With Horses (representing all kinds of large herd animals), they yield an additional 2 food. They may be irrigated; if forested ("mined") they turn into Forest; they may be transformed into Grassland.
	2 0 1	1 1.5	5 0	River squares produce food from fish and primitive irrigation, and trade from easy travel. Land units moving from one river square to another do so at one-third of a movement point; combat favors defenders who can make best use of river banks. With Resources (not visible on the map) they produce one production point from exposed minerals. River squares may be irrigated, but not mined or transformed.
	1 0 0	2 1.5	15 15 24	Swamp squares produce some food from game and fish, and are hard to move through. With Oil, they yield 4 production points. They may be drained ("irrigated"), which converts them into Grassland, or forested ("mined") into Forests; they may be transformed into Plains.
	1 0 0	1 1	0 24	Tundra squares produce a small amount of food from game; with Game, they yield an additional 2 food points. They cannot be irrigated or mined; they may be transformed into Desert.

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## 2.2 The Works of Man

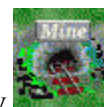
Settlers and Engineers are able to change the face of the Earth, as has been noted earlier. Engineers are more advanced Settlers, able to do the same things more quickly, and capable of new feats; the previous terrain table shows the transformations that Engineers can perform.

Deserts, Plains, Grasslands, Hills, and Rivers may be irrigated, if there is a nearby source of water (a square immediately to the north, south, east, or west, which is a Ocean, River, or already irrigated). Irrigating a square causes it to produce one more food point per turn.



Forests, Jungles, and Swamps may be cleared by the "irrigate" order, converting them to Plains, Grasslands, or Grasslands, respectively. Clearing does not require a source of water.

Deserts, Hills, and Mountains may be mined. Mining a Desert or Mountain square causes it to yield 1 extra production point per turn; mining a Hill produces 3 extra production points (reflecting the increased accessibility of hillside mines and trails). Grassland, Jungle, Plains, and Swamp squares may be forested by the "mine" order, converting each of them into a Forest.



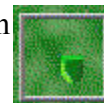
Irrigating or clearing a square removes any mine in that square, and mining or foresting a square removes any irrigation in that square.

Roads and railroads may be built on any square except Ocean. (To build either on a River square requires the advancement Bridge Building; to build Railroad requires the advancement Railroad.) A Settler or Engineer can be orders to build a road on land with none, or a railroad over an existing road.

- Roads allow land units to move at one-third of a movement point per square when moving from one road square to another, regardless of the movement cost of the underlying terrain. Roads in Desert, Grassland, and Plains squares cause them to produce one additional trade point.
- Railroads allow land units to move from one railroad square to another at no movement cost at all. Railroads increase the production points of a square by 50%. (Server options exist to modify this bonus, and apply such bonuses to food and trade as well.)

Cities automatically contain roads (and railroads, when they are available) without the need to build them.

Settlers and Engineers may also construct a Fortress in a land square (if the advancement construction is known), which may exist in addition to any other features of the square. A Fortress gives aid to defending units (see [Combat](#)), and influences city morale for units in the Fortress (see [Cities](#)).



In addition to constructions placed by the civilizations, the map also contains tiny Villages, representing small cultures not destined to become major civilizations. When a land unit of a civilization enters a Village, the Village disappears, but its contents become revealed. Some contain gold, which goes into your treasury; others provide you with technological advances previously unknown to you. Some yield military or Settler units that freely join your empire, or become new cities in your empire. Lastly, some destroy your intruding unit instantly.



When you have a sufficiently industrialized and populous civilization, pollution can appear near your cities. Pollution appears based on the production points and population of your cities. Pollution can also be caused by Nuclear weapons. When a square becomes polluted, this symbol appears; see [Population](#) for the effects of pollution. Settlers and Engineers need to be assigned to clean up



pollution, to return land squares to productivity, and to prevent global warming.

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## 3.0 The Supreme Commander

### 3.1 Units

As the highest power in your civilization, you have direct control over your people and their works. The main game map shows the natural and man-made map elements described in previous sections. It also shows the fixed cities and mobile units of your civilization and others. The units of your nation are moved by you to accomplish your goals.

With a few exceptions, units are produced by cities, at the expenditure of production points. Once completed, they may remain in their cities or move about the map. They may explore, improve the land, attack enemy units, found cities, and perform other special duties. What purposes are suited for a unit depend on its general type, its strengths in movement, attack, and defense, and the special features of its type.

Units are typically owned by some city, originally the city in which the unit was produced. (Units gained by exploring a Village are owned by the city that owns the unit that entered the Village.) Depending on your form of [Government](#), cities may be responsible for providing support for their units; support may be in production points or in food points. Also depending on your government, the location or even the existence of units in or outside a city may influence the morale of the city (see [Government](#)). If one civilization stimulates a revolt in a city of another civilization, it gains in addition to the city all of the units owned by the city, except those which are inside other cities.

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### 3.1.1 Movement

Units may be divided into the major types of land, sea, air, and helicopter (helicopters are sufficiently different from air units to deserve special treatment). All units move from square to square on the map grid, in each step moving into one of the 8 squares around it, subject to many restrictions (exception: [Airlift](#)).

Land units move on land, and suffer the movement costs of terrain, but benefit from roads and railroads. Units are created with a specific number of movement points; a Diplomat, for instance, has 2 movement points. In each turn every unit gets to use all of its allotted movement points, although units that have received damage (see [Combat](#)) have a reduced allotment. A unit may not move into a square unless it has at least a fraction of a movement point remaining. For instance, in one turn a Diplomat may move from one Plains square to another, and to a third, but cannot then move to a fourth. Roads help by reducing movement costs to one-third of a movement point, regardless of the underlying terrain; on connected roads a Diplomat could then move six squares.

Land units cannot move on Ocean squares except when carried by sea units; they use land movement to move onto or off of their sea unit, but then should be told to Sentry until they are ready to disembark. While at sea they cannot attack or defend for themselves, but rely on the sea unit carrying them. If the sea unit is destroyed in battle, the passengers are destroyed as well. Land units leaving a sea unit may not attack in doing so; you may not directly assault an enemy city or unit from your ships (exception: Marines may attack directly from sea units).

On land, land units are subject to zones of control. The eight land squares around a land unit, city, or air or helicopter unit in a land square, are considered to be within the unit's zone of control. A land unit of one nation may not move directly from one enemy-controlled square to another, although there are three exceptions where zones of control do not apply:

- A unit may move directly into or out of a city, regardless of zones of control.
- A unit may move onto a square occupied by a friendly unit, regardless of zones of control.
- Some unit types (Diplomats, Spies, Explorers, Partisans, Caravans, and Freights) ignore zones of control.

Note that, different from Civilization and Civilization II, "friendly" means only units of your own civilization; no other race's units are ever considered "friendly" by the game.

Sea units move on Ocean squares, and into cities which are adjacent to Ocean squares. They may only be built in such coastal cities. Like land units, they have different movement point allocations based on their type; for instance, a Caravel has 3 movement points. Like land units, their movement is reduced when damaged by combat. Unlike land units, that basic movement ability may be modified globally by some Wonders of the World (Lighthouse, Magellan's Expedition), and by the knowledge of the advancement Nuclear Power. All movement of sea units, on all Ocean squares and into and out of all coastal cities, costs one movement point per square. They may not enter an enemy city, even if it is undefended, but they may attack enemy land units within cities. Some sea units may carry land units as passengers, up to a fixed limit.

Air units may move on any square, land or Ocean, that is not occupied by an enemy unit or city. They have movement points that are not reduced by damage, and use one point for every square. They have needs for fuel which can only be met by ending a turn in a friendly city or on a friendly Carrier (or a Submarine, for missile units). The number of turns on air unit can last without fuel varies by the unit type. Air units may not be used to explore Villages, nor may they capture an enemy city.

Helicopter units can move into any Square not occupied by an enemy unit, and their movement rate is not diminished by damage. They do not require fuel; however, they require maintenance. Every turn in which they do not end in a friendly city, they lose 2 hit points (see below on hit points) from wear and tear (unless you have the United Nations Wonder). They may enter and capture an undefended enemy city.

As noted above, many unit types have reduced movement when damaged. In addition to a movement point allocation, every unit type has a number of "hit points" indicating the unit's state of repair. In [Combat](#) units receive damage by losing hit points. Damaged units have their hit points restored gradually in every turn in which they do not move or attack. Typically this restoration is one hit point per turn; however a unit regains all of its hit points if:

- it is a land unit in a city with a Barracks, or in a city of an empire possessing Sun Tzu's War Academy, or
- it is a sea unit in a city with a Port Facility, or
- it is an air unit in a city with an Airport.

Further,

- Any unit spending its entire turn in a city regains one-third of its base hit points.
- A land unit spending its entire turn in a Fortress regains one fourth of its base hit points.
- Land units that are fortified regain an extra hit point.

If a player has the United Nations Wonder, all of the player's units (even those which move during a turn) regain an extra 2 hit points per turn. Damaged units in [Sentry](#) mode wake up when they have regained all of their hit points.

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### 3.1.2 Unit Orders

In addition to ordering your units to move and engage in combat, you may give a variety of other orders to different types of units. Some are state changes that take effect immediately, or at the end of the turn. Others are construction tasks that take time.

#### Airlift

(Land units only) Moves a land unit in a city with an Airport to any other friendly city with an Airport. The airlift occurs instantly, but expends all movement points of the unit. One airport may perform either part of this action once per turn.

#### Auto-Attack

(Military units only) Used in conjunction with the City Options, this allows you to direct units residing in a city to automatically sally out to attack approaching enemies. The unit must be within the city and given this order. Thereafter, based on that city's City Options, if an enemy unit of a given type approaches the city, the unit will leave the city, attack the enemy, return to the city, and resume its Auto-Attack status.

#### Auto-Explore

(Land or sea units only) Orders the unit to automatically explore the map, progressively revealing more of the unknown world.

#### Auto-Settler

(Settlers and Engineers only) Orders the unit to automatically perform improvement activities (irrigation, mining, roads, etc.) in the areas around friendly cities.

#### Bribe Enemy Unit

(Diplomat and Spy only) Bribes an enemy unit to join your empire, in exchange for gold from your treasury. Units of Democratic nations cannot be bribed.

#### Build City

(Settlers and Engineers only) Establishes a new city, disbanding the unit in the process.

#### Build Fortress

(Settlers and Engineers only) Constructs a Fortress in a land square. Units in a Fortress have their defense strength doubled when attacked, and combat against one unit in a Fortress will not result in the destruction of uninvolved units. Units in a Fortress also have different effects on the happiness in their home cities, see [Government Types](#).

#### Build Road or Railroad

(Settlers and Engineers only) Builds a road in a land square (or a railroad if there is already a road). You may only build a road in a River square if you have the advancement Bridge Building.

#### Change Home City

Any unit presently in a city may have its home changed to that city; it takes effect instantly. Thereafter the unit is supported by the city for purposes of maintenance, morale, and ownership.

#### Clean Up Pollution

(Settlers and Engineers only) Cleans up pollution produced by industry, population, or nuclear weapons.

#### Disband Unit

Any unit may be disbanded at any time. If it is disbanded in a friendly city, half of the unit's production cost is deposited in the city's current production box.

#### Entice City Rebellion

(Diplomat and Spy only) Attempts to entice a city into rebelling against its empire and joining yours, for a price. Defending Diplomats or Spies in the city assist in its resistance of your offer. If the city makes an offer and you accept it and make the payment, the city changes hands, as well as its units within the

city and in the field. A successful Spy is teleported back to its home city.

### Fortify

Any land unit (other than Settlers and Engineers) may fortify, which means to place itself temporarily in a better posture to defend; this is different from constructing a permanent Fortress. It takes effect immediately. A fortified unit has its defense strength multiplied by 1.5 (see [Combat](#)), and regains lost hit points more rapidly.

### Go To

The player may order a unit to go to a target square anywhere on the map. From that point, the game will plan a route for the unit, which the unit will follow turn after turn until it reaches the goal. In each turn, the unit will make as much progress as its movement point allowance permits. Once it reaches its goal it becomes ready for your orders. While in transit it is marked on the map with a "G"; if you click on it from the map window, you clear its Go To status.

### Investigate city

(Diplomat and Spy only) Gives you a report on the city, its contents, and what it is producing. A Diplomat unit dies after making the information available.

### Irrigate

(Settlers and Engineers only) Irrigates a Desert, Plains, Grassland, Hill, or River square. Clears Forest, Jungle, and Swamp squares to Plains, Grassland, and Grassland.

### Make Embassy

(Diplomat and Spy only) Establishes an embassy in another civilization. Must be performed by entering a city of the other nation. If a Spy attempts this, and had previously used for subversive purposes, there is a chance that the attempt will fail and the Spy executed.

### Mine

(Settlers and Engineers only) Mines a Desert, Hill, or Mountain square. Performs forestation on Grassland, Jungle, Plains, or Swamp squares. See [Terrain](#).

### Pillage

(Land units only) Orders the unit to spend the rest of its turn doing damage to the infrastructure of a land tile (irrigation, mine, railroad, or road, in that order). You get nothing from this in terms of gold or production resources; you use this simply to harm the enemy's land and damage his economy.

### Poison City Water

(Spy only). Empties the city's food storage and kills one citizen. A defending Diplomat or Spy in the city may cause the attempt to fail.

### Sabotage City

(Diplomat and Spy only) Attempts to destroy what is currently being produced by an enemy city, or an existing building. This is performed by entering the target city. For a Diplomat a random target is chosen; a Spy is allowed to be given a specific goal. It may fail if there is a defending Spy in the city. If successful, a Diplomat dies, but a Spy is teleported back to its home city.

### Sentry

Any unit may be give this order, military or not. It commands a unit not to ask you for orders each turn. Unless interrupted, the unit will stay in its place on the map with an "S" marker on it. It will wake up, and be included among the units asking for your attention, when:

- You click on it from the map window, or
- An enemy unit moves adjacent to it (even if the enemy has moved away by the time you get to give the unit orders), or
- You select it from a city's list of units, or
- The unit completes recovery of lost hit points.

### Steal Advance

(Diplomat and Spy only) Attempts to steal a civilization advance from the nation owning a city. The attempt may fail if there is a defending Diplomat or Spy, and will work only once per city per game. A Diplomat will steal a randomly chosen technology, and die in the attempt. A Spy will get to choose the stolen advancement, and has a chance of surviving; if it does, it is teleported back to its home city.

## Transform

(Engineers only) Transforms a terrain square into another type. See [Terrain](#).

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### 3.1.3 Combat

Combat occurs when a unit of one civilization attempts to enter the square of a unit of another civilization. If not prohibited by various restrictions (e.g., a land unit may not attack an air unit), combat takes place. In the course of combat, either one unit or the other is destroyed, or both, and the survivor may receive damage as well. The outcome depends on several factors, including chance.

Each unit type has several numerical characteristics relevant to combat: Attack strength, defense strength, hit points, and firepower. See [Unit Types](#) for these values. A particular unit may have additional attributes that bear upon its ability in combat: Veteran status, current hit points, and movement points remaining.

A unit with zero attack strength or zero movement points may not attack. A unit with zero defense strength is simply destroyed when attacked, with no loss to the attacker (except the expenditure of the movement point). Air units outside of cities can only be attacked by Fighters and Stealth Fighters. Land units may not attack sea units on the Ocean. When a unit attacks a square, it does combat with the unit that the game considers best able to defend; all combats are one-to-one.

To resolve a combat, first the attacker's adjusted attack strength is determined:

- If the attacker is a Veteran, its attack strength is multiplied by 1.5.
- If the attacker has only one-third of a movement point remaining, its attack strength is divided by 3; if it has only two-thirds of a movement point, its attack strength is multiplied by 2/3. (The client will warn the attacking player that either of these is the case, and invite the player to cancel the attack.)
- If the attacker is damaged, its attack strength is multiplied by (current hitpoints divided by maximum hitpoints).

Then the defender's adjusted defense strength is determined (all of these are cumulative):

- If the defender is a Veteran, its defense strength is multiplied by 1.5.
- The defense strength is multiplied by the defense multiplier of the defender's terrain; see [Terrain](#).
- If the defender is Pikemen defending against a horse-based unit (Horsemen, Chariot, Crusaders, Knights, Dragoons, but not Cavalry), or an Aegis Cruiser defending against air units (including missiles and helicopters), the defense strength is doubled.
- If the defender is in a city with a SAM Battery and the attacker is an air unit (not a helicopter) or a missile, the defense strength is doubled. If there is an SDI Defense in the city and the attacker is a missile, the defense strength is doubled again.
- If the defender is in a city with a Coastal Defense, and the attacker is a sea unit, the defense strength is doubled.
- If the defender is in a city with City Walls, and the attacker is a land unit (other than a Howitzer) or a helicopter, the defense strength is tripled.
- If the defender is in a Fortress (and not in a city), its defense strength is doubled.
- If the defender is a land unit, and is either in the Fortify state or inside a city, the defense strength is multiplied by 1.5.

If, after these adjustments, the attacker has an attack strength of zero, it automatically loses, and its hit points reduced to zero. If the defender has an adjusted defense strength of zero, it automatically loses, its hit points reduced to zero.

After these calculations, combat occurs in rounds that continue as long as both units are still alive (i.e., have

at least one hit point). In each round, a random number is generated between one and the sum of the attacker's and defender's adjusted strengths. If this number is greater than the defender's adjusted defense strength, the defender loses hit points equal to the attacker's firepower; otherwise, the attacker loses hit points equal to the defender's firepower (unless the defender is a sea unit inside a city, in which case the attacker loses only one hit point, because ships in port are unable to maneuver effectively). The first unit to reach zero hit points loses the combat.

Whichever unit survives the combat has a 50% chance of achieving Veteran status if it was not Veteran before, or a 100% chance if the unit's owner possess the Sun Tzu's War Academy Wonder.

If the attacker wins, and the defender is not inside either a city or a Fortress, all other units in the defender's square are destroyed. If the attacker is a land unit and wins, and the defender is in a city lacking City Walls, the city's population is reduced by one.

The act of attacking uses one movement point (or any remaining fraction), but some units (Bomber, Stealth Bomber) expend all remaining movement points by the act of attacking. Cruise Missile and Nuclear units are destroyed in the act of attacking. Otherwise, units with movement allowance remaining after combat are free to move or engage in combat again, as their movement points permit.

Units do not attack enemy cities, but the attempt to move into them attacks instead any enemy units within the city; if there are no units present, moving into such an undefended city captures the city (but sea and air units may not do so).

Loss of hit points due to combat reduces the unit's ability to move (see [Movement](#)). It also leaves the unit more at risk in future combats, since it will begin the combat with fewer hit points remaining. Hit points are restored as described in [Movement](#).

### 3.1.4 Nuclear Combat

Attack by a Nuclear missile is completely different from ordinary combat. A Nuclear missile attacks by moving into the square of the enemy unit or city. If the city contains an SDI Defense, or if the target unit is within the usual area of influence of a city with an SDI Defense, the Nuclear is destroyed and the defender is unhurt. Otherwise, a Nuclear blast occurs, and does the following to each square in a 3 by 3 square area:

- All units in the square are destroyed, even friendly ones.
- Any city in the square has its population halved.
- If there was no city in the square, and it is not Ocean or Tundra, there is a 50% chance that it becomes polluted.

Recalling that 9 squares on the map may, depending on the map scale, represent all of modern France, this is not exactly tactical nuclear warfare.

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## 3.2 Economy

In your cities there will be trade, communication, and other economic-like activity, produced and facilitated by rivers, roads, buildings such as banks, and trade agreements between cities. All of this activity is described in the game with the abstract term "Trade," which represents at once the flow of commodities and money, the free exchange of information, the movement of citizens, and other things related to movement.

Trade is used for three things in the game, allocated based on priorities that you set:

- Gold is produced by taxes placed on trade, from a global tax and from tax collectors in cities. You use gold to pay for upkeep on buildings in your cities, to pay for expedited production in cities, and sometimes as bribes or tribute to other nations.
- Research is produced by your encouragement of scientists, philosophers, engineers, religious leaders, and others who contribute to the advancement of your society.
- Luxuries are produced by cities from trade, representing both luxury commodities and the expenditure of funds for public entertainment.

Although cities produce individual items of trade, called "trade points," they have influence on an empire-wide basis in the form of taxes and research. Gold from taxes is collected into your imperial treasury, and building maintenance and bribes are paid out from that treasury. Research takes place for the benefit of your society as a whole, not simply for the cities that perform it; the progress made anywhere in your lands improves the welfare of all of your people.

Each turn, you may reallocate the division of your nation's trade between taxes, research, and luxuries. (There is a limit on how much you may spend on any one category, based on your [Government Type](#).) That division is respected in each of your cities as those cities perform their production of trade during the end-of-turn update. Each turn's yield of trade points will be divided into discrete units of gold coins, research points, and luxury points.

The game begins with 50% of trade going to taxes, and 50% to research. You may wish to change that to 60% for research, the maximum allowed by Despotism, since in the early years you have few buildings that need maintenance, and your small populations need no luxuries. As the centuries pass, you will have to watch your treasury, increasing taxes when it drops too low, and increasing luxuries when your cities need the morale boost.

The section on [Cities](#) will have more on the economy and its allocation.

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### 3.3 Research

When your civilization begins the game, it has knowledge of some exceedingly primitive "technologies": Pottery, Road Building, Horsemanship, and the like. Although your citizens can scarcely conceive of anything better, you (the human player) are undoubtedly aware of many more advanced technological and sociological developments. These advances would give your people advantages in controlling their environment, making weapons, influencing the neighbors, and otherwise achieving your goals.

At any point in the game, depending on what advancements your race already knows, there will be a limited number of technologies towards which you may perform research. Most advancements have two earlier advancements as prerequisites; for instance, you may not do research into Magnetism until you have developed both Iron Working and Physics. The choices available to you will include only those for which you have the prerequisites. You will use the game's Research Window to select from the available advancements the one you wish your people to work towards. This selection will be forced on you when you first start researching, or when you complete an advancement (either by research, by discovery in a Village, or by diplomatic treaty). You will most likely set long-term goals, and when one step towards the goal is completed the game will automatically start the next step.

To develop an advancement requires a certain number of research points; the number of points required depends not on the advancement itself, but on how many advancements you have already discovered. A further increase in the cost of research takes place in 1 C.E., where it doubles. Each turn, your cities produce research points, as dictated by their raw trade input, your allocation of trade into research, the presence of research-promoting buildings and Wonders, and the employment of research specialists. These points accumulate, and the game's research window will show you the number of points you need. The main game window also has a lightbulb, which grows brighter as you grow closer to completing an advancement.

Civilization advancements bring a variety of benefits. Most open up new areas of possible research, as Physics makes it possible to work towards Magnetism. Many allow you to build buildings or units that were previously unknown to you; for instance, Construction allows you to build an Aqueduct, while Magnetism allows you to build the Galleon, and Electronics allows the Hoover Dam Wonder. Some advances also make earlier ones obsolete and thus make buildings or units based on them obsolete; for instance, the discovery of Gunpowder makes the Legion obsolete (because the new Musketeers unit is better in all respects), and makes obsolete the Barracks I (because the Barracks II is available and required), and the discovery of Electricity makes the Great Library Wonder obsolete. Some allow new forms of government; some, like Bridge Building, allow units abilities they lacked before; some trigger environmental effects.

The help system in the main game window contains all of the following information on each advancement. In addition, it displays a graphical depiction of the chain of advancements necessary to achieve a goal. Using it, for example, you could quickly see what you lack to develop Gunpowder, and in what order they must be discovered.

Advancement	Prerequisites	Description
Advanced Flight	Radio, Machine Tools	Allows Bomber, Carrier.
Alphabet	None	
Amphibious Warfare	Navigation, Tactics	Allows Marines, Port Facility
Astronomy	Mysticism, Mathematics	Allows Copernicus' Observatory Wonder.

Atomic Theory	Theory of Gravity, Physics	
Automobile	Combustion, Steel	Allows Battleship, Super Highways. Obsoletes Leonardo's Workshop Wonder.
Banking	Trade, The Republic	Allows Bank.
Bridge Building	Iron Working, Construction	Permits Settlers and Engineers to build roads in River squares.
Bronze Working	None	Allows Phalanx, Colossus Wonder.
Ceremonial Burial	None	Allows Temple.
Chemistry	University, Medicine	
Chivalry	Feudalism, Horseback Riding	Allows Knights. Obsoletes Horsemen, Chariot.
Code of Laws	Alphabet	Allows Courthouse.
Combined Arms	Mobile Warfare, Advanced Flight	Allows Helicopter.
Combustion	Refining, Explosives	Allows Submarine.
Communism	Philosophy, Industrialization	Allows Police Station, United Nations Wonder. Permits use of the Communism government type. Decreases the effect of Cathedrals in your empire.
Computers	Mass Production, Miniaturization	Allows Research Lab, SETI Program Wonder.
Conscription	Democracy, Metallurgy	Allows Riflemen. Obsoletes Musketeers.
Construction	Masonry, Currency	Allows Aqueduct, Colosseum. Permits Settlers and Engineers to build Fortress.
Currency	Bronze Working	Allows Marketplace.
Democracy	Banking, Invention	Allows Statue of Liberty Wonder. Permits use of the Democracy government type.
Economics	Banking, University	Allows Stock Exchange, Adam Smith's Trading Company Wonder.
Electricity	Metallurgy, Magnetism	Allows Destroyer. Obsoletes Ironclad, Great Library Wonder. Improves Colosseum; now makes 4 unhappy citizens content.
Electronics	The Corporation, Electricity	Allows Hydro Plant, Hoover Dam Wonder.
Engineering	The Wheel, Construction	Allows King Richard's Crusade Wonder.
Espionage	Communism, Democracy	Allows Spy. Obsoletes Diplomat.
Explosives	Gunpowder, Chemistry	Allows Engineers. Obsoletes Settlers.
Feudalism	Warrior Code, Monarchy	Allows Pikemen, Sun Tzu's War Academy Wonder. Obsoletes Warriors, Phalanx.
Flight	Combustion, Theory of Gravity	Allows Fighter. Obsoletes Colossus Wonder.

Fusion Power	Nuclear Power, Superconductors	
Genetic Engineering	Medicine, The Corporation	Allows Cure For Cancer Wonder.
Guerilla Warfare	Communism, Tactics	Allows all civilizations to spawn Partisan units if they meet other conditions; see <a href="#">Partisans</a> . Obsoletes Explorer.
Gunpowder	Invention, Iron Working	Allows Musketeers, Barracks II. Obsoletes Archers, Legion, Pikemen, Barracks I.
Horseback Riding	None	Allows Horsemen.
Industrialization	Railroad, Banking	Allows Transport, Factory, Women's Suffrage Wonder. Obsoletes Galleon, King Richard's Crusade Wonder.
Invention	Engineering, Literacy	Allows Leonardo's Workshop Wonder.
Iron Working	Bronze Working, Warrior Code	Allows Legion.
Labor Union	Mass Production, Guerilla Warfare	Allows Mechanized Infantry.
Laser	Mass Production, Nuclear Power	Allows SDI Defense.
Leadership	Chivalry, Gunpowder	Allows Dragoons. Obsoletes Knights.
Literacy	Writing, Code of Laws	Allows Great Library Wonder.
Machine Tools	Steel, Tactics	Allows Artillery. Obsoletes Cannon.
Magnetism	Iron Working, Physics	Allows Galleon, Frigate. Obsoletes Caravel, Lighthouse Wonder.
Map Making	Alphabet	Allows Trireme, Lighthouse Wonder.
Masonry	None	Allows City Walls, Palace (if you need to rebuild one), Great Wall Wonder, Pyramids Wonder.
Mass Production	Automobile, The Corporation	Allows Mass Transit
Mathematics	Alphabet, Masonry	Allows Catapult
Medicine	Philosophy, Trade	Allows Shakespeare's Theatre Wonder
Metallurgy	Gunpowder, University	Allows Cannon, Coastal Defense. Obsoletes Catapult, Great Wall Wonder.
Miniaturization	Machine Tools, Electronics	Allows Offshore Platform.
Mobile Warfare	Automobile, Tactics	Allows Armor, Barracks III. Obsoletes Cavalry, Barracks II, Sun Tzu's War Academy Wonder.
Monarchy	Ceremonial Burial, Code of Laws	Permits use of the Monarchy government type.
Monotheism	Philosophy, Polytheism	Allows Cathedral, Michaelangelo's Chapel Wonder.
Mysticism	Ceremonial Burial	Allows Oracle Wonder. Doubles effectiveness of Temple, to make a total of two unhappy citizens content.
Navigation	Seafaring, Astronomy	Allows Caravel, Magellan's Expedition wonder. Obsoletes Trireme.

Nuclear Fission	Mass Production, Atomic Theory	Allows Manhattan Project Wonder.
Nuclear Power	Nuclear Fission, Electronics	Allows Nuclear Plant. Gives all of your sea units an extra movement point.
Philosophy	Mysticism, Literacy	First player to discover Philosophy gets an extra advancement.
Physics	Literacy, Navigation	
Plastics	Refining, Space Flight	Allows Space Component.
Polytheism	Horseback Riding, Ceremonial Burial	
Pottery	None	Allows Granary, Hanging Gardens Wonder.
Radio	Flight, Electricity	Allows Airport.
Railroad	Steam Engine, Bridge Building	Allows Darwin's Voyage Wonder. Obsoletes Hanging Gardens Wonder. Permits Settlers and Engineers to upgrade roads to railroads.
Recycling	Mass Production, Democracy	Allows Recycling Center
Refining	Chemistry, The Corporation	Allows Power Plant.
Refrigeration	Sanitation, Electricity	Allows Supermarket.
Robotics	Mobile Warfare, Computers	Allows Howitzer, Manufacturing Plant. Obsoletes Artillery.
Rocketry	Advanced Flight, Electronics	Allows Aegis Cruiser, Cruise Missile, Nuclear, SAM Battery. Obsoletes Cruiser.
Sanitation	Engineering, Medicine	Allows Sewer System.
Seafaring	Pottery, Map Making	Allows Explorer, Harbour.
Space Flight	Computers, Rocketry	Allows Space Structural, Apollo Program Wonder.
Stealth	Superconductors, Robotics	Allows Stealth Fighter, Stealth Bomber. Obsoletes Fighter, Bomber.
Steam Engine	Physics, Invention	Allows Ironclad. Obsoletes Frigate.
Steel	Electricity, Industrialization	Allows Cruiser.
Superconductors	Nuclear Power, Laser	Allows Space Module.
Tactics	Conscription, Leadership	Allows Alpine Troops, Cavalry. Obsoletes Dragoons.
The Corporation	Economics, Industrialization	Allows Freight, Capitalization. Obsoletes Caravan.
The Republic	Code of Laws, Literacy	Permits use of the Republic government type.
The Wheel	Horseback Riding	Allows Chariot.
Theology	Feudalism, Monotheism	Allows J. S. Bach's Cathedral Wonder. Obsoletes Oracle Wonder. Improves Cathedrals to make one more unhappy citizen content.
Theory of Gravity	Astronomy, University	Allows Isaac Newton's College Wonder.
Trade	Currency, Code of Laws	Allows Caravan.

University	Mathematics, Philosophy	Allows University.
Warrior Code	None	Allows Archers.
Writing	Alphabet	Allows Diplomat, Library.

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## 3.4 Government Types

Your civilization is always operating under one of the available forms of government. The form which you adopt influences the productivity and trade of your cities, their morale, and other game factors.

Your civilization starts the game under Despotism. As you research advances, you can select other forms of government that become available. To change government, you start a revolution; this will cause your nation to suffer a period of Anarchy lasting up to five turns. At the end of the period of Anarchy, you will be asked to select your new government.

One result of governmental type is the level of corruption. Corruption is the loss of trade points due to inefficiency and greed. Under most forms of government, the farther away a city is from your capital (where your Palace is), the larger a proportion of that city's trade will be lost to corruption. A Courthouse will reduce the level of corruption in a city.

In general, offensive military campaigns are difficult under Republican and Democratic governments unless you give your citizens lots of luxuries to keep them happy. You may find it useful to convert to one of the more militant forms of government for the time needed to conquer a neighbor.

Scientific achievement requires a high level of trade, which are much easier to achieve under Republican and Democratic governments. Consider switching to a Republic as soon as you can; gaining advanced technology early in the game puts you at an advantage.

### 3.4.1 Civil War

Civil War is devastating to any empire, and can be triggered by the loss of your capital city (whichever city contains your Palace). If you have treated your people with kindness, you are more likely to retain their loyalty. Each city that is celebrating reduces the chance of civil war, while each revolting city increases it. If civil war take place, up to half of your cities will rebel and declare allegiance to a new AI player. The new player will take half of your treasury and all of your advancements, as well as whatever buildings and Wonders are present in the seceding cities.

During a Civil War, none of the taxes/luxury/science rates may be set higher than 60%.

Civilizations remain in the Civil War state for just one turn, after which they enter Anarchy. Small civilizations which have fewer than 10 cities (by default) are immune from Civil war; they fall into Anarchy directly.

### 3.4.2 Anarchy

Anarchy is the absence of any recognizable government. Citizens are disorganized and unproductive, and will spend all of their income as quickly as possible, rather than paying taxes or conducting research.

Anarchy offers slightly less corruption than Despotism, but slightly more unhappiness. Any of the taxes/luxury/science rates may be set to 100%, but this is of no real effect because no taxes are actually collected or science research actually performed.

Settlers consume one food point per turn. Squares which, according to the terrain and improvements, should

yield more than two units of food, production, or trade, suffer a one-point penalty.

Under Anarchy, each of your cities can support a number of military units (throughout this section on government types, "military" means all units except Settlers, Engineers, Diplomat, Spy, Caravan, Freight, and Explorer) equal to the size of the city, without paying production points for maintenance. Additional units require one production point per turn.

You may impose martial law under Anarchy; each military unit inside a city at the update will keep one unhappy citizen content (or, at least, will make the citizen act content, and not cause disorder).

### **3.4.3 Despotism**

Your initial government in the game, Despotism is the rule of an absolute dictator. Your control over your cities is maintained largely by martial law.

Despotism suffers the highest level of corruption of all forms of government. None of the taxes/luxury/science rates may be set higher than 60%

Settlers and Engineers consume one food point per turn. Squares which, according to the terrain and improvements, should yield more than 2 units of food, production, or trade, suffer a one-point penalty.

Under Despotism, each of your cities can support a number of military units equal to the size of the city, without paying production points for maintenance. Additional units require one production point per turn.

You may impose martial law under Despotism; each military unit inside a city at the update will keep one unhappy citizen content.

### **3.4.4 Monarchy**

A Monarchy is a constitutionally-limited hereditary rule, where you are the sole ruler but subject to some approval of the aristocracy, and having need of the support of the propertied class.

Monarchy suffers the same small amount of corruption that the Republic does. None of the taxes/luxury/science rates may be set higher than 70%.

Settlers and Engineers consume one food point per turn.

Under Monarchy, each of your cities can support up to 3 military units, regardless of the size of the city, without paying production points for maintenance. Additional units require one production point per turn.

You may impose limited martial law under Monarchy; each military unit in a city, up to a maximum of 3, will keep one unhappy citizen content.

### **3.4.5 Communism**

A Communist government is based on the idea that all people are equal. All means of production are owned by the state, rather than by private citizens. Communism gives a balance between military and commercial styles of government.

Communism has a modest amount of corruption, which does not vary by distance from the capital; even the capital suffers some corruption. None of the taxes/luxury/science rates may be set higher than 80%. Cities more than 10 squares away from the capital are considered to be only 10 squares away when computing the

cost of inciting a revolt (see [Entice City Rebellion](#)).

Settlers and Engineers consume 2 food per turn. Diplomats and Spies created under Communism are always Veterans.

Under Communism, your cities can support up to 3 military units without paying production points for maintenance. Additional units require one production point each.

You may impose limited but efficient martial law under Communism; each military unit in a city, up to a maximum of 3, will keep two unhappy citizens content.

### 3.4.6 Republic

In a Republic, citizens hold an election to select a representative who will govern them; since elected leaders must remain popular to remain in control, citizens experience a greater degree of freedom, and work more productively. Citizens under a Republic become unhappy easily, but the productivity of your citizens allows a high level of trade.

Cities under the Republic suffer a small amount of corruption. None of the taxes/luxury/science rates may be set higher than 80%.

Settlers and Engineers consume 2 food per turn. Squares with at least one trade point deserved by terrain and improvements get a bonus of one additional trade point.

Under the Republic, military units require one production point each for maintenance. In addition, the following units are considered "aggressive" units:

- Units with an attack strength greater than zero which are not either inside a city, or inside a Fortress within 3 squares of any friendly city; or
- Air units (including missiles and helicopters), and sea units with an attack strength greater than zero, regardless of their location.

The citizens of a city will tolerate one aggressive unit considering their city its home; additional such units will generate one unhappy citizen each.

### 3.4.7 Democracy

Under Democracy, citizens govern either directly by voting on issues, or indirectly by electing local representatives to vote on issues. Democracy offers the highest possible level of trade, but also has the most potential for citizen unhappiness. There is no corruption during Democracy, but citizens become very upset during wars.

Under a Democracy, there is no limit on taxes/luxury/science rates. Settlers and Engineers consume two food per turn. Squares with at least one trade point deserved by terrain and improvements get a bonus of one additional trade point.

Military units require one production point each for maintenance. In addition, the following "aggressive" units generate unhappiness:

- Units with an attack strength greater than zero which are not inside a friendly city, or inside a Fortress within 3 squares of a friendly city, generate two unhappy citizens in their home city; or
- Air or sea units with an attack strength greater than zero which are inside a city or a Fortress generate

only one unhappy citizen in their home city.

If a city remains in disorder (see [Population](#)) for more than two turns under Democratic rule, the citizens of the nation will spontaneously revolt and plunge the civilization into Anarchy.

Because citizens of a Democracy believe strongly in the government, their loyalty is unswerving. Military units of Democratic civilizations cannot be bribed (see [Bribe Enemy Unit](#)), and their cities cannot be inclined to revolt by enemy Diplomats and Spies.

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## 4.0 Cities

The cities of your race are key to your civilization. Indeed, the very root of our English word "civilization" is the Latin word for "city." Your cities are where your citizens ("city people") live, work, produce, trade, and support your nation. Cities contain buildings which improve the city's productivity and morale, and produce mobile units to project your influence across the globe.

### 4.1 Population

The size of a city is measured in units called citizens. A city's size is visible as a number of the main map, and as a series of citizen icons in the city window. When you create a city with a Settler or Engineer, or discover one from a Village, it consists of one citizen. As the city grows (that is, as the number of citizens increases), more of the land around the city can be worked, and more special talents may be employed.

Each citizen requires two food units per turn to survive; in addition, Settler and Engineer units supported by the city consume food. Each turn, the city produces food from its surrounding land. Any amount of food in excess of that needed for immediate consumption is added to the city's food storage (called the "granary" in the window, whether or not the city has a Granary building). When the amount of stored food reaches the size of the food storage, a new citizen is created, and the food storage is emptied (or, if the city has a Granary, it is reduced to half full). If not enough food is produced in a turn to meet demand, the required food is removed from the food storage; if the store is empty, Settlers, Engineers, or at last resort a citizen are eliminated by starvation.

The citizens of a city may be either workers or specialists. Workers work the land around the city, producing food, production, and trade, as described in [Working the Land and the Ocean](#). Specialists are citizens who are in the city but not working the land. You designate citizens as specialists by moving them off of the map window (see next section); you assign them into one of three specializations:

- Entertainers improve the morale of your city. One entertainer adds two luxury points to the city; for the utility of luxury points, see below.
- Taxmen improve the gold tax production of your city. One taxman adds three tax points to the city's output. Taxmen may only be created in cities of at least size five.
- Scientists improve the research output of your city. One scientist adds three research points to the city's output. Scientists may only be created in cities of at least size 5.

Each worker citizen is in one of three states of morale: happy, content, and unhappy; the citizen icons in the city window are different for each state. If, at the time of the turn update, the number of unhappy citizens in a city exceeds the number of happy citizens, the city falls into disorder. Cities in disorder produce neither production points nor trade, and are more likely to revolt if prompted by enemy Diplomats and Spies. Prolonged disorder under Democracy can lead to a national revolution; see [Democracy](#).

If the number of happy citizens is at least as great as the number of content citizens, and there are no unhappy citizens, and the city is of at least size 5, the city achieves "rapture." Under the Republic or Democracy, a raptured city increases its population by one each turn as long as there is sufficient food and the criteria for rapture continue.

The normal state of a citizen is contentment. However, as your cities grow larger, crowding causes citizens to become unhappy. By default, each citizen in a city beyond the fourth will be generated unhappy instead of

content. If you have a large number of cities (depending on your government), the limit on content citizens is reduced to 3. Under certain forms of government, the presence of military units in a city can either create unhappiness or contentment (see [Government Types](#)).

In order to offset unhappiness, you may build buildings (Temple, Colosseum, Cathedral), Wonders of the World (Michaelangelo's Chapel), more make entertainers, or produce more luxuries by setting your national luxury rate. For every 2 points of luxuries produced in a city, one content citizen there is made happy, or (if there are no content citizens) one unhappy citizen is made content.

Large cities, especially in the age of the internal combustion engine, produce pollution. Every turn the pollution of each city is evaluated. There are two sorts of pollution, industrial and population. Industrial pollution is measured by the production points generated by the city, including all improvements such as Factory, possibly reduced by a Recycling Center, Hydro Plant, etc. Population is measured by the city size, scaled up in the presence of Industrialization, Automobile, Mass Production, or Plastics, or eliminated by a Mass Transit system. If the sum of these two types of pollution exceeds 20, that excess is the percentage chance of pollution appearing in a square in the area of a city. This pollution percentage is shown in the city window.

If a city square becomes polluted, it is marked with a special symbol. Polluted squares yield half the food, production points, and trade points. This will continue to be in effect until the pollution is cleaned up by a Settler or Engineer. Further, every turn in which there are polluted squares anywhere in the world increases the chance of global warming.

Global warming is a catastrophic event that models a sudden increase in the size of the oceans as polar icecaps melt. Some number of randomly selected land squares are changed: Coastal Forests become Jungles, coastal Deserts, Plains, and Grasslands become Swamps. Inland Plains, Grassland, and Forest squares become Deserts. An onset of global warming "resets the count" of global pollution, so future pollution contributes to another possible wave of global warming.

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## 4.2 Working the Land and the Ocean

A city's area of influence measures 21 squares, a large square of five by five squares centered on the city, excluding the corner squares. The city may work no squares beyond those. However, a single square may be worked by only one city; in the city window's map, squares being worked by other cities (or your nation or another), or occupied by enemy units, are marked in red, and you may not place workers there. You work squares by allocating citizens to them.

The square in the center, where your city resides, is automatically worked to produce food, production points, and trade, without the allocation of citizens to work it. A city's center is considered irrigated for this purpose but not mined; further irrigation may not be extended from it. A city does have roads (and railroads, when you have such knowledge) automatically. A city always yields at least one production point, even if the terrain does not allow it.

The Freeciv server has algorithms that determine an optimal utilization of the squares around a city; those algorithms are used by the AI players. Newly created citizens are automatically assigned to squares by those algorithms, which generally favor maximum food production. You may have other criteria for your city, and may wish to reassign workers to other tasks. For instance, you may be aware that the city will have morale problems if it grows too quickly, and may wish to move workers from growing food to extracting ore.

You use the city's map window to move workers off the land, which makes them entertainers (the initial, default specialist type). Clicking on a map square places a citizen at work there, and updates the map to show what yield is expected in food, production, and trade points. You may have to try a number of different squares to decide on the best placement of your citizens.

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## 4.3 Production

Each city can be producing one thing at a time, either a building, a Wonder of the World, a spaceship element, or a unit. Each turn the city brings in production points from plains, mines, forests, and other map resources, possibly multiplied by buildings in the city and Wonders elsewhere in your empire. Some of those production points may be automatically expended by units for which the city is home; see [Government Types](#). Any production points remaining are devoted to building the city's current project.

Later sections of this manual will describe the buildings, units, spaceship elements, and Wonders which a city may produce. Your ability to produce each depends on your technology level and the location of your city (e.g., only coastal cities may produce sea units). Each thing you may produce has a cost, given in production points, which must be paid to complete it. The city window will have a box with as many slots as there are production points required; production points already spent on the project are marked so that you can see the progress.

When a city is created, it is automatically set to produce the best defensive military unit available to your civilization. You may change any city's production at any time, regardless of the state of progress of the current project. However you will lose half of what was already invested in a project if you switch from a unit to a building or a Wonder, or from a building or a Wonder to a unit.

It is possible to spend gold from taxes to speed the completion of something being produced. To "Buy" something causes the required number of production points to be filled in completely, at the expense of a certain number of gold coins from the national treasury; the building, unit, or Wonder is then completed at the next update. The cost to buy early completion of a unit is substantially more gold coins than the production points remaining, and doubled if no production has yet been invested on the unit; a city in disorder (see [Population](#)) cannot buy a unit. The cost for a building or Wonder is twice the production points remaining, doubled if no work has yet been done, doubled again for a Wonder. Once you have bought the completion of something, you may not change the city's production for that turn.

When a unit has been completed, it simply becomes visible on the map and available for commands, and the city automatically begins building another unit of the same type. If the new unit is a Settler or Engineer unit, the city also loses one population point. When the construction of a building or Wonder is complete, the game picks a different building, unit, or Wonder for the city to start working on; you must pay attention to the message announcing the building completion and decide if you like what the game chose for you.

If the amount of production it took to do the last bit of work on a project left some work left over, it is not lost. The manhours and resources left to spend are immediately put into the new project.

If a city is producing a unit which becomes obsolete before it is finished (e.g., a city is producing a Legion when you discover Gunpowder), the game automatically changes the city's production order to the corresponding appropriate unit (in this case, Musketeers).

Cities can also upgrade obsolete units, either individual units or an entire unit type. The unit must be in the city, and must be of a type that is obsolete (e.g., Legions in an era of Musketeers). For an immediate cost in gold, the unit is upgraded into the new type.

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## 4.4 Buildings

Buildings are significant permanent structures in the area of a city. Once built, the city immediately benefits from it. Buildings may be sold whenever the owner wishes (but only one building per city may be sold per turn); an amount of gold equal to the building's production point cost is added to the nation's treasury. Most buildings require a maintenance payment every turn, paid from gold taxes. If a civilization is unable to pay the maintenance cost of a building during the update, the building is automatically sold and the proceeds placed in the treasury. When you capture a city from another civilization (or similarly when you lose one), for each building in the city there is a 20% chance that it will be razed by battle; there is also a chance that the winning civilization will gain an advancement from the loser.

Most buildings (and Wonders) multiply production in some way; for instance, a Library increases the research produced by a city by 50%. In all of these cases, the multiplication is based on the raw productivity of the city due to its terrain and due to its specialists.

This table shows the buildings which may be built in a city. For each is given the required advancement, the build cost in production points, the maintenance cost in gold coins, and the building's effect. For some, there is a "variant" effect, activated if the variant field for the building is set in the ruleset file.

Airport	Radio	160	3	Air units produced in the city are automatically veteran. Damaged air units spending a full turn in the city are completely restored. Two cities with Airports can airlift one land unit between them per turn; airlifting transports the unit, using all of the unit's remaining movement points (it must have one point left).
Aqueduct	Construction	80	2	Allows a city to grow beyond size 8 (although a Sewer System will be needed to pass size 12).
Bank	Banking	120	3	Requires a Marketplace; a Marketplace and a Bank together double the tax and luxury production of a city.
Barracks	None	40	1	All forms of the Barracks cause newly created land units to be veterans, and damaged land units spending an entire turn in the city are completely restored. The first two forms of Barracks are obsoleted by the advancement that permits the next form. The variant form of Barracks gives these benefits to all units, not just land units.
Barracks II	Gunpowder	40	1	See Barracks.
Barracks III	Mobile Warfare	40	1	See Barracks.
Capitalization	The Corporation	*	0	Capitalization is not so much as a building, but a concept. When a city is ordered to produce Capitalization, every turn its net production points are convert into taxes and added to the national treasury. Capitalization is never complete, but may be stopped at any time.
Cathedral	Monotheism	120	3	Makes 3 unhappy citizens content. With the Theology advancement, makes one additional unhappy citizen content; with knowledge of Communism, makes one fewer unhappy citizens content.

City Walls	Masonry	80	0	City Walls make it easier to defend a city. They triple the defense strength of units against ground and helicopter units (other than Howitzer). They also prevent the loss of citizen when a defending unit is destroyed. The variant form of City Walls has the same defensive effect against sea units.
Coastal Defense	Metallurgy	80	1	Only allowed in coastal cities. Increases defense strength of units within the city by 200% when attacked by sea units.
Colosseum	Construction	100	4	Represents entertainment facilities of many kinds, making three unhappy citizens content. The Electricity advancement increases this to four.
Courthouse	Code of Laws	80	1	Reduces the corruption in a city by 50%. Halves the distance to the capital for the purpose of calculation the cost to an enemy of instigating a revolt. Under Democracy, also makes one unhappy citizen content.
Factory	Industrialization	200	4	Increases production points generated by a city by 50% (which will contribute substantially to pollution).
Granary	Pottery	60	1	When a city with a Granary adds a population point, the food storage is reduced to half full instead of being emptied. When a city with a Granary loses a population point due to famine, the food storage is refilled to half full.
Harbour	Seafaring	60	1	Only allowed in coastal cities. Causes all Ocean squares to produce one more food.
Hydro Plant	Electronics	240	4	Increases the production points of a Factory or Manufacturing Plant in the city. A Factory and a Hydro Plant together give a 75% production bonus, and all three together give a 150% bonus. Also cuts the amount of industrial pollution generated by the city in half, if the city lacks a Recycling Center. A city can only build a Hydro Plant if it is next to or on a Mountain or River square. A city can only have one of the electrical plants (Hydro Plant, Power Plant, Nuclear Plant).
Library	Writing	80	1	Increases the research production of a city by 50%.
Manufacturing Plant	Robotics	320	6	Requires a Factory; a Factory and a Manufacturing Plant together double the production points generated by a city (which will contribute greatly to pollution).
Marketplace	Currency	80	1	Increases the tax and luxury production of a city by 50%.
Mass Transit	Mass Production	160	4	Eliminates the population pollution of a city.
Nuclear Plant	Nuclear Power	160	2	Identical in effects to Hydro Plant, but without the limitation of being built near a Mountain or River square.
Offshore Platform	Miniaturization	160	3	Only allowed in coastal cities. Adds one production point to all Ocean squares.
Palace	Masonry	100	0	Makes the city your capital city and the center of your government. Corruption in your cities is usually related to their distance from your Palace. Loss of your capital results in Civil War.
Police Station	Communism	60	2	Reduces the unhappiness caused by military units outside the city by two (for Democracy) or one (for Republic). This building has no

				effect under other governments.
Port Facility	Amphibious Warfare	80	3	Sea units produced in the city are automatically veteran. Damaged sea units spending a full turn in the city are completely restored.
Power Plant	Refining	160	4	Identical in effects to Nuclear Plant, but without the reduction in industrial pollution.
Recycling Center	Recycling	200	2	Reduces the industrial pollution of a city to one-third.
Research Lab	Computers	160	3	Requires a Library and a University; with them, research production of a city is increased by 150%.
SAM Battery	Rocketry	100	2	Doubles the defense of all units inside a city when attacked by non-nuclear air units and helicopters.
SDI Defense	Laser	200	4	Protects a city and its environs (the 5x5 square area centered on a city) from attack by Nuclear missile; such an attack results only in the destruction of the missile. Doubles defense of units in the city against attack by Cruise Missiles.
Sewer System	Sanitation	120	2	Allows a city to grow beyond size 12.
Stock Exchange	Economics	160	4	Requires a Marketplace and a Bank; with them, boosts tax and luxury production of a city by 150%.
Super Highways	Automobile	160	3	Increases trade points of all squares with roads or railroads by 50%.
Supermarket	Refrigeration	120	3	Increases the food production of all irrigated squares by an additional 50%.
Temple	Ceremonial Burial	40	1	Makes one unhappy citizen content. Both Mysticism and the Oracle Wonder double this effect; with both, it makes four citizens content.
University	University	160	3	Requires a Library; with the Library, increases research production by 100%.

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## 4.5 Wonders of the World

The Wonders of the World are unique, extraordinary achievements, which bring continued rewards to the possessors. Some are structures (the Pyramids) and some are abstractions (Women's Suffrage), but all are modeled in the game as "buildings" that are erected in a particular city.

A Wonder is "constructed" like any other city production, at a cost in production points. There is no limit on the number of cities in the world (indeed, in your own civilization) that may be working on the same Wonder, but only one city will complete it, based on when its production finishes in the turn update. All cities other than the one to complete it will be forced to redirect their production to other projects.

While a Wonder is being constructed in a city, Caravan and Freight units have a new ability. When such a unit enters a city where a Wonder is under construction, the unit is able to add its production cost (50 production points) to the Wonder, at the expense of the unit. It is a common strategy to have cities build such units, to stockpile them until an advancement is discovered allowing a certain Wonder, and then building the Wonder in as little as one turn by consuming the Caravans.

Almost all Wonders give benefits only to the civilization that possesses them (exceptions: Manhattan Project, Apollo project). Some Wonders aid just the city in which they stand; others influence the entire empire.

When a city containing a Wonder is captured by a rival civilization, the Wonder becomes the property of the new owners of the city, and they immediately benefit from it. Those benefits accrue to the new owner even if that civilization lacks the required advance to build it.

Wonders of the World can become obsolete, in much the same manner as buildings and units. However, unlike units, they cannot be upgraded. Once the technology that obsoletes a Wonder is discovered by any race, the Wonder ceases to exert its beneficial effect, though it does add three gold to the national treasury per turn. Wonders may not be sold. They do contribute to the empire's score at the end of the game.

This table shows the Wonders of the World, the civilization advancement required to build each, the production cost, and the effect. For some, there is a "variant" effect, activated if the variant field for the Wonder is set in the ruleset file.

Adam Smith's Trading Co	Economics	400	For the entire empire, city buildings which would normally have an upkeep of one gold are free.
Apollo Program	Space Flight	600	All cities in the world become visible to the Wonder's owner, in every turn. Permits construction of spaceship elements for all nations with the required technology.
Colossus	Bronze Working	200	Each square within the area of influence of the city in which this Wonder is built produces one extra trade point. Made obsolete by Flight.
Copernicus' Observatory	Astronomy	300	Boosts research production in its city by 50%. No other education buildings are required for this benefit.
Cure For Cancer	Genetic Engineering	600	Makes one unhappy citizen content in all the cities of the owning empire.
Darwin's Voyage	Railroad	300	Gives the builder two immediate free advances.

Great Library	Literacy	200	The civilization owning this Wonder automatically receives every advancement that at least two other civilizations have discovered. Made obsolete by Electricity.
Great Wall	Masonry	300	Serves as a City Wall in each of the owning empire's cities. Made obsolete by Metallurgy.
Hanging Gardens	Pottery	200	Makes one unhappy citizen happy in every city of the empire; in the city with the Wonder, makes a total of three unhappy citizens happy. Made obsolete by Railroad.
Hoover Dam	Electronics	600	Can only be built in a city on or next to a Mountain of River square. Benefits the owning empire as if every city in the empire had a Hydro Plant. The variant form of Hoover Dam only has effect across the continent in which it is built.
Isaac Newton's College	Theory of Gravity	400	Boosts research production in the city of the Wonder by 100%. Does not require any other educational buildings for this benefit.
J.S. Bach's Cathedral	Theology	400	Makes two unhappy citizens content in every city of the owning empire. The variant form only has effect across the continent in which it is built.
King Richard's Crusade	Engineering	300	Adds one production point to every square in the area of influence of the city containing the Wonder. Made obsolete by Industrialization.
Leonardo's Workshop	Invention	400	Every turn that this Wonder exists, and the owning nation has at least one obsolete unit, the Wonder will upgrade one unit for free. Made obsolete by Automobile.
Lighthouse	Map Making	200	Gives all sea units of the empire one additional movement point, and eliminates the risk of that empire losing Triremes at sea. All sea units built in the city of the Wonder are automatically veterans. Made obsolete by Magnetism.
Magellan's Expedition	Navigation	400	Gives all of the owner's sea units two additional movement points.
Manhattan Project	Nuclear Fission	600	Allows all players in the game with knowledge of Rocketry to build Nuclear.
Michaelangelo's Chapel	Monotheism	400	Every city in the empire acts as if it had a Cathedral, with the same adjustments due to Theology and Communism.
Oracle	Mysticism	300	Doubles the effect of Temples in all cities of the empire. Made obsolete by Theology.
Pyramids	Masonry	200	Every city in the empire acts as if it had a Granary. The variant form of Pyramids allows you to choose any government type without the transition period of Anarchy.
SETI Program	Computers	600	Every city in the empire acts as if it had a Research Lab (if it has a Library, but performs its function even if there is no University).
Shakespeare's Theatre	Medicine	300	Makes all unhappy citizens content in the city of the Wonder.
Statue of Liberty	Democracy	400	Allows the owning civilization to change to any government type, even if the advancement for that type has not been learned, and also changes the government type without the transition period of Anarchy.

Sun Tzu's War Academy	Feudalism	300	Every city in the empire acts as if it had a Barracks (I, II, or III). Every land unit of the nation that survives a combat becomes a veteran. Made obsolete by Mobile Warfare.
United Nations	Communism	600	Units of the owning empire regain one more hit point per turn than otherwise. The variant form allows you to choose any government type without the transition period of Anarchy.
Women's Suffrage	Industrialization	600	Every city in the owning nation acts as if it had a Police Station. The variant form of Women's Suffrage reduces by one the unhappiness effect of every military unit (not just one unit per city). This means that in a Republic, units do not cause unhappiness, and in a Democracy, aggressive units cause only one unhappy citizen each.

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## 4.6 Other City Issues

### 4.6.1 Trade Routes

Cities can have trade routes between them. Every turn that a trade route exists between two cities, each city receives a number of trade points based on the current trade of each city; if you make a trade route to another civilization's city, both of your civilizations get increased trade. A trade route is established by Caravan or Freight units. A city produces such units as it does any unit. After production, the player moves the unit to another city, of the same nation or another. The best returns come from trade routes to distant cities, on other continents if possible, in other civilizations if possible. When such a unit enters another city (at least eight squares from its home), the player is asked if a trade route should be established. If so, the unit is destroyed, and a trade route now exists. The owning player gets an immediate bonus in the creation of the trade route.

### 4.6.2 Partisans

If a city of yours is captured by another civilization, there is a chance that it will spawn Partisans who are owned by you, if all of the following are true:

- You are the original founder of the city.
- Guerilla Warfare has been discovered by any civilization.
- You know both Communism and Gunpowder.
- You presently have either a Communist or Democratic government.

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## 5.0 Unit Types



















This table summarizes the units which may be created in Freeciv. For each it gives:


- the graphic
- the name
- required advancement
- what unit the unit is obsoleted by
- the unit's cost in production points
- movement points
- attack strength
- defense strength
- hit points
- firepower
- transport capacity (for sea units)
- notes

Once again, this information is a duplicate of that which is contained in the game's built-in help information.








These are the land units. The ones best for defending your cities are those along the path from Warriors through Riflemen, and those best for attack are those with multiple movement points, from Horsemen through Armor, perhaps aided by Catapult through Howitzer.

Graphic	Name	Advancement	Obsoleted by	Cost	Move	Atk	Def	Hit	Fire	
	Settlers	None	Engineers	40	1	0	1	20	1	
	Engineers	Explosives		40	2	0	2	20	1	
	Explorer	Seafaring	Partisan	30	1	0	1	10	1	Ignore terrain, ZOC
	Warriors	None	Pikemen	10	1	1	1	10	1	
	Phalanx	Bronze Working	Pikemen	20	1	1	2	10	1	
	Archers	Warrior Code	Musketeers	30	1	3	2	10	1	
	Legion	Iron Working	Musketeers	40	1	4	2	10	1	
	Pikemen	Feudalism	Musketeers	20	1	1	2	10	1	Defense doubled against horses







	Musketeers	Gunpowder	Riflemen	30	1	3	3	20	1	
	Partisan	Guerilla Warfare		50	1	4	4	20	1	Ignore terrain, ZOC
	Alpine Troops	Tactics		50	1	5	5	20	1	Ignore terrain
	Riflemen	Conscription		40	1	5	4	20	1	
	Marines	Amphibious Warfare		60	1	8	5	20	1	Can assault from sea
	Mech Inf	Labor Union		50	3	6	6	30	1	
	Horsemen	Horseback Riding	Knights	20	2	2	1	10	1	
	Chariot	The Wheel	Knights	30	2	3	1	10	1	
	Knights	Chivalry	Dragoons	40	2	4	2	10	1	
	Dragoons	Leadership	Cavalry	50	2	5	2	20	1	
	Cavalry	Tactics	Armor	60	2	8	3	20	1	Not "horses" to Pikemen
	Armor	Mobile Warfare		80	3	10	5	30	1	
	Catapult	Mathematics	Cannon	40	1	6	1	10	1	
	Cannon	Metallurgy	Artillery	40	1	8	1	20	1	
	Artillery	Machine Tools	Howitzer	50	1	10	1	20	2	
	Howitzer	Robotics		70	2	12	2	30	2	Ignore City Walls
	Diplomat	Writing	Spy	30	2	0	0	10	1	Ignore ZOC
	Spy	Espionage		30	3	0	0	10	1	Ignore ZOC
	Caravan	Trade	Freight	50	1	0	1	10	1	







	Freight	The Corporation		50	2	0	1	10	1	
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Air units has varying needs for fuel; Fighters must land at a city or Carrier at the end of every turn; Bombers must land at a city or Carrier at the end of every other turn; Cruise Missile and Nuclear must land at a city, Carrier, or Submarine at the end of every turn.

Graphic	Name	Advancement	Obsoleted by	Cost	Move	Atk	Def	Hit	Fire	
	Fighter	Flight	Stealth Fighter	60	10	4	3	20	2	
	Bomber	Advanced Flight	Stealth Bomber	120	8	12	1	20	2	
	Helicopter	Combined Arms		100	6	10	3	20	2	
	Stealth Fighter	Stealth		80	14	8	4	20	2	
	Stealth Bomber	Stealth		160	12	14	5	20	2	
	Cruise Missile	Rocketry		60	12	18	0	10	3	
	Nuclear	Rocketry		160	16	99	0	10	1	Manhattan Project must exist.

Sea units.

Graphic	Name	Advancement	Obsoleted by	Cost	Move	Atk	Def	Hit	Fire	Cap	
	Trireme	Map Making	Caravel	40	3	1	1	10	1	2	50% chance of being lost away from shore
	Caravel	Navigation	Galleon	40	3	2	1	10	1	3	
	Galleon	Magnetism	Transport	40	4	0	2	20	1	4	
	Transport	Industrialization		50	5	0	3	30	1	8	
	Frigate	Magnetism	Ironclad	50	4	4	2	20	1	2	
	Ironclad	Steam Engine	Destroyer	60	4	4	4	30	1	0	

	Destroyer	electricity		60	6	4	4	30	1	0	
	Cruiser	Steel	Aegis Cruiser	80	5	6	6	30	2	0	
	Aegis Cruiser	Rocketry		100	5	8	8	30	2	0	
	Battleship	Automobile		160	4	12	12	40	2	0	
	Submarine	Combustion		60	3	10	2	30	2	8	Only missiles as passengers, invisible unless adjacent
	Carrier	Advanced Flight		160	5	1	9	40	2	8	Only air units as passengers

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## 6.0 Foreign Policy

The other human players in Freeciv are playing at the same time as you are, making their moves and orders simultaneously with you. You will meet them, and see their units moving around on your map. You will naturally keep an eye on them and make sure that they don't encroach on your natural domain, but some direct communication will be necessary to make sure that they keep in their place. The AI players in the game do not do diplomacy with you or any other civilization; they are perpetually at war with everyone. Other human players, however, can be interacted with and bargained with.

The simplest form of communication is the "chat" line. The Players window will show you the names of the other players (the "ruler" names, such as Alexander or Caesar). At any time during the game you may type text into the chat line at the bottom of the main window; your line must start with the name of another ruler, followed by a colon, followed by the text of your message. Or, to send a message to everyone, just start the line with a colon. The message will appear in the recipient(s)'s main message window. Such free-form communication will enable you to present yourself and your personality to the other player, and make informal agreements.

If you have established an embassy with another civilization (see [Make Embassy](#)), each player is able to see some basic information on the other nation using the Intelligence window. The Players window will also allow you to have a formal meeting with the other player. (See the Client User's Guide for an example of the windows involved.) Through this meeting the two nations can officially agree to grant to the other various treasures: maps, civilization advances, cities, and gold. Each of you may propose lines to the treaty, and each may reject lines. Once both players agree to treaty in its entirety, the game will enforce it on all concerned, automatically transferring the assets and knowledge specified.

Be aware that transferring a city also transfers all of the units owned by the city, whether or not they are within the city at the time of the transfer.

There is no way to make treaties of a more lasting nature within the game system. Unlike in Civilization and Civilization II, you are not able to formally declare peace with each other, nor have your units ignore each other's zones of control. However, you therefore will not have the case of being forced by your Republican or Democratic governments to offer or accept peace.

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## 7.0 The Space Race

You may win the game of Freeciv by conquering all other civilizations, if you are of the domineering sort. For the peace-minded there is another option, one of winning the "space race." You can compete with your neighbors in the race to build a starship, launch it, and have it be the first to establish a colony of your loyal citizens in another star system.

Once a civilization has discovered Space Flight, it may construct the Apollo Program Wonder; like any other Wonder, other nations may compete to be the first to finish this achievement. The Apollo Program itself does not provide a very significant benefit, but the fact of its existence is required for any civilizations to begin to construct a spaceship.

A spaceship is composed of collections of three kinds of elements:

- Space Structural elements require Space Flight and 80 production points. These form the frame of your ship. All other elements need to be connected to structurals in order to function. You may build up to 32, one for each Component or Module.
- Space Component elements require Plastics and 160 production points. These provide either propulsion or fuel for the ship, and must be installed in pairs. Each propulsion/fuel pair reduces the spaceship travel time. You may build up to 8 pairs.
- Space Module elements require Superconductors and 320 production points. They are of three different types:
  - Habitation Module: provides living space for 10,000 colonists
  - Life Support Module: provides food and water for 10,000 colonists
  - Solar Panel: provides the energy needed for any two ModulesYou may build up to 4 of each kind of module.

Once you have the necessary advancements, you may produce any of the spaceship elements in any of your cities, in the same manner as any building or unit. (Once any civilization develops any of the advancements, the number of years per turn reduces, to allow other civilizations a better chance to catch up.) You may have as many of your cities producing as many elements at the same time as you wish. Once a city has completed an element, it is automatically placed in its proper place in the spaceship, with no further expense or supervision, and the city will begin work on another element of the same type.

The Spaceship window will show you the progress if you wish, as well as show you the spaceships of the other players. The window describes the physical characteristics of the spaceship, guiding you in your production of the necessary elements. The most important to you are Success Probability and Travel Time. The chance of success (assuming a complete ship, with all required elements) is based on how much energy there is per module, and how much life support there is per colonist. The travel time is derived from the mass of the elements and the amount of propulsion. Once these statistics reach a value palatable to you, launch it off.

Even after the spaceship is launched, the game has not been won. It takes time for the colony to be reached. If a serious space race is in progress, another civilization could quickly make a rival spaceship with more propulsion units, that could reach the goal earlier. In addition, while in flight the ship is considered a "building" of the civilization's capital. If the capital is captured by an enemy, the spaceship is destroyed.

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## 8.0 Differences From Civilization II (tm)

The most fundamental difference between Civilization II and Freeciv is that Freeciv was designed from the start as a multiplayer, network-based game, which has many implications with regard to the game mechanisms. For instance, while the United Nations Wonder could force AI races to have a certain foreign policy, it could not conceivably constrain real human players, with a result in a reworking of what the United Nations might do. Thus the United Nations Wonder has an entirely new result, the Marco Polo's Embassy Wonder and Eiffel Tower Wonder are removed. The Great Wall Wonder does not force other nations to offer cease-fire or peace, nor does it aid against Barbarians (which do not exist in Freeciv). There is no concept of peace between nations.

Many other features of Freeciv differ from Civilization II because Freeciv was originally developed to match Civilization, and some Civilization II features are not (yet) implemented.

To simplify implementation, the number of terrain specials was reduced. Where Civilization II has 21 specials possible for 11 terrain types, Freeciv has now 12 terrain types with exactly one special possible for each. A terrain square either has, or lacks, the special for that terrain type. Some of the specials were renamed and other adjusted for balance. A fundamental change is that rivers are no longer special features of land squares, but terrain types of their own. Unlike Civilization II, in Freeciv, once a player has seen a terrain square, that nation will always see what is in the square.

The government type Fundamentalism is not implemented, nor are Fanatics. Several balance changes have been made to other government types: A Despotism has no limit on the number of military units per city devoted to martial law, and a Communist government now has modest but invariant corruption. Settlers and Engineers have changes in the support they get from cities. Corruption in Freeciv loses only trade points, but not production points.

A different approach to nuclear energy is implemented. Nuclear Plants now have no chance of meltdown from civil unrest, making them effectively as useful as Civilization II's Solar Plant. Thus the Solar Plant is removed, and its enabling advance Environmentalism as well.

After starvation, a Granary will restock itself to half full. A Supermarket in Freeciv increases the food production of all irrigated squares; the Civilization II concept of double-irrigation does not exist. The units Elephants, Crusaders, and Paratroops are not in Freeciv. There are no Barbarians in Freeciv, and Villages will not produce them. Fighters will not defend cities from attacking air units. Units other than Marines may not move directly from sea units into undefended cities. Airbases no longer exist. The Nuclear unit requires only Rocketry, without Nuclear Fission as well. Partisans are only created for the original owner of a city. The chance of a Trireme being lost at sea is always 50%, not modified by other advances. Diplomats and Spies do not (yet) get advantages from veteran status.

Several new things have been added: The commands Auto-Explore, Auto-Settler, and Auto-Attack.

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