



Keyboard and Mouse Shortcuts  
Civics & Game modifiers  
Civilization Traits  
Civilization Characteristics  
Terrain and Resources Yields  
Resource Yield by Improvement  
Technology Advances  
Technology Flow Chart & Reference  
City Buildings  
Wonders  
Units  
Unit Promotions  
Unit Upgrade Cost Chart  
Unit Promotions Flow Chart  
Changelog

**CIV** **C4W** **BTS**

**CIV** **C4W** **BTS**

**Customize sheets for:**

Gamespeed	Normal	▼
Difficulty	Noble	▼
Worldsize	Duel	▼

\*Standard customization (Normal, Noble, Duel)

by *Michelangelo (2008)*

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Sheets compatible with versions: **CIV** 1.74  
**C4W** 2.13  
**BTS** 3.17

## Changelog

### Changelog

Version	Date	Notes
v1.0	30-nov-05	kroym creates
v1.1	22-dec-05	friskymike adds autofilter to Civ Characteristic, Buildings & Wonders, fix some hyperlinks, add Hotkeys & Combat Calculator placeholders
v1.2	22-dec-05	miclangelo's tech chart v2 included
v1.3	22-dec-05	kroym adds hotkey list
v1.31	27-dec-05	kroym makes some changes based on v1.52 patch
v1.32	29-dec-05	Michelangelo updates tech cost based on v1.52 patch
v1.4	30-dec-05	kroym integrated Michelangelo's (tech tree, v1.52 tech advance costs) & kflorian's work (Added column filters, added to aesthetics of pages)
v1.41	4-jan-06	Michelangelo adds automatic coloring for filter columns (VBA, So enable macro's at startup for full functionality)
v1.52	19-mrt-06	Michelangelo combines forum additions/suggestions + finish tech chart + cleanup
v1.6	14-apr-06	kroYM adds sorting to Wonders chart, updated changes per v1.61 patch, various "readability/aesthetic" tweaks
v1.6a	7-jun-06	Michelangelo adds gamemodifier-functionality first implemented by _alphaBeta. (Selection on Title page) & Game modifiers to Civics page (due to room available)
v1.6b	10-aug-06	Jensen adds new Warlords expansions' elements
v1.61+W	17-aug-06	Michelangelo updates tech flowchart for warlords, implemented modifier-based cost for units + upgrades(are now correct), partly update promotion chart, aesthetics
v1.61+W2.08	4-nov-06	Jensen adds changes based on Warlords v2.08 patch
	10-nov-06	Michelangelo upgrades promotion chart + combines CIV+C4W wonder sheets, fix error in upgrade cost chart, esthetics + navigation
		Michelangelo improves civilization characteristics page
v1.74+W2.13+BTS3.13	24-feb-08	Michelangelo upgrades sheets to version CIV1.74 + C4W2.13 + BTS3.13
v1.74+W2.13+BTS3.13	4-mar-08	Michelangelo fixes errors and adds "replaces unit" column on the Unique Unit page (suggestion Morpheus11)

### To Do List

## Keyboard Mouse Shortcuts

General	
P	Ping the map
Alt + D	Change player name/email
Alt + F	Satellite view
Alt + I	Remove interface
Alt + O	Change perspective
Alt + Q	Retire (give up)
Alt + W	Access Worldbuilder
Alt + S	Place signs
Ctrl + B	Toggle bare map on/off
Ctrl + C	Set all units of same type as active
Ctrl + F	Flying camera mode (enable in INI file)
Ctrl + I	Minimize interface
Ctrl + L	Load game
Ctrl + M	Turn music on/off
Ctrl + O	Options menu
Ctrl + R	Flag resources on/off
Ctrl + S	Save game
Ctrl + T	Turn grid on/off
Ctrl + Y	Turn tile yields on/off
Ctrl + Tab	Chat/Event Log
Ctrl + Left arrow	Lock camera angle 45° CW
Ctrl + Right arrow	Lock camera angle 45° CCW
Shift + D	Contact Civ popup
Shift + Enter	Force turn to end
Shift + Left Arrow	Rotate camera CW
Shift + Right Arrow	Rotate camera CCW
Shift + Tab	Chat to all
Shift + F5	Quick save (Single player only)
Shift + F8	Quick load (Single player only)
Enter	Cycle units, end turn
\	Cycle to previous unit
Esc	Exit current screen/open menu
, (comma)	Cycle to previous unit (same tile)
. (period)	Cycle to next unit (same tile)
/	Cycle through active workers
Home, End	Cycle through cities
Insert	Open nearest friendly city screen
Page Down	Zoom camera out
Page Up	Zoom camera in
Pause	Pause game – pauses turn timer
Print Screen	Take Screenshot
Tab	Chat to team
Scroll Lock	Voice chat to team
Shift + Scroll Lock	Voice chat to all
Ctrl + Scroll Lock	Voice chat in Diplomacy screen

Units	
B	Bombard
B	Build City (Settler)
C	Center on unit
E	Explore
F	Fortify
G	Go-to mode
I	Intercept
L	Load (onto ship)
S	Sentry (wake for enemy)
U	Unload (from ship)
W	Wait (move later in turn)
Alt + Click	Group all units together
Ctrl + (#)	Bind selected group or unit to number
Ctrl + Click	Group same type together
Shift + Click	Tile context menu
Shift + P	Pillage
Space	Skip turn for unit
Delete	Delete unit
Numpad 5	Center on unit
Numpad arrows	Use numpad to move units

Advisors	
F1	Domestic Advisor
F2	Financial Advisor
F3	Civics Advisor
F4	Foreign Advisor
F5	Military Advisor
F6	Technology Advisor
F7	Religion Advisor
F8	Victory Status
F9	Demographics
F10	Capital City
F11	Globe View
F12	Civilopedia
Ctrl+E	Espionage advisor

Work Boats	
F	Build fishing nets
O	Build offshore platform
Shift + W	Build whaling boats

Air Units	
B	Air bomb mode (cities/tiles)
R	Recon mode
S	Air strike mode (enemy units)
Alt + R	Rebase

City Screen	
Enter	Exit city screen
Alt + add item to build queue	Build item indefinitely
Ctrl + add item to build queue	Add to beginning of queue
Shift + add item to build queue	Add item to end of queue
Ctrl + (#)	Save a production queue. Load w/same key
Insert	Open nearest friendly city screen
Middle mouse button	Exit city screen
Numpad arrows	Cycle through cities
Click "Fwd", "Back" buttons on mouse to cycle through cities	

Mouse Shortcuts	
Alt + click on city bar	Select all player's cities
Alt + click on Civ in score display	Declare war on that Civ
Alt + right-click a tile	Move all units from same tile to selected tile
Ctrl + click on city bar	Select all cities on same continent
Ctrl + click on Civ in score display	Open trade window with that Civ
Ctrl + roll mouse wheel	Cycle units on tile
Shift + click any city bars	Select multiple cities (to change production)
Shift + right-click any city bars	Set rally point for multiple cities
Shift + click on city bars	select those cities to change queue
Shift + click any tile	Open context menu for that tile
Shift + Rt. Click city bars	Set rally point for those cities
Roll mouse wheel	Zoom in/out
Click + hold left & right mouse buttons on map to drag it	
Click, + hold right mouse button over enemy for combat odds	
Click any tile to center the map on that tile	
Click "Forward" and "Back" buttons on mouse to cycle through units on the same tile	

Worker Commands	
A	Automate
H	Build camp
I	Build farm (irrigate)
K	Build workshop
L	Build lumbermill
M	Build mine
N	Build trade network
Q	Build quarry
R	Build road/railroad
T	Build cottage
Alt + C	Remove forest/jungle
Alt + R	Road-to mode
Ctrl + F	Build fort
Shift + Ctrl + C	Improve nearest city
Shift + P	Build pasture/plantation
Shift + W	Build watermill (river), windmill (hill), winery (wine), well (oil)

Civics

Civic Type & Name

Government	Upkeep Cost	Req'd Tech	Focus	Effects/Benefits
Despotism	Low	None		None
Hereditary Rule	Low	Monarchy	Military	+1 happy face per military unit in city
Representation	Medium	Constitution	Research	+3 beakers per specialist, +2 (3 <b>C4WBTS</b> ) happy faces in Civ's 5 largest cities
Police State	High	Fascism	Military	+25% military unit production, -50% war weariness
Universal Suffrage	Medium	Democracy	Production	+1 production from towns, can spend commerce to finish production
Legal	Upkeep Cost	Req'd Tech	Focus	Effects/Benefits
Barbarism	Low	None		None
Vassalage	High	Feudalism	Military	New units start with +2 experience points, lower unit support costs
Bureaucracy	Medium (high <b>C4WBTS</b> )	Civil Service	Production	+50% commerce in capital & +50% production
Nationhood	None	Nationalism	Military	Can draft 3 units per turn, +2 happy faces per barracks +25% espionage <b>BTS</b>
Free Speech	Low	Liberalism	Culture	+2 commerce from towns, +100% culture in all cities
Labor	Upkeep Cost	Req'd Tech	Focus	Effects/Benefits
Tribalism	Low	None		None
Slavery	Low (Medium <b>BTS</b> )	Bronze Working	Production	Can sacrifice population to finish production
Serfdom	Low	Feudalism	Production	Workers build improvements 50% faster
Caste System	Medium	Code of Laws	Specialists	Unlimited Artists, Scientists, & Merchants, +1 hammer from workshop <b>BTS</b>
Emancipation	None, ( Low <b>BTS</b> )	Democracy	Commerce	+100% growth for cottages, hamlets, & villages, unhappiness penalty for Civs without Emancipation
Economy	Upkeep Cost	Req'd Tech	Focus	Effects/Benefits
Decentralization	Low	None		None
Mercantilism	Medium	Banking	Specialists	+1 free specialist per city, no foreign trade routes, foreign corporations have no effect <b>BTS</b>
Free Market	Medium	Economics	Trade	+1 trade routes per city, -25% maintenance cost from Corporations <b>BTS</b>
State Property	Low	Communism	Commerce & Food	No distance maintenance , +1 food from workshops & watermills, Corporations have no effect <b>BTS</b>
Environmentalism	Medium	Medicine	Heath & Happiness	+6 health in all cities, +1 happy face from jungles & forests, +25% maintenance for Corporations <b>BTS</b>
Religion	Upkeep Cost	Req'd Tech	Focus	Effects/Benefits
Paganism	Low	None		None
Organized Religion	High	Monotheism	Production	Build missionaries without monastery, production speed of buildings +25% in cities with state religion
Theocracy	Medium	Theology	Military	+2 experience points to units built in cities w/state religion, no non-state religion spreading within Civ
Pacifism	None	Philosophy	Great People	+100% great person birth rate in cities with state religion, +1 commerce support cost per military unit
Free Religion	Low	Liberalism	Happiness & Research	No state religion, +1 happy face per religion in each city, +10% research in all cities

Game modifiers (Standard = Normal/Noble/Duel)	
Speed	Technology & Building & Units
Quick	0.67
Normal	1.00
Epic	1.50
Marathon	3.00
Difficulty	Technology
Settler	0.60
Chieftain	0.75
Warlord	0.90
Noble	1.00
Prince	1.10
Monarch	1.15
Emperor	1.20
Immortal	1.25
Deity	1.30
Worldsize	Technology
Duel	1.00
Tiny	1.10
Small	1.20
Standard	1.30
Large	1.40
Huge	1.50

## Traits and effects

Leader traits effects			
Civ 4	Benefit		
Trait	Buildings	City	Units
Aggressive	+100% barracks, drydock		Free promotion melee + gunpowder
Creative	+100% theaters, coliseum	+2 culture / city	
Expansive	+100% granary, harbor	+3 health / city	
Financial		+1 commerce when >2 commerce	
Industrious	+50% wonder, 100% forge		
Organized	+100% lighthouse, courthouse	-50% civic upkeep	
Philosophical	+100% university		+100% great people
Spiritual	+100% temple	no anarchy	
Warlords	Benefit		
Trait	Buildings	City	Units
Aggressive	+100% barracks, drydock		Free promotion melee + gunpowder
Charismatic	+1 happy monument, broadcasttower	+1 happy/city	-25% XP for promotion
Creative	+100% theaters, coliseum, library	+2 culture / city	
Expansive	+100% granary, harbor +50% workers	+2 health / city	
Financial		+1 commerce when >2 commerce	
Imperialistic	+50% settlers		+100% Great General emergence
Industrious	+50% wonder, 100% forge		
Organized	+100% lighthouse, courthouse, factories	-50% civic upkeep	
Philosophical	+100% university		+100% great people
Protective	+100% walls, castle		free Drill 1+ City Gar. 1 archery + gunpowder
Spiritual	+100% temple	no anarchy	

Beyond the Sword	Benefit		
Trait	Buildings	City	Units
Aggressive	+100% barracks, drydock		Free promotion melee + gunpowder
Charismatic	+1 happy monument, broadcasttower	+1 happy/city	-25% XP for promotion
Creative	+100% theaters, coliseum, library	+2 culture / city	
Expansive	+100% granary, harbor +25% workers	+2 health / city	
Financial		+1 commerce when >2 commerce	
Imperialistic	+50% settlers		+100% Great General emergence
Industrious	+50% wonder, 100% forge		
Organized	+100% lighthouse, courthouse, factories	-50% civic upkeep	
Philosophical	+100% university		+100% great people
Protective	+100% walls, castle		free Drill 1+ City Gar. 1 archery + gunpowder
Spiritual	+100% temple	no anarchy	

# Civilization Characteristics CIV

Civilization	Leader	Trait 1	Trait 2	Favored Civic	Unique Unit	Tech. 1	Tech. 2	Building	Economic / City	Units
America	George Washington	Financial	Organized	Universal Suffrage	Navy SEAL	Fishing	Agriculture	+100% lighthouse, courthouse	+1 commerce when >2 commerce -50% civic upkeep	
	Franklin D. Roosevelt	Industrious	Organized	Universal Suffrage	Navy SEAL	Fishing	Agriculture	+50% wonder, 100% forge +100% lighthouse, courthouse	-50% civic upkeep	
Arabs	Saladin	Philosophical	Spiritual	Theocracy	Camel Archer	Mysticism	The Wheel	+100% university +100% temple	no anarchy	+100% great people
Aztecs	Montezuma	Aggressive	Spiritual	Police State	Jaguar	Mysticism	Hunting	+100% barracks, drydock +100% temple	no anarchy	Free promotion melee + gunpowder
China	Mao Zedong	Philosophical	Organized	State Property	Cho-Ku-Nu	Agriculture	Mining	+100% university +100% lighthouse, courthouse	-50% civic upkeep	+100% great people
	Qin Shi Huang	Industrious	Financial	Police State	Cho-Ku-Nu	Agriculture	Mining	+50% wonder, 100% forge	+1 commerce when >2 commerce	
Egypt	Hatshepsut	Spiritual	Creative	Hereditary Rule	War Chariot	Agriculture	The Wheel	+100% temple +100% theaters, coliseum	no anarchy +2 culture / city	
England	Victoria	Expansive	Financial	Representation	Redcoat	Fishing	Mining	+100% granary, harbor	+3 health / city +1 commerce when >2 commerce	
	Elizabeth	Philosophical	Financial	Free Religion	Redcoat	Fishing	Mining	+100% university	+1 commerce when >2 commerce +2 culture / city	+100% great people
France	Louis XIV	Creative	Industrious	Hereditary Rule	Musketeer	Agriculture	The Wheel	+100% theaters, coliseum +50% wonder, 100% forge	+2 culture / city	
	Napoleon	Aggressive	Industrious	Representation	Musketeer	Agriculture	The Wheel	+100% barracks, drydock +50% wonder, 100% forge		Free promotion melee + gunpowder
Germany	Frederick	Creative	Philosophical	Universal Suffrage	Panzer	Hunting	Mining	+100% theaters, coliseum +100% university	+2 culture / city	+100% great people
	Bismarck	Expansive	Industrious	Representation	Panzer	Hunting	Mining	+100% granary, harbor +50% wonder, 100% forge	+3 health / city	
Greece	Alexander	Aggressive	Philosophical	Hereditary Rule	Phalanx	Fishing	Hunting	+100% barracks, drydock +100% university		Free promotion melee + gunpowder +100% great people
Inca	Huayna Capac	Aggressive	Financial	Hereditary Rule	Quechua	Agriculture	Mysticism	+100% barracks, drydock	+1 commerce when >2 commerce	Free promotion melee + gunpowder
India	Mahatma Gandhi	Industrious	Spiritual	Universal Suffrage	Fast Worker	Mysticism	Mining	+50% wonder, 100% forge +100% temple	no anarchy	
	Asoka	Organized	Spiritual	Universal Suffrage	Fast Worker	Mysticism	Mining	+100% lighthouse, courthouse +100% temple	-50% civic upkeep no anarchy	
Japan	Tokugawa	Aggressive	Organized	Mercantilism	Samurai	Fishing	The Wheel	+100% barracks, drydock +100% lighthouse, courthouse	-50% civic upkeep	Free promotion melee + gunpowder
Mali	Mansa Musa	Financial	Spiritual	Free Markets	Skirmisher	Mining	The Wheel	+100% temple	+1 commerce when >2 commerce no anarchy	
Mongolia	Genghis Khan	Aggressive	Expansive	Police State	Keshik	Hunting	The Wheel	+100% barracks, drydock +100% granary, harbor	+3 health / city	Free promotion melee + gunpowder
	Kublai Khan	Aggressive	Creative	Hereditary Rule	Keshik	Hunting	The Wheel	+100% barracks, drydock +100% theaters, coliseum	+2 culture / city	Free promotion melee + gunpowder
Persia	Cyrus	Expansive	Spiritual	Representation	Immortal	Agriculture	Hunting	+100% granary, harbor +100% temple	+3 health / city no anarchy	
Rome	Julius Caesar	Organized	Expansive	Representation	Praetorian	Fishing	Mining	+100% lighthouse, courthouse +100% granary, harbor	-50% civic upkeep +3 health / city	
Russia	Catherine	Creative	Financial	Hereditary Rule	Cossack	Hunting	Mining	+100% theaters, coliseum	+2 culture / city +1 commerce when >2 commerce	
	Peter	Expansive	Philosophical	Police State	Cossack	Hunting	Mining	+100% granary, harbor +100% university	+3 health / city	+100% great people
Spain	Isabella	Expansive	Spiritual	Police State	Conquistador	Fishing	Mysticism	+100% granary, harbor +100% temple	+3 health / city no anarchy	

# Civilization Characteristics Warlords

Civilization	Leader	Trait 1	Trait 2	Favored Civic	Unique Unit	Unique Building	Tech. 1	Tech. 2	Buildings	City	Units
America	George Washington	Charismatic	Expansive	Universal Suffrage	Navy SEAL	Mall	Fishing	Agriculture	+1 happy monument, broadcasttower +100% granary, harbor +50% workers	+1 happy/city +2 health / city	-25% XP for promotion
	Franklin D. Roosevelt	Industrious	Organized	Universal Suffrage	Navy SEAL	Mall	Fishing	Agriculture	+50% wonder, 100% forge +100% lighthouse, courthouse, factories	-50% civic upkeep	
Arabs	Saladin	Protective	Spiritual	Theocracy	Camel Archer	Madrasa	Mysticism	The Wheel	+100% walls, castle +100% temple	no anarchy	free Drill 1+ City Gar. 1 archery + gunpowder
Aztecs	Montezuma	Aggressive	Spiritual	Police State	Jaguar	Sacrificial Altar	Mysticism	Hunting	+100% barracks, drydock +100% temple	no anarchy	Free promotion melee + gunpowder
Carthage	Hannibal	Financial	Charismatic	Free Markets	Numidian Cavalry	Cothon	Mining	Fishing	+1 happy monument, broadcasttower +100% temple	+1 commerce when >2 commerce +1 happy/city	-25% XP for promotion
Celts	Brennus	Spiritual	Charismatic	Organized Religion	Galic Warriors	Dun	Hunting	Mysticism	+1 happy monument, broadcasttower +100% granary, harbor +50% workers	no anarchy +1 happy/city	-25% XP for promotion
China	Mao Zedong	Expansive	Protective	State Property	Cho-Ku-Nu	Pavillion	Agriculture	Mining	+100% granary, harbor +50% workers +100% walls, castle	+2 health / city	free Drill 1+ City Gar. 1 archery + gunpowder
	Qin Shi Huang	Industrious	Protective	Police State	Cho-Ku-Nu	Pavillion	Agriculture	Mining	+50% wonder, 100% forge +100% walls, castle		free Drill 1+ City Gar. 1 archery + gunpowder
Egypt	Hatshepsut	Spiritual	Creative	Hereditary Rule	War Chariot	Obelisk	Agriculture	The Wheel	+100% temple +100% theaters, coliseum, library	no anarchy +2 culture / city	
	Rameses II	Industrious	Spiritual	Theocracy	War Chariot	Obelisk	Agriculture	The Wheel	+50% wonder, 100% forge +100% temple	no anarchy	
England	Victoria	Financial	Imperialistic	Representation	Redcoat	Stock Exchange	Fishing	Mining	+50% settlers +100% university	+1 commerce when >2 commerce	+100% Great General emergence
	Elizabeth	Philosophical	Financial	Free Religion	Redcoat	Stock Exchange	Fishing	Mining	+100% university	+1 commerce when >2 commerce	+100% great people
France	Churchill	Charismatic	Protective	Nationhood	Redcoat	Stock Exchange	Fishing	Mining	+1 happy monument, broadcasttower +100% walls, castle	+1 happy/city	-25% XP for promotion
	Louis XIV	Creative	Industrious	Hereditary Rule	Musketeer	Salon	Agriculture	The Wheel	+100% theaters, coliseum, library +50% wonder, 100% forge	+2 culture / city	free Drill 1+ City Gar. 1 archery + gunpowder
Germany	Napoleon	Charismatic	Organized	Representation	Musketeer	Salon	Agriculture	The Wheel	+1 happy monument, broadcasttower +100% lighthouse, courthouse, factories	+1 happy/city -50% civic upkeep	-25% XP for promotion
	Frederick	Organized	Philosophical	Universal Suffrage	Panzer	Assembly Plant	Hunting	Mining	+100% lighthouse, courthouse, factories +100% university	-50% civic upkeep	+100% great people
Greece	Bismarck	Expansive	Industrious	Representation	Panzer	Assembly Plant	Hunting	Mining	+100% granary, harbor +50% workers +50% wonder, 100% forge	+2 health / city	
	Alexander	Aggressive	Philosophical	Hereditary Rule	Phalanx	Odeon	Fishing	Hunting	+100% granary, harbor +50% workers +100% lighthouse, courthouse, factories		Free promotion melee + gunpowder
Inca	Huayna Capac	Financial	Industrious	Hereditary Rule	Quechua	Terrace	Agriculture	Mysticism	+100% university	+1 commerce when >2 commerce	+100% great people
India	Mahatma Gandhi	Philosophical	Spiritual	Universal Suffrage	Fast Worker	Mausoleum	Mysticism	Mining	+50% wonder, 100% forge +100% university		+100% great people
	Asoka	Organized	Spiritual	Universal Suffrage	Fast Worker	Mausoleum	Mysticism	Mining	+100% lighthouse, courthouse, factories +100% temple	no anarchy -50% civic upkeep	
Japan	Tokugawa	Aggressive	Protective	Mercantilism	Samurai	Shale Plant	Fishing	The Wheel	+100% barracks, drydock +100% walls, castle	no anarchy	Free promotion melee + gunpowder
Korea	Wang Kon	Financial	Protective	Caste System	Hwacha	Seowon	Mysticism	Mining	+100% walls, castle	+1 commerce when >2 commerce	free Drill 1+ City Gar. 1 archery + gunpowder
Mali	Mansa Musa	Financial	Spiritual	Free Markets	Skirmisher	Mint	Mining	The Wheel	+100% barracks, drydock +50% settlers	+1 commerce when >2 commerce no anarchy	Free promotion melee + gunpowder
Mongolia	Genghis Khan	Aggressive	Imperialistic	Police State	Keshik	Ger	Hunting	The Wheel	+100% barracks, drydock +100% theaters, coliseum, library	+2 culture / city	Free promotion melee + gunpowder
	Kublai Khan	Aggressive	Creative	Hereditary Rule	Keshik	Ger	Hunting	The Wheel	+100% granary, harbor +50% workers +100% lighthouse, courthouse, factories	+2 health / city -50% civic upkeep	
Ottoman	Mehmed II	Expansive	Organized	Vassalage	Janissaries	Hammam	The Wheel	Agriculture	+1 happy monument, broadcasttower +50% settlers	+1 happy/city	-25% XP for promotion
Persia	Cyrus	Charismatic	Imperialistic	Representation	Immortal	Apothecary	Agriculture	Hunting	+100% theaters, coliseum, library +100% lighthouse, courthouse, factories	+2 culture / city -50% civic upkeep	+100% Great General emergence
	Augustus	Creative	Organized	Representation	Praetorian	Forum	Fishing	Mining	+50% settlers +100% lighthouse, courthouse, factories		
Rome	Julius Caesar	Imperialistic	Organized	Representation	Praetorian	Forum	Fishing	Mining	+100% lighthouse, courthouse, factories +100% theaters, coliseum, library	-50% civic upkeep	+100% Great General emergence
Russia	Catherine	Creative	Imperialistic	Hereditary Rule	Cossack	Research Institute	Hunting	Mining	+50% settlers +100% granary, harbor +50% workers	+2 culture / city	+100% Great General emergence
	Peter	Expansive	Philosophical	Police State	Cossack	Research Institute	Hunting	Mining	+100% granary, harbor +50% workers +100% university	+2 health / city	+100% great people
Spain	Stalin	Aggressive	Industrious	State Property	Cossack	Research Institute	Hunting	Mining	+100% barracks, drydock +50% wonder, 100% forge		Free promotion melee + gunpowder
	Isabella	Expansive	Spiritual	Police State	Conquistador	Citadel	Fishing	Mysticism	+100% granary, harbor +50% workers +100% temple	+2 health / city no anarchy	
Viking	Ragnar	Aggressive	Financial	Hereditary Rule	Berserker	Trading Post	Hunting	Fishing	+100% barracks, drydock	+1 commerce when >2 commerce	Free promotion melee + gunpowder
Zulu	Shaka	Aggressive	Expansive	Police State	Impi	Ikhanda	Agriculture	Hunting	+100% barracks, drydock +100% granary, harbor +50% workers	+2 health / city	Free promotion melee + gunpowder

Civilization Characteristics BTS

Civilization	Leader	Trait 1	Trait 2	Favored Civic	Unique Unit	Unique Building	Tech. 1	Tech. 2	Buildings	City	Units
America	George Washington	Charismatic	Expansive	Free Speech	Navy SEAL	Mail	Fishing	Agriculture	+1 happy monument, broadcasttower +100% granary, harbor +25% workers	+1 happy/city +2 health / city	-25% XP for promotion
	Franklin D. Roosevelt	Industrious	Organized	Mercantilism	Navy SEAL	Mail	Fishing	Agriculture	+50% wonder, 100% forge +100% lighthouse, courthouse, factories		
	Lincoln	Philosophical	Charismatic	Emancipation	Navy SEAL	Mail	Fishing	Agriculture	+100% university +1 happy monument, broadcasttower	+1 happy/city	+100% great people -25% XP for promotion
Arabs	Saladin	Protective	Spiritual	Theocracy	Camel Archer	Madrasa	Mysticism	The Wheel	+100% walls, castle +100% temple	no anarchy	free Drill 1 + City Gar. 1 archery + gunpowder
Aztecs	Montezuma	Aggressive	Spiritual	Police State	Jaguar	Sacrificial Altar	Mysticism	Hunting	+100% barracks, drydock +100% temple	no anarchy	Free promotion melee + gunpowder
Babylon	Hammurabi	Organized	Aggressive	Bureaucracy	Bowman	Babylon Garden	Agriculture	The Wheel	+100% lighthouse, courthouse, factories +100% barracks, drydock	-50% civic upkeep	Free promotion melee + gunpowder
Byzantium	Justinian	Spiritual	Imperialistic	Theocracy	Cataphract	Hippodrome	The Wheel	Mining	+100% temple +50% settlers	no anarchy	+100% Great General emergence
Carthage	Hannibal	Financial	Charismatic	Free Markets	Numidian Cavalry	Oothon	Mining	Fishing	+1 happy monument, broadcasttower	+1 commerce when >2 commerce +1 happy/city	-25% XP for promotion
Celts	Brennus	Spiritual	Charismatic	Organized Religion	Galic Warriors	Dun	Hunting	Mysticism	+100% temple +1 happy monument, broadcasttower	no anarchy +1 happy/city	-25% XP for promotion
China	Mao Zedong	Expansive	Protective	State Property	Cho-Ku-Nu	Pavilion	Agriculture	Mining	+100% granary, harbor +25% workers +100% walls, castle	+2 health / city	free Drill 1 + City Gar. 1 archery +
	Qin Shi Huang	Industrious	Protective	Police State	Cho-Ku-Nu	Pavilion	Agriculture	Mining	+50% wonder, 100% forge +100% walls, castle		free Drill 1 + City Gar. 1 archery +
Egypt	Hetshpeaut	Spiritual	Creative	Hereditary Rule	War Chariot	Obelisk	Agriculture	The Wheel	+100% temple +100% theaters, coliseum, library	no anarchy +2 culture / city	
	Rameses II	Industrious	Spiritual	Theocracy	War Chariot	Obelisk	Agriculture	The Wheel	+50% wonder, 100% forge +100% temple	no anarchy	
England	Victoria	Financial	Imperialistic	Representation	Redcoat	Stock Exchange	Fishing	Mining	+50% settlers	+1 commerce when >2 commerce	+100% Great General emergence
	Elizabeth	Philosophical	Financial	Free Religion	Redcoat	Stock Exchange	Fishing	Mining	+100% university	+1 commerce when >2 commerce	+100% great people
	Churchill	Charismatic	Protective	Nationhood	Redcoat	Stock Exchange	Fishing	Mining	+1 happy monument, broadcasttower +100% walls, castle	+1 happy/city	-25% XP for promotion free Drill 1 + City Gar. 1 archery +
Ethiopia	Zara Yaqob	Creative	Organized	Theocracy	Oromo Warrior	Stele	Hunting	Mining	+100% theaters, coliseum, library +100% lighthouse, courthouse, factories	+2 culture / city	
France	Louis XIV	Creative	Industrious	Hereditary Rule	Musketeeer	Salon	Agriculture	The Wheel	+100% theaters, coliseum, library +50% wonder, 100% forge	+2 culture / city	
	Napoleon	Charismatic	Organized	Representation	Musketeeer	Salon	Agriculture	The Wheel	+1 happy monument, broadcasttower +100% lighthouse, courthouse, factories	+1 happy/city -50% civic upkeep	-25% XP for promotion
	Charles de Gaulle	Industrious	Charismatic	Nationhood	Musketeeer	Salon	Agriculture	The Wheel	+50% wonder, 100% forge +1 happy monument, broadcasttower	+1 happy/city	-25% XP for promotion
Germany	Frederick	Organized	Philosophical	Universal Suffrage	Panzer	Assembly Plant	Hunting	Mining	+100% lighthouse, courthouse, factories +100% university	-50% civic upkeep	+100% great people
	Bismarck	Expansive	Industrious	Representation	Panzer	Assembly Plant	Hunting	Mining	+100% granary, harbor +25% workers +50% wonder, 100% forge	+2 health / city	
Greece	Alexander	Aggressive	Philosophical	Hereditary Rule	Phalanx	Odeon	Fishing	Hunting	+100% barracks, drydock +100% university		Free promotion melee + gunpowder +100% great people
	Pericles	Philosophical	Creative	Representation	Phalanx	Odeon	Fishing	Hunting	+100% university +100% theaters, coliseum, library	+2 culture / city	+100% great people
Holy Roman Empire	Charlemange	Imperialistic	Protective	Vassalage	Landsknecht	Rathaus	Mysticism	Hunting	+50% settlers +100% walls, castle		+100% Great General emergence free Drill 1 + City Gar. 1 archery +
Inca	Huayna Capac	Financial	Industrious	Hereditary Rule	Quechua	Terrace	Agriculture	Mysticism	+50% wonder, 100% forge	+1 commerce when >2 commerce	
India	Mahatma Gandhi	Philosophical	Spiritual	Universal Suffrage	Fast Worker	Mausoleum	Mysticism	Mining	+100% university +100% temple	no anarchy	+100% great people
	Asoka	Organized	Spiritual	Universal Suffrage	Fast Worker	Mausoleum	Mysticism	Mining	+100% granary, harbor +25% workers +100% temple	-50% civic upkeep no anarchy	
Japan	Yokugawa	Aggressive	Protective	Mercantilism	Samurai	Shale Plant	Fishing	The Wheel	+100% barracks, drydock +100% walls, castle		Free promotion melee + gunpowder free Drill 1 + City Gar. 1 archery +
Khmer	Suryavarman	Expansive	Creative	Organized Religion	Ballista Elephant	Baray	Hunting	Mining	+100% granary, harbor +25% workers +100% theaters, coliseum, library	+2 health / city +2 culture / city	
Korea	Wang Kon	Financial	Protective	Caste System	Heacha	Seowon	Mysticism	Mining	+100% walls, castle	+1 commerce when >2 commerce	free Drill 1 + City Gar. 1 archery +
Mali	Mansa Musa	Financial	Spiritual	Free Markets	Skirmisher	Mint	Mining	The Wheel	+100% granary, harbor +25% workers +100% temple	+1 commerce when >2 commerce no anarchy	
Maya	Pacal	Financial	Expansive	Hereditary Rule	Holkan	Ball Court	Mining	Mysticism	+100% granary, harbor +25% workers	+1 commerce when >2 commerce +2 health / city	
Mongolia	Genghis Khan	Aggressive	Imperialistic	Police State	Keshik	Ger	Hunting	The Wheel	+100% barracks, drydock +50% settlers		Free promotion melee + gunpowder +100% Great General emergence
	Kublai Khan	Aggressive	Creative	Hereditary Rule	Keshik	Ger	Hunting	The Wheel	+100% barracks, drydock +100% theaters, coliseum, library	+2 culture / city	Free promotion melee + gunpowder
Native Americans	Sitting Bull	Philosophical	Protective	Environmentalism	Dog Soldier	Totem	The Wheel	Hunting	+100% university +100% walls, castle		+100% great people free Drill 1 + City Gar. 1 archery +
Netherlands	Willem van Oranje	Creative	Financial	Free Religion	East indiaman	Dike	Agriculture	Fishing	+100% theaters, coliseum, library	+2 culture / city +1 commerce when >2 commerce	
Ottoman	Mehmed II	Expansive	Organized	Vassalage	Janissaries	Hammam	The Wheel	Agriculture	+100% granary, harbor +25% workers +100% lighthouse, courthouse, factories	+2 health / city -50% civic upkeep	
	Suleiman	Imperialistic	Philosophical	Hereditary Rule	Janissaries	Hammam	The Wheel	Agriculture	+50% settlers +100% university		+100% Great General emergence +100% great people
Persia	Cyrus	Charismatic	Imperialistic	Representation	Immortal	Apothecary	Agriculture	Hunting	+1 happy monument, broadcasttower +50% settlers	+1 happy/city	-25% XP for promotion +100% Great General emergence
	Darius	Organized	Financial	Free Religion	Immortal	Apothecary	Agriculture	Hunting	+100% lighthouse, courthouse, factories	-50% civic upkeep +1 commerce when >2 commerce	
Portugal	Joao	Imperialistic	Expansive	Hereditary Rule	Carrack	Feltria	Fishing	Mining	+50% settlers		+100% Great General emergence
Rome	Augustus	Creative	Organized	Representation	Prætorian	Forum	Fishing	Mining	+100% granary, harbor +25% workers +100% theaters, coliseum, library	+2 health / city +2 culture / city	
	Julius Caesar	Imperialistic	Organized	Representation	Prætorian	Forum	Fishing	Mining	+100% lighthouse, courthouse, factories +50% settlers	-50% civic upkeep	+100% Great General emergence
Russia	Catherine	Creative	Imperialistic	Hereditary Rule	Cossack	Research Institute	Hunting	Mining	+100% lighthouse, courthouse, factories +100% theaters, coliseum, library	-50% civic upkeep +2 culture / city	
	Peter	Expansive	Philosophical	Police State	Cossack	Research Institute	Hunting	Mining	+50% settlers +100% granary, harbor +25% workers	+2 health / city	+100% Great General emergence
	Stalin	Aggressive	Industrious	State Property	Cossack	Research Institute	Hunting	Mining	+100% university +100% barracks, drydock		+100% great people Free promotion melee + gunpowder
Spain	Isabella	Expansive	Spiritual	Police State	Conquistador	Citadel	Fishing	Mysticism	+50% wonder, 100% forge +100% granary, harbor +25% workers	+2 health / city no anarchy	
Sumeria	Ulgamesh	Protective	Creative	Hereditary Rule	Vulture	Ziggurat	Agriculture	The Wheel	+100% walls, castle +100% theaters, coliseum, library	+2 culture / city	free Drill 1 + City Gar. 1 archery + gunpowder
Viking	Ragnar	Aggressive	Financial	Hereditary Rule	Berserker	Trading Post	Hunting	Fishing	+100% barracks, drydock	+1 commerce when >2 commerce	Free promotion melee + gunpowder
Zulu	Shaka	Aggressive	Expansive	Police State	Impi	Ikhanda	Agriculture	Hunting	+100% barracks, drydock +100% granary, harbor +25% workers	+2 health / city	Free promotion melee + gunpowder



# Terrain and Resource Yields

Resource	Revealed by	Terrain Found On	Terrain Features found on	Improvement Required	Tech Req'd for Improvement	Base Yield Bonus F / H / C			Improved Yield F/ H/ C			Benefits with Improvement
Aluminum	Industrialism	Hills	Plains, desert, tundra	Mine	Mining	-	+1	-	-	+3	+1	1/2 speed to build certain projects
Banana	--	Flatlands	Jungle, grassland	Plantation	Calendar	+1	-	-	+2	-	-	+1 Health
Clam	--	Water	Coast	Fishing Boats	Fishing	+1	-	-	+2	-	-	+1 Health
Coal	Steam Power	Hills	Grassland, plains	Mine	Mining	-	+1	-	-	+3	-	Required for Railroad
Copper	Bronze Working	Hills, flatlands, no riversides	Grassland, plains, desert, tundra, snow	Mine	Mining	-	+1	-	-	+3	-	1/2 speed to build certain buildings/wonders/projects.
Corn	--	Flatlands, no riversides	Grassland	Farm	Agriculture	-	+1	-	+2	-	-	+1 Health
Cow	--	Flatlands, no riversides	Grassland, plains	Pasture	Animal Husbandry	+1	-	-	+1	+2	-	+1 Health
Crab	--	Water	Coast	Fishing Boats	Fishing	+1	-	-	+2	-	-	+1 Health
Deer	--	Hills, flatlands	Tundra, forest	Camp	Hunting	+1	-	-	+2	-	-	+1 Health
Dye	--	Flatlands	Jungle, grassland	Plantation	Calendar	-	-	+1	-	-	+4	+1 Happiness
Fish	--	Water	Ocean, coast	Fishing Boats	Fishing	+1	-	-	+3	-	-	+1 Health
Fur	--	Hills, flatlands	Tundra, snow, forest	Camp	Hunting	-	-	+1	-	-	+3	+1 Happiness
Gems	--	Hills, flatlands	Jungle, grassland	Mine	Mining	-	-	+1	-	+1	+5	+1 Happiness
Gold	--	Hills	Plains, desert	Mine	Mining	-	-	+1	-	+1	+6	+1 Happiness
Horse	Animal Husbandry	Flatlands, no riversides	Grassland, plains, tundra	Pasture	Animal Husbandry	-	+1	-	-	+2	+1	N/A
Incense	--	Flatlands	Desert	Plantation	Calendar	-	-	+1	-	-	+5	+1 Happiness
Iron	Iron Working	Hills, flatlands, no riversides	Grassland, plains, desert, tundra, snow	Mine	Mining	-	+1	-	-	+3	-	1/2 speed to build certain wonders
Ivory	--	Flatlands	Plains, jungle, grassland	Camp	Hunting	-	+1	-	-	+1	+1	+1 Happiness
Marble	--	Hills, flatlands, no riversides	Plains, tundra, snow	Quarry	Mining	-	+1	-	-	+1	+2	1/2 speed to build certain wonders
Oil	Scientific Method	Flatlands, no riversides	Desert, tundra, snow, ocean, jungle, grassland	Oil Well, Offshore Platform	Combustion	-	+1	-	-	+2	+1	
Pig	--	Hills, flatlands, no riversides	Grassland, jungle	Pasture	Animal Husbandry	+1	-	-	+3	-	-	+1 Health
Rice	--	Flatlands, no riversides	Grassland, jungle	Farm	Agriculture	+1	-	-	+1	-	-	+1 Health
Sheep	--	Hills, flatlands, no riversides	Grassland, plains	Pasture	Animal Husbandry	+1	-	-	+2	-	+1	+1 Health
Silk	--	Flatlands	Forest, grassland, plains	Plantation	Calendar	-	-	+1	-	-	+3	+1 Happiness
Silver	--	Hills	Tundra, snow	Mine	Mining	-	-	+1	-	+1	+4	+1 Happiness
Spices	--	Flatlands	Jungle, forest, grassland, plains	Plantation	Calendar	-	-	+1	+1	-	+2	+1 Happiness
Stone	--	Hills, flatlands, no riversides	Plains, desert	Quarry	Masonry	-	+1	-	-	+2	-	1/2 speed to build certain wonders
Sugar	--	Flatlands	Jungle, grassland	Plantation	Calendar	+1	-	-	+1	-	+1	+1 Happiness
Uranium	Physics	Hills, flatlands, no riversides	Grassland, plains, desert, tundra, snow, jungle, forest	Mine	Mining	-	-	-	-	-	+3	1/2 speed to build certain projects
Whale	--	Ocean		Whaling Boat	Optics	+1	-	-	-	+1	+2	+1 Happiness
Wheat	--	Flatlands, no riversides	Plains	Farm	Agriculture	+1	-	-	+2	-	-	+1 Health
Wine	--	Hills, flatlands	Plains	Winery	Meditation	-	-	+1	+1	-	+2	+1 Happiness

Base Terrain	Food	Production	Commerce	Defense Bonus	Movement Cost	Other
Coast	1	-	2	10%	1	
Desert	-	-	-	-	1	+25% build time
Grassland	2	-	-	-	1	
Snow	-	-	-	-	1	+50% build time
Ocean	1	-	1	-	1	
Peak	-	-	-	-	Impassable	
Plains	1	1	-	-	1	
Tundra	1	-	-	-	1	+25% build time
Fallout	-3	-3	-3	-	2	-0.5 health
Floodplains	+3	-	-	-	1	-0.4 health
Forest	-	+1	-	50%	2	+0.4 health
Hill	-1	+1	-	25%	2	
Ice	-	-	-	-	Impassable	
Jungle	-1	-	-	50%	2	-0.25 health
Oasis	+3	-	+2	-	2	Fresh water source
Fallout	-3	-3	-3	-	2	-0.5 health, cannot build improvements

## Color coding

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# Resource Yield by Improvement

Improvement	Tech Required	Bonuses			Other effects
Resource		Food	Production	Commerce	
<b>Camp</b>	Hunting	---	---	---	
Deer		+1, +2 with camp	---	---	+1 health
Fur		---	---	+1, +3 with camp	+1 happy face
Ivory		---	+1, +1 with camp	+1 with camp	+1 happy face
<b>Cottage</b>	Pottery	---	---	+1 gold	Becomes Hamlet in 10 turns when worked by city
Hamlet	Pottery	---	---	+2 gold	Becomes Village in 20 turns when worked by city
Village	Pottery	---	---	+3, +1 with Printing Press	Becomes Town in 40 turns when worked by city
Town	Pottery	---	+1 with Universal Suffrage	+4, +1 with Printing Press, +2 with Free Speech	
<b>Farm</b>	Agriculture	+1, +1 with Biology	---	---	Carries irrigation (with Civil Service)
Corn		+1, +2 with Farm	---	---	+1 health
Rice		+1, +1 with Farm	---	---	+1 health
Wheat		+1, +2 with Farm	---	---	
<b>Fort</b>	Mathematics	---	---	---	+25% defense
<b>Fort</b>	Mathematics	---	---	---	+25% defense, act as a city for combat purposes, can be built over forest
<b>Forest Preserve</b>	Scientific Method	---	---	+1 next to rivers, +2 with environmentalism	+1 happy, more change terrain spread
<b>Lumbermill</b>	Replaceable Parts	---	+1	+1 next to rivers	
<b>Mine</b>	Mining	---	+2	---	Small chance to discover metals
Aluminum	Industrialism	---	+1, +3 with Mine	+1 with Mine	
Coal	Steam Power	---	+1, +3 with Mine	---	
Copper	Bronze Working	---	+1, +3 with Mine	---	
Iron	Iron Working	---	+1, +3 with Mine	---	
Uranium	Physics	---	---	+3 with Mine	
Gems		---	+1 with Mine	+1, +5 with Mine	+1 happy face
Gold		---	+1 with Mine	+1, +6 with Mine	+1 happy face
Silver		---	+1 with Mine	+1, +4 with Mine	+1 happy face
<b>Offshore Platform</b>	Plastics	---	---	---	
Oil	Scientific Method	---	+1, +2 with Offshore Platform	+1 with Offshore Platform	
<b>Pasture</b>	Animal Husbandry	---	---	---	
Horse	Animal Husbandry	---	+1, +2 with Pasture	+1 with Pasture	
Cow		+1, +1 with Pasture	+2 with Pasture	---	+1 health
Pig		+1, +3 with Pasture	---	---	+1 health
Sheep		+1, +2 with Pasture	---	+1 with Pasture	+1 health
<b>Plantation</b>	Calendar	---	---	---	
Banana		+1, +2 with Plantation	---	---	+1 health
Dye		---	---	+1, +4 with Plantation	+1 happy face
Incense		---	---	+1, +5 with Plantation	+1 happy face
Silk		---	---	+1, +3 with Plantation	+1 happy face
Spices		+1 with Plantation	---	+1, +2 with Plantation	+1 happy face
Sugar		+1, +1 with Plantation	---	+1 with Plantation	+1 happy face
<b>Quarry</b>	Masonry	---	---	---	
Marble		---	+1, +1 with Quarry	+2 with Quarry	Doubles production speed of wonders
Stone		---	+1, +2 with Quarry	---	Doubles production speed of wonders
<b>Quarry</b>	Masonry	---	---	---	
Marble		---	+1, +1 with Quarry, +1 with railroad	+2 with Quarry	Doubles production speed of wonders
Stone		---	+1, +2 with Quarry, +1 with railroad	---	Doubles production speed of wonders
<b>Watermill</b>	Machinery	+1 with State Property	+1, +1 with Replaceable Parts	+2 with Electricity	
<b>Well</b>	Combustion	---	---	---	
Oil	Scientific Method	---	+1, +2 with Well	+1 with Well	
<b>Whaling Boats</b>	Optics	---	---	---	
Whale		+1	+1 with Whaling Boats	+2 with Whaling Boats	+1 happy face
<b>Windmill</b>	Machinery	+1	+1 with Replaceable Parts	+1, +1 with Electricity	
<b>Winery</b>	Monarchy	---	---	---	
Wines		+1 with Winery	---	+1, +2 with Winery	+1 happy face
<b>Workshop</b>	Metal Casting	-1, +1 with State Property	+1, +1 with Guilds, +1 with Replaceable Parts	---	

Color coding

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## Technology advances

Game modifiers:	Normal/Noble/Duel							
Technology	Cost	Techs Required	OR-Techs Allows	AND-Techs Allows	Resource Revealed	Unit(s) Allowed	City Improvement(s) Allowed	Other Benefits
Advanced flight	5000	Flight, Satellites	Stealth			Gunship, Jet Fighter		Obsoletes Stable
Aesthetics	300	Writing	Drama, Literature			Partenon, Statue of Zeus, Swedagon Paya		
Agriculture	60		Pottery, Animal Husbandry					Workers can build farms
Alphabet	300	Writing	Literature, Drama					Can trade technologies, Can turn production into research
Alphabet	301	Writing	Currency	Printing Press		Spy		Can trade technologies, Can turn production into research
Animal Husbandry	100	Agriculture or Hunting	Writing, Horseback Riding		Horses			Workers can build pastures
Archery	60	Hunting				Archer, Longbowman, Crossbowman, Horse Archer		
Artillery	4000	Physics, Steel, Rifling	Rocketry			Artillery, Mobile artillery, anti Tank		
Assembly Line	5000	Corporation, Steam Power	Fascism, Industrialism			Infantry	Factory, Coal / Assembly / Shale Plant, Pentagon	
Astronomy	2000	Calendar, Optics	Scientific Method	Physics		Galleon, Frigate, Privateer, Ship of Line	Observatory	Colossus, Stonehenge and Obelisk obsolete, can trade over ocean tiles
Banking	700	Currency, Guilds		Economy, Replaceable parts			Bank	Enables mercantilism civic
Biology	3600	Chemistry, Scientific Method	Medicine	Ecology, Refrigeration			National Park	Workers can build farms w/out irrigation, farm produces +1 food
Bronze Working	120	Mining	Metal Casting, Iron Working		Copper	Axeman		Allows Slavery civic, workers can remove forests
Calendar	350	Sailing, Mathematics		Astronomy			Mausoleum of Mausollos Great Wonder	Workers can build plantations, centers world map, makes Stonehenge and Obelisk obsolete
Chemistry	1800	Engineering, Gunpowder	Steel, Scientific Method, Military Science	Biology, Steam power		Grenadier, Frigate, Privateer		Workshops +1 production, makes the Parthenon obsolete
Civil Service	800	Code of Laws or Feudalism	Paper	Nationalism		Maceman, Samurai		Enables bureaucracy civic
Civil Service	800	Mathematics and (Code of Laws or Feudalism)	Paper	Nationalism		Maceman		Enables bureaucracy civic, Farm spread irrigation
Code of Laws	350	Writing & Priesthood or Currency	Civil Service, Philosophy	Constitution			Courthouse, Chichen Itza Great Wonder	First Civ to discover founds Confucianism, enables Caste System civic
Combustion	3600	Railroad		Flight, Plastics		Transport, Destroyer, Submarine, Attack Submarine	Public transportation, Creative structures Great Wonder	Workers can build oil wells, makes whale obsolete
Communism	2800	Liberalism, Scientific Method				Spy	Scotland Yard, Kremlin, Intelligence agency	Enables permanent alliances, State Property civic, first gets Great Spy
Compass	400	Sailing, Iron Working	Optics			Explorer	Harbor, Colon	
Composites	7500	Plastics, Satellites		Stealth		Modern Armor, Jet Fighter, Stealth Bomber	SS-Casing	
Computers	6500	Radio	Genetics			Modern Armor	Laboratory	Makes Angkor Wat & Spiral Minaret obsolete
Computers	6500	Radio, Plastics	Robotics, Superconductors, Democracy			Modern Armor	Internet Great Wonder	Makes Angkor Wat, Spiral Minaret and University of Sankore obsolete
Constitution	2000	Code of Laws, Nationalism	Democracy	Corporation			Jail	Enables Representation civic
Construction	350	Masonry, Mathematics	Engineering			War Elephant, Catapult	Colosseum	Rivers can be crossed with bridges
Corporation	1600	Constitution, Economics		Assembly line			Wall Street, All Corporations	Great Lighthouse obsolete, +1 trade route per city
Currency	400	Mathematics	Code of Laws	Banking			Market, Grocer	Civs can trade commerce, each city +1 trade route, can rush production with commerce
Currency	400	Mathematics, Alphabet	Code of Laws	Banking			Market, Grocer	Civs can trade commerce, each city +1 trade route
Democracy	2800	Constitution, Printing Press					Statue of Liberty Great Wonder, Security Bureau	Enables Universal Suffrage and Emancipation civics
Divine Right	1200	Theology, Monarchy	Nationalism				Versailles, Spiral Minaret Great Wonders	First Civ to discover founds Islam
Drama	300	Alphabet	Music, Philosophy				Theater, Globe Theater	Can adjust culture rate
Drama	300	Aesthetics	Music, Philosophy				Theater, Globe Theater	Can adjust culture rate
Ecology	5500	Biology & Plastics or Fission					Recycling Center, SS Life Support	Can remove fallout
Economics	1400	Banking, Education	Corporation				Customs House	First to discover receives Great Merchant, enables Free Market civic
Education	1800	Paper	Liberalism, Economics, Gunpowder				University, Oxford University Great Wonder	
Electricity	4500	Physics	Fission, Refrigeration, Radio	Industrialism			Bunker, Bomb Shelter, Broadway Great Wonder	Windmills produce +1 commerce, watermills produce +2 commerce
Engineering	1000	Machinery, Construction		Chemistry		Pikeman, (Trebuchet)	Castle, Hagia Sophia, Notre Dame Great Wonder	Units get +1 movement on roads
Facism	2400	Assembly Line, Nationalism					Mount Rushmore Great Wonder	Enables Police State civic, Civs can negotiate permanent alliances
Facism	2400	Assembly Line, Nationalism				Paratrooper	Mount Rushmore Great Wonder	Enables Police State civic, Civs can negotiate permanent alliances, first Civ to discover receives a Great General
Feudalism	700	Monarchy, Writing	Civil Service	Guilds		Longbowman		Enables Vassalage, Serfdom civics
Fiber Optics	7500	Computers & Plastics or Satellites	Fusion				Internet Great Wonder, SS cockpit	Makes Kremlin obsolete
Fiber Optics	7500	Computers, Laser	Fusion				SS cockpit	Makes Kremlin obsolete
Fishing	40		Sailing, Pottery			Work Boat, Fishing Boat		Can work water tiles
Fission	5500	Electricity	Ecology	Fusion		ICBM, Tactical Nuke	Nuclear Plant, Manhattan Project Great Wonder	
Flight	5000	Physics, Combustion	Rocketry, Advanced Flight			Gunship, Carrier, Fighter, Jet Fighter, Bomber, Stealth Bomber, Paratrooper	Airport	
Fusion	8000	Fission, Fiber Optics					SS Engine	First Civ to discover gets a Great Engineer
Future Tech	10000	Composites, Genetics						+1 commerce & +1 Happy face in all cities
Future Tech	10000	Stealth, Genetics						+1 commerce & +1 Happy face in all cities
Genetics	7000	Computers	Future Tech				SS Stasis Chamber	+3 Health in all cities
Genetics	7000	Superconductors, Medicine	Future Tech				SS Stasis Chamber	+3 Health in all cities
Guilds	1000	Feudalism, Machinery	Banking, Gunpowder			Knight	Grocer	Workshop produces +1 Hammer
Gunpowder	1200	Guilds or Education	Chemistry	Rifling		Musketman, Cavalry, Cuirassier		Enables Pinch
Horseback Riding	250	Animal Husbandry				Horse Archer, Knight, Cavalry, Cuirassier	(Stable)	
Hunting	40		Archery, Animal Husbandry			Scout, Spearman		Workers can build Camps

# Technology advances

Industrialism	6500	Electricity, Assembly Line	Plastics		Aluminum	Marine, Tank, Battleship	Industrial Park	Makes Ivory obsolete
Iron Working	200	Bronze Working	Compass	Steel	Iron	Swordsman		Workers can remove Jungle
Laser		Satellites, Plastics	Fiber Optics				Mobile Sam, Mobile Artillery, SDI	
Liberalism	1400	Philosophy, Education		Communism				First Civ to discover receives free tech, enables Free Speech & Free Religion civics
Literature	200	Polytheism, Alphabet	Music				Heroic Epic, National Epic, Great Library Wonders	
Literature	200	Polytheism, Aesthetics	Music				Heroic Epic, National Epic, Great Library Wonders	
Machinery	700	Metal Casting	Optics, Guilds	Prints, Engineering, Printing Press		Maceman, Crossbowman		Workers can build windmill, watermill
Masonry	80	Mining or Mysticism	Monotheism	Construction, Monotheism			Aqueduct, City Walls, Pyramids, (Great Wall) & Great Lighthouse Great Wonders	Workers can build quarry
Mass Media	3600	Radio					Broadcast Tower, Hollywood, United Nations and Computers Jewellers Inc. Wonders	Chronicles Apostolic Palace
Mathematics	250	Writing	Calendar, Construction, Currency	Civil Service, Music			Aqueduct, Hanging Gardens Great Wonder	Workers can build fort, increases worker forest chop yield by 50%
Medicine	4500	Optics, Biology		Genetics			Hospital, Red Cross Side Ship Great Wonder	Enables Environmentalism civic
Meditation	80	Mysticism	Priesthood	Philosophy			Monastery	First Civ to discover founds Buddhism
Metal Casting	450	Pottery, Bronze Working	Machinery		(Trireme)		Forge, Colossus Great Wonder	Workers can build workshop
Military Science	2000	Chemistry				Grenadier, Ship of Line	Military academy	Enables Blitz, Commando promotions
Military Tradition	2000	Music, Nationalism				Cavalry, Gunpowder	West Point National Wonder	Enables Civs to negotiate defense pacts
Mining	50		Masonry, Bronze Working					Workers can build mines
Monarchy	300	Priesthood or Monotheism	Feudalism	Divine Right				Allows Hereditary Rule civic, workers can build wineries
Monotheism	120	Masonry, Polytheism	Theology, Monarchy					Allows Organized Religion civic, first Civ to discover founds Judaism
Music	600	Mathematics & Literature or Drama		Military Tradition			Cathedral, Notre Dame, Sailing Ship Great Wonder	First Civ to discover gets a Great Artist
Mysticism	50		Meditation, Polytheism, Masonry				Monument, Stonehenge Great Wonder	
Nationalism	1800	Civil Service & Philosophy or Divine Right	Military Tradition, Constitution	Fascism			Hermitage, Taj Mahal Great Wonder	Enables Nationhood civic
Optics	600	Compass, Machinery		Astronomy, Medicine		Caravel, Whaling Boats		Can see +1 tile across water
Paper	600	Civil Service or Theology	Printing Press, Education				University of Sankara Great Wonder	Civs can trade maps
Philosophy	800	Meditation & Drama or Code of Laws	Nationalism	Liberalism			Angkor Wat Great Wonder	First Civ to discover founds Taoism, enables Pacifism civic
Physics	4000	Astronomy, Scientific Method	Electricity	Flight, Artillery	Uranium	Airship		First Civ to discover gets a Great Scientist
Plastics	7000	Combustion, Industrialism	Ecology, Fiber Optics, Composites	Computers, Laser, Composites, Robotics			Hydro Plant, Offshore Platform, Three Gorges Dam, Standard Eternal Great Wonder	Makes fur obsolete
Polytheism	100	Mysticism	Priesthood, Monotheism	Literature			Parthenon(Temple of Artemis) Great Wonder	First Civ to discover founds Hinduism
Pottery	80	The Wheel & Agriculture or Fishing	Writing	Metal Casting			Granary	Workers can build cottages
Priesthood	60	Polytheism or Meditation	Monarchy, Code of Laws, Writing				Temple, Oracle Great Wonder	
Printing Press	1600	Machinery, Paper, Alphabet	Replaceable Parts	Democracy, Scientific Method				Villages & towns produce +1 commerce
Radio	6000	Electricity	Computers, Mass Media	Satellites		Submarine, Bomber	Eiffel Tower & Rock N Roll, Christo Redentor Great Wonders	
Railroad	4500	Steam Power, Steel	Combustion			Machine Gun	Mining Inc Great Wonder	Workers can build railroads
Refrigeration	4000	Electricity, Biology	Superconductors				Supermarket, Cereal Mills Inc Great Wonder	Water units can move +1 per turn
Replaceable Parts	1800	Banking, Printing Press	Rifling, Steam Power					Workers can build lumbermills, windmills +1 production
Rifling	2400	Replaceable Parts	Artillery	Rocketry		Rifleman, Infantry, Marine, Mech. Inf., Tank		Makes Chichen Itza obsolete
Rifling	2400	Replaceable Parts, Gunpowder	Artillery	Rocketry		Rifleman, Infantry, Marine, Mech. Inf., Tank, Cavalry, Paratrooper		Makes Walls and Chichen Itza obsolete
Robotics	8000	Plastics, Computers				Mech. Inf., Stealth Bomber	SS Docking Bay, Space Elevator Great Wonder	
Robotics	8000	Computers				Mech. Inf., Stealth Bomber, Missile Cruiser, Stealth Destroyer	Space Elevator Great Wonder	
Rocketry	5000	Rifling & Flight or Artillery	Satellites			SAM Infantry, Gunship, ICBM, Attack Submarine, Cruise Missile, Tactical Nuke	SS Casing, Apollo Program, Aluminum Co. Great Wonder	
Sailing	100	Fishing		Calendar, Compass		Galley, (Trireme)	Lighthouse, Great Lighthouse, Mad Statues	Civs can trade over coasts
Satellites	6000	Radio, Rocketry	Composites, Fiber Optics, Laser	Advanced Flight, Composites			SDI, SS Thrusters, Space Elevator, SS Docking Bay	Reveals world map to the civ that discovers tech
Scientific Method	2400	Printing Press & Astronomy or Chemistry	Communism, Physics, Biology		Oil			Makes Great Library, Monastery Temple of Artemis & Parthenon obsolete
Stealth	8000	Advanced Flight, Composites		Future tech		Stealth Bomber, Stealth Destroyer		
Steam Power	3200	Chemistry, Replaceable Parts	Assembly Line	Railroad	Coal	Ironclad	Leaves	Workers build imp. +50% faster, Hagia Sophia obsolete
Steel	2800	Iron Working, Chemistry	Railroad	Artillery		Cannon, Ironclad	Drydock, Ironworks	
Superconductors	6500	Computers or Refrigeration	Genetics				Laboratory, Research Institute, SS Thrusters	
The Wheel	60		Pottery			Chariot		Workers can build roads
Theology	500	Writing, Monotheism	Paper				Sistine Chapel, Hagia Sophia, Apostolic Palace Great Wonder	First Civ to discover founds Christianity, Enables Theocracy civic
Writing	120	Pottery or Animal Husbandry or Priesthood	Alphabet, Mathematics	Theology, Code of Laws, Feudalism			Library	Civs can negotiate Open Borders

## Color coding

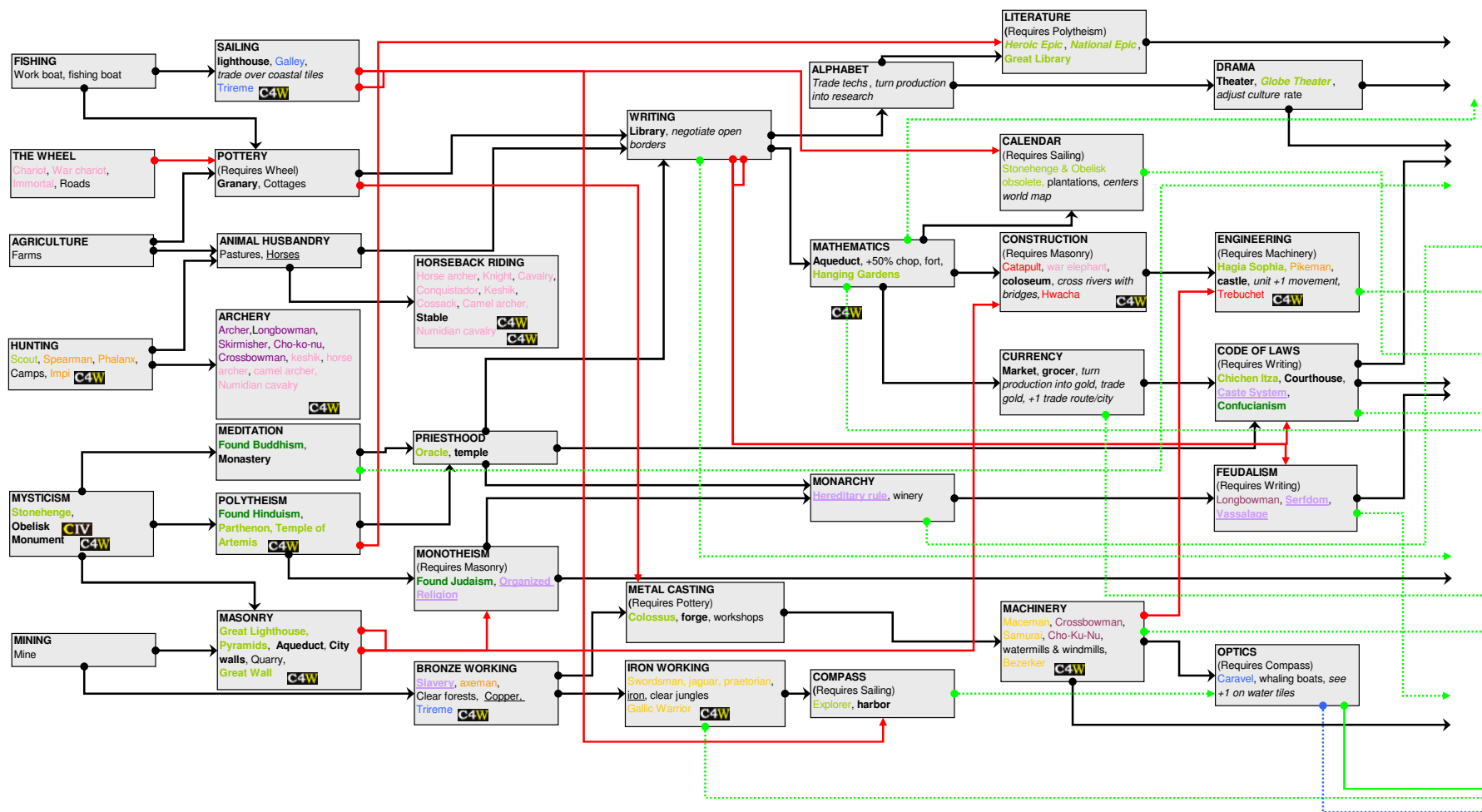
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Civ 4 Warlords Only

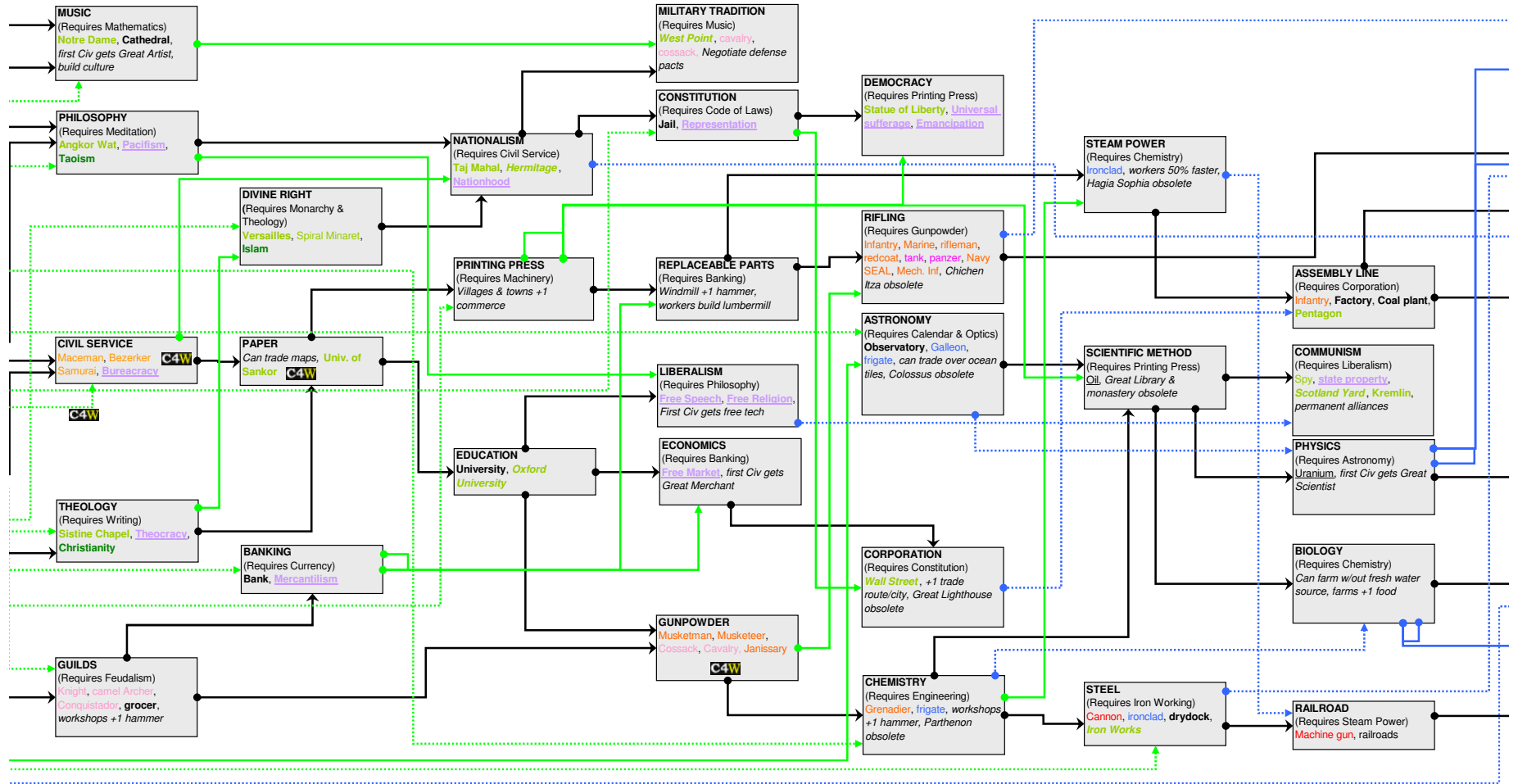
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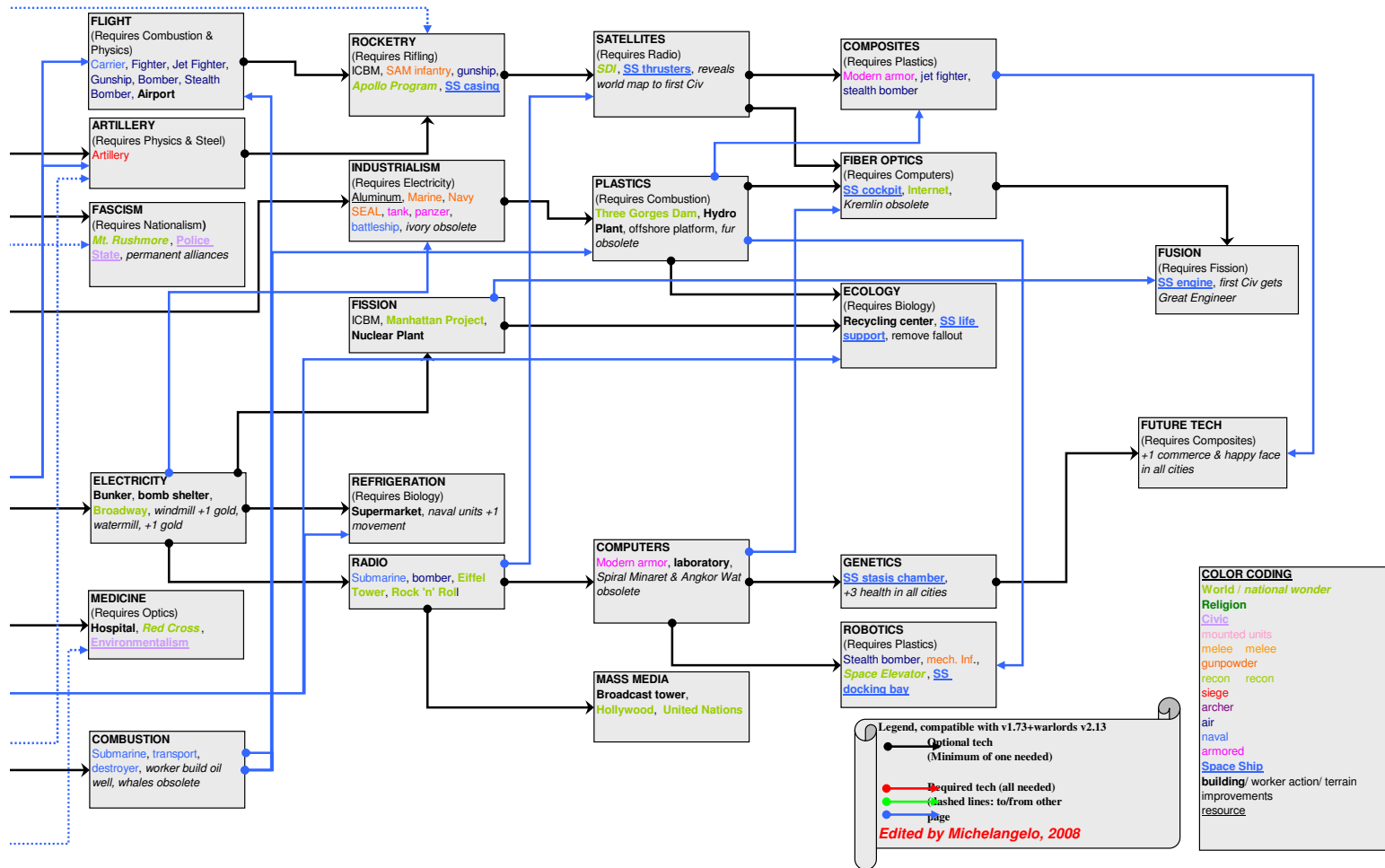
Technology Tree Flow Chart CIV + Warlords



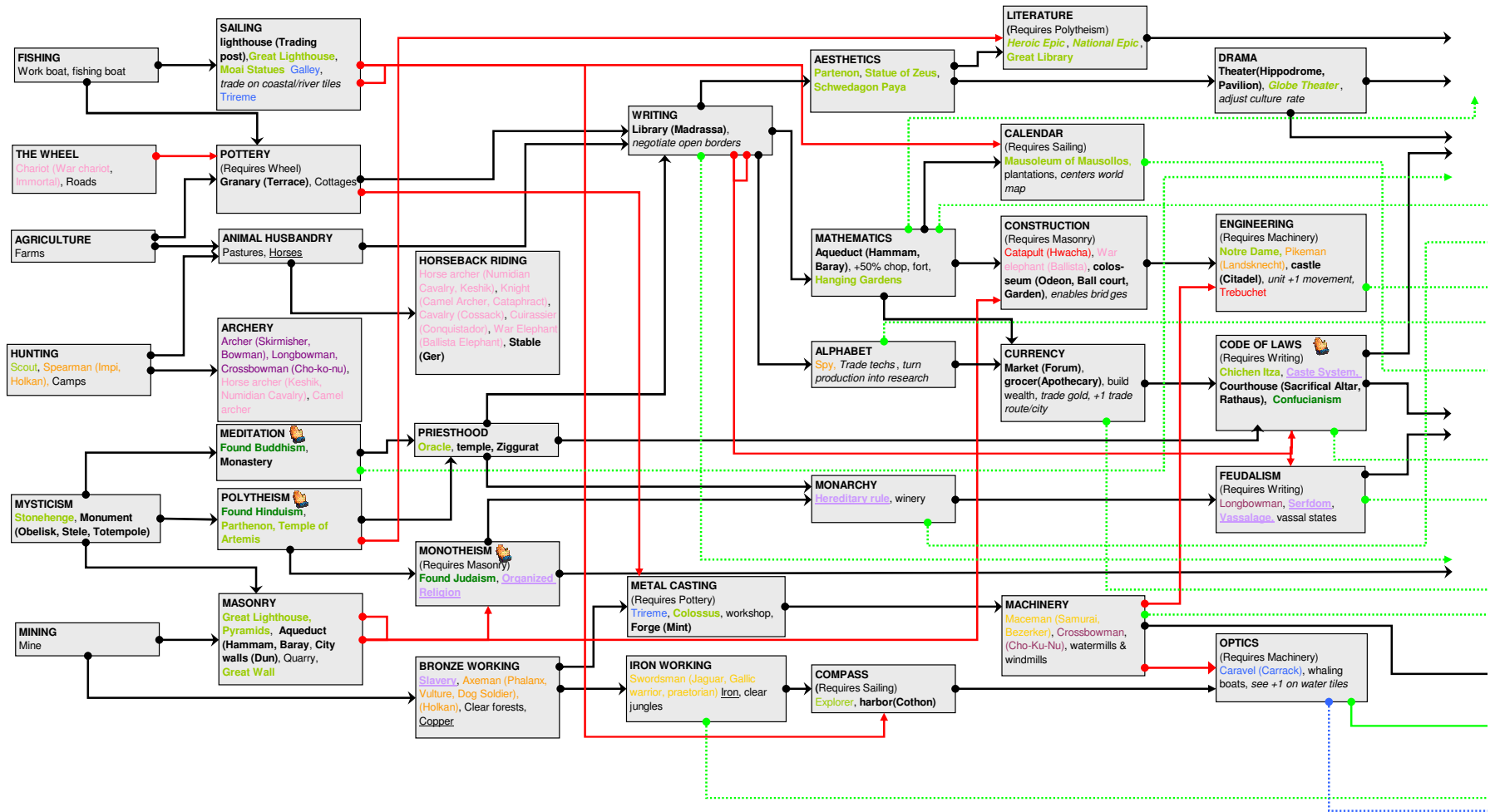
Technology Tree Flow Chart CIV + Warlords



# Technology Tree Flow Chart CIV + Warlords

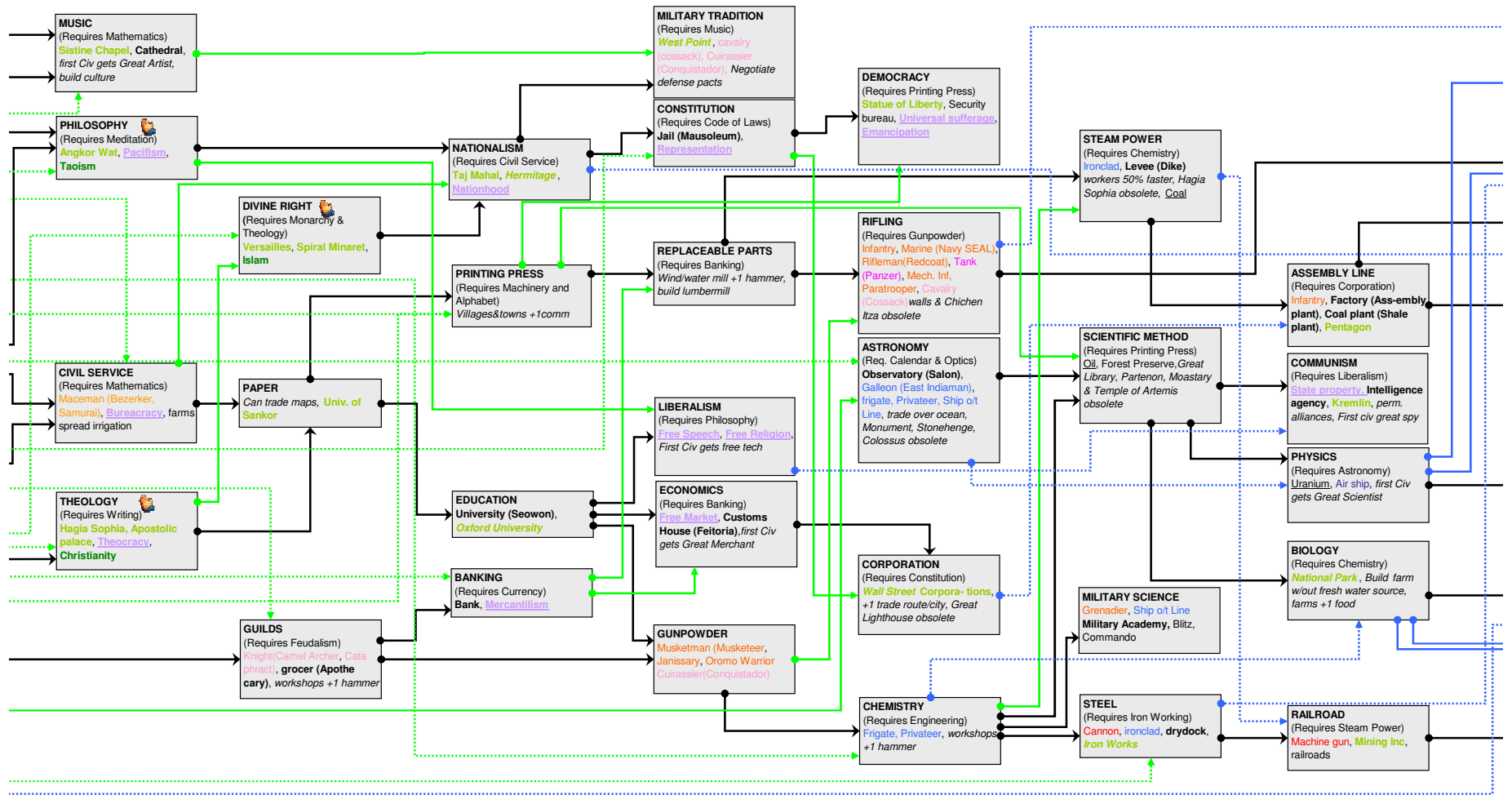


## Technology Tree Flow Chart BTS

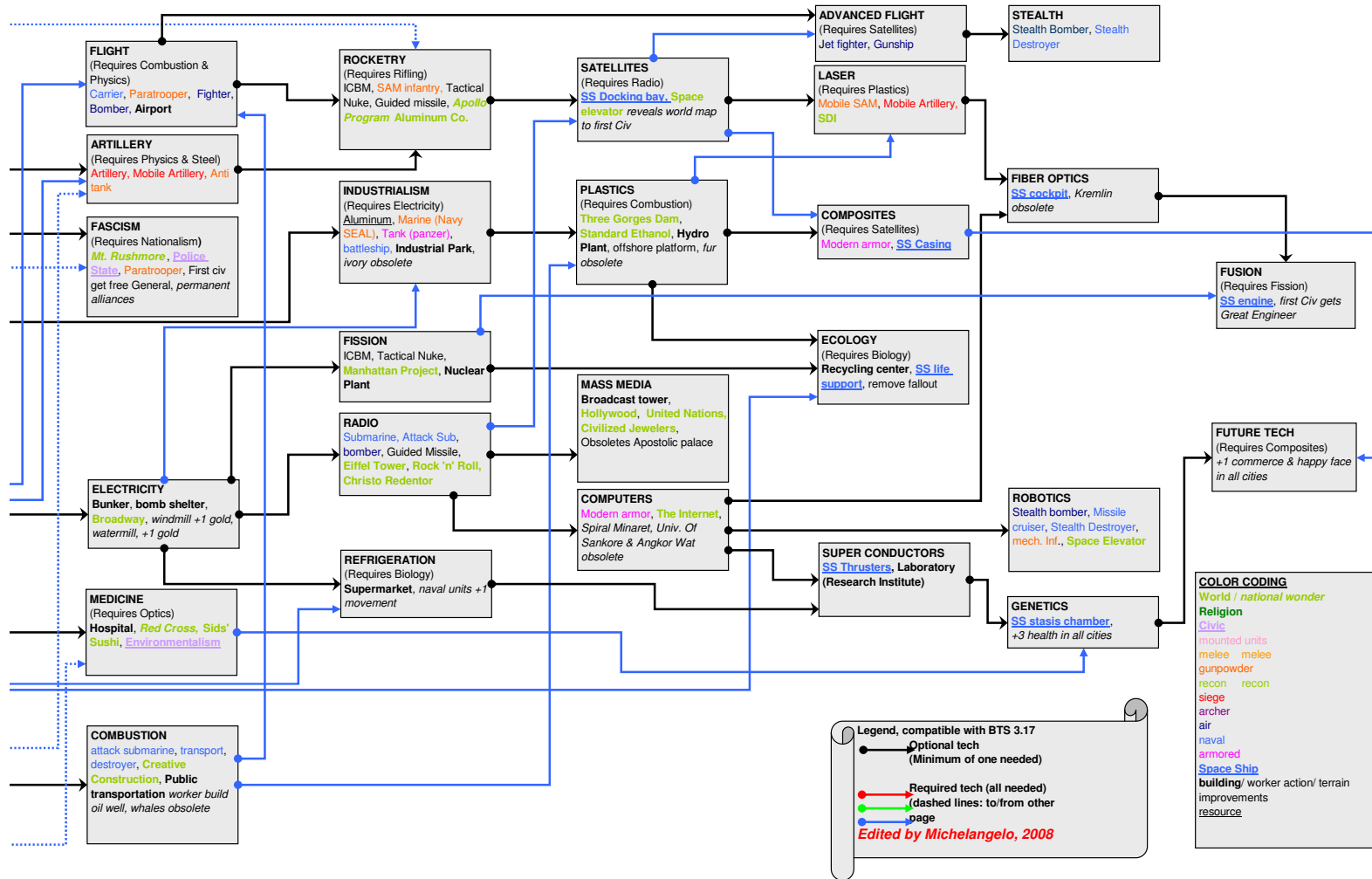




Technology Tree Flow Chart BTS



# Technology Tree Flow Chart BTS



City Buildings

	Normal						
Building	Culture	Expionage	Cost	1/2 cost w/	Tech. Req't(s)	Other Requirement(s)	Effect(s)
Academy	+4		Special			Great Scientist	+50% research
Airport			250		Flight		-1 health, +1 trade routes, airlift 1 unit/turn
Aqueduct			100		Mathematics, Masonry		+2 health
Bank			200	Financial Civs	Banking		+50% commerce
Bank			200		Banking		+50% commerce
Barracks			60	Aggressive Civs			+4 experience points to new land units
Barracks			50	Aggressive Civs			+3 experience points to new land units
Bomb Shelter			100		Electricity		-75% damage from nukes
Broadcast Tower	+50%		175		Mass Media		+1 happy face/10% culture rate, can turn 2 citizens to Artist, +1 happy face from Musicals, Singles, Movies
Buddhist Stupa	+50%		300	Copper	Music	Buddhism, three Buddhist temples	+2 happy faces if Buddhism is state religion, can turn 2 citizens to Priest, +1 happy face from incense
Bunker			100		Electricity		-50% damage from air units, protect against collateral damage for air units
Castle	+1		100	Stone	Engineering	Walls	+50% defense vs pre-gunpowder units
Castle	+1	+25%	100	Stone	Engineering	Walls	+50% defense vs pre-gunpowder units, +1 trade route (expires with Economics), +25 protection to bombardment
Cathedral (1/religion)	+50%		300	Stone	Music	Cathedral's religion, temple of religion in two cities	+2 happy faces if state religion is that of cathedral's religion, can turn 2 citizens to Priest, +1 happy face from incense Jewish cathedral
Coal Plant			150		Assembly Line	Factory, coal	With coal, provides power for a factory, -2 health
Colloseum			120	Creative Civs	Construction		+1 happy face, +1 happy face/20% culture rate
Colloseum			80	Creative Civs	Construction		+1 happy face, +1 happy face/20% culture rate
Confucian Academy	+50%		300	Copper	Music	Confucianism, three Confucian temples	+2 happy face if Confucianism is state religion, can turn 2 citizens to Priest, +1 happy face from incense
Courthouse			120	Organised Civs	Code of Laws		-50% Maintenance costs
Customs House			180			Harbor	+100% Intercontinental Foreign Trade Route
Drydock			120	Aggressive Civs	Steel		New naval units +4 experience points, build naval units 50% faster, -1 health
Factory			250	Organised Civs	Assembly Line		+25% production, +50% production with power, can turn 2 citizens to Engineer, -1 health
Forge			120	Industrious Civs	Metal Casting		+25% production, can turn 1 citizen to Engineer, +1 happy face from gems, gold, & silver, -1 health
Granary			60	Expansive Civs	Pottery		Stores 50% of food after growth, +1 health from corn, rice, & wheat
Grocer			150		Guilds, Currency		+25% commerce, can turn 2 citizens to Merchant, +1 health from bananas, spices, sugar, & wine
Harbor			80	Expansive Civs	Compass		+50% yield from trade routes, +1 health from clams, crabs, & fish
Hindu Mandir	+50%		300	Marble	Music	Hinduism, three Hindu temples	+2 happy faces if Hinduism is state religion, can turn 2 citizens to Priest, +1 happy face from incense
Hospital			200		Medicine		+3 health, heals units in city +10%/turn
Hydro Plant			200		Plastics	Factory	Provides power for a factory
Industrial Park			200		Industrialism	Factory	+1 free Engineer, -2 Health, -1 Health from Coal, Oil
Intelligence Agency		+8, +50%			Communism		Can turn 2 citizens into Spy
Islamic Mosque	+50%		300	Marble	Music	Islam, three Islamic temples	+2 happy faces if Islam is state religion, can turn 2 citizens to Priest, +1 happy face from incense
Jail		+50% <b>BTS</b>	120		Constitution		-25% war weariness, Can turn 2 citizens into Spy <b>BTS</b>
Jewish Synagogue	+50%		300	Stone	Music	Judaism, three Jewish temples	+2 happy faces if Judaism is state religion, can turn 2 citizens to Priest, +1 happy face from incense
Laboratory			250		Computers, (Superconductors) <b>BTS</b>	Observatory	+25% research, +50% spaceship production, can turn 1 citizen to Scientist, -1 health
Levee			180		Steam Power		+1 production from River tiles
Library	+2		90	(Creative Civs)	Writing		+25% research, can turn 2 citizens to Scientist
Lighthouse			60	Organised Civs	Sailing		Water tiles +1 food
Market			150		Currency		+25% commerce, can turn 2 citizens to Merchant, +1 happy face from furs, ivory, silk, & whales
Military Academy	+3		Special		Education	Great General	+50% Military Unit Production
Monastery (1/religion)	+2		60		Meditation	Monastery's religion	+10% research, can train religion's missionaries in city
Monument	+1		30		Mysticism		Obsolete with Calendar (Astronomy <b>BTS</b> )
Nuclear Plant			250		Fission	Factory, uranium	With uranium, provides power for a factory, small chance of nuclear meltdown
Observatory			150		Astronomy		+25% research, can turn 1 citizen to Scientist
Public Transportation			150		Combustion		+1 Health, +1 Health from Oil, +2 Health from Environmentalism
Recycling Center			300		Ecology		No unhealthiness from buildings
Scotland Yard		+100%	Special			Great Spy	
Security Bureau		+8			Democracy		+50% Defense against Espionage, Turn 2 citizens into Spy
Shrine (1/religion)			0				More likely to generate Great Prophet, can turn 3 citizens into Priest
Stable			80		Horseback Riding		+2 XP for mounted units, obsolete with Rocketry, (Advanced flight <b>BTS</b> )
Supermarket			150		Refrigeration	Grocer	+1 health from cows, deer, pigs, & sheep
Taoist Pagoda	+50%		300	Copper	Music	Taoism, three Taoist temples	+2 happy faces if Islam is state religion, can turn 2 citizens to Priest, +1 happy face from incense
Temple (1/religion)	+1		80		Priesthood	Temple's religion	+1 happy face, can turn 1 citizen to Priest
Theatre	+3		50	Creative Civs	Drama		+1 happy face/10% culture rate, can turn 2 citizens to Artist, +1 happy face from dyes
University	+3		200	Philosophical Civs	Education	Library	+25% research
Walls			50	Stone	Masonry		+50% defense vs pre-gunpowder units
Walls			50	Stone	Masonry		+50% defense vs pre-gunpowder units, +50% protection to bombardment

Color coding

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## Unique Buildings

Game Speed:	Normal	(Game speed modifiers not 100% verified, normal speed = correct)		
Civilization	Building	Cost	Replaces	Additional Effect(s)
America	Mall	150	Supermarket	Adds +20% commerce, +1 happiness from hit musical, hit single, hit movie
Arabs	Madrassa	90	Library	Can turn two citizens into Priests, +2 culture
Aztecs	Sacrificial Altar	90	Courthouse	-50% anger from sacrificing population, costs 90, +2 Espionage <b>BTS</b>
Babylonia	Garden	80	Colosseum	+2 health
Byzantine	Hippodrome	50	Theatre	+1 Happy, +3 Culture, +1 Happy from Horse, +1 happy/5 culture
Carthage	Cothon	100	Harbor	+1 trade route, cost 100
Celts	Dun	50	Walls	Free Guerilla I promotion for units built in the city
China	Pavilion	50	Theatre	+25% culture
Dutch	Dike	180	Levee	+1 production from water tiles
Egypt	Obelisk	30	Monument	Can turn two citizens into Priests
England	Stock Exchange	200	Bank	+15% commerce
Ethiopia	Stele	30	Monument	+25% culture
France	Salon	150	Observatory	+1 free Artist
Germany	Assembly Plant	250	Factory	Can turn 4 citizens into Engineers, +50% production with coal
Greece	Odeon	80	Colosseum	+3 culture, +1 happiness from hit singles, can turn 2 citizens into Artists
Holy Roman Empire	Rathaus	120	Courthouse	-25% extra reduction maintenance
Inca	Terrace	60	Granary	+2 culture
India	Mausoleum	120	Jail	+2 happiness
Japan	Shale Plant	150	Coal Plant	+10% production
Khmer	Baray	100	Aqueduct	+1 Food
Korea	Seowon	200	University	+10% research
Mali	Mint	120	Forge	+10% commerce
Maya	Ball Court	80	Colosseum	+2 Happy
Mongolia	Ger	60	Stable	+2 experience points for mounted units
Native America	Totem Pole	30	Monument	+3 XP for archery units
Ottoman	Hammam	100	Aqueduct	+2 happiness
Persia	Apothecarecy	150	Grocer	+2 health
Portugal	Feltonia	180	Customs House	+1 commerce for watertiles
Rome	Forum	150	Market	+25% birth rate
Russia	Research Institute	250	Laboratory	+2 free Scientists
Spain	Citadel	100	Castle	New siege weapons get +5 experience points, -50% damage to city defenses from non-gunpowder bombardment
Sumeria	Ziggurat	90	Courthouse	Reduced cost
Viking	Trading Post	60	Lighthouse	Free Navigation I promotion for naval units built in the city
Zulu	Ikhanda	60	Barrack	-20% city maintenance cost. Reduced cost

### Color coding

Civ4 BTS only

## Wonders

Game Speed:		Normal						
Wonder/Project/SS Part	Culture	Cost	1/2 cost	GP Type	GPP	Tech Required	Other Requirements	Effects
World Wonders								
Apostolic Palace	4	400		Prophet	+2	Theology	State religion in city	Triggers Apostolic Palace global Elections, Guarantee Diplomatic votes, obsolete Mass Media
Aluminum Co	2	Special		Scientist	+1	Corporation, Rocketry	Coal	+4 gold/city with Aluminum
Angkor Wat	8	500	stone	Prophet	+2	Philosophy		+1 production in cities with Priest, can turn 3 citizens to Priest, obsolete with Computers
Broadway	+50%	800		Artist	+2	Electricity		Provides 5 hit musicals (+1 happy face), more likely to generate Great Artist
Cereal Mills	2	Special		Merchant	+1	Corporation, Refrigeration	Either Wheat, Corn, Rice	+4 gold/city with Cereal
Chichen Itza	6	500	stone	Prophet	+2	Code of Laws		+25% defense in all cities, more likely to generate Great Prophet, obsolete with Rifling
Church of the Nativity	4	Special		Prophet		Christian holy city, great prophet		+1 commerce/turn for every city with Christianity, spreads Christianity, can turn 3 citizens to Priest; Immune to nukes <b>C4W</b>
Civilized Jewelers Inc	2	Special		Artist	+1	Corporation, Mass Media	Either Gold, Silver, Gems	+4 gold/city with Jewels
Creative Constructions	2	Special		Engineer	+1	Corporation, Combustion	Either Iron, Copper, Marble, Stone, Aluminum	+4 gold/city with Creative Constructions
Christo Redentor	+5	1000	Spiritual	Engineer	+2	Radio		No Anarchy, 1 turn between civics or state religion changes
Colossus	6	250	copper	Merchant	+2	Metal Casting	Forge in city to build, coastal city	All water tiles +1 commerce, obsolete with Astronomy, more likely to generate Great Merchant
Dai Mao	4	Special				Taoist holy city, great prophet		+1 commerce/turn for every city with Taoism, spreads Taoism, can turn 3 citizens to Priest, Immune to nukes <b>C4W</b>
Eiffel Tower	6	1250	iron	Merchant	+2	Radio	Forge in city to build	Free broadcast tower in every city, more likely to generate Great Merchant
Great Library	8	350	marble	Scientist	+2	Literature	Library in city to build	+2 free Scientists in city, more likely to generate Great Scientist, obsolete with Scientific Method
Great Lighthouse	6	200		Merchant	+2	Masonry	Lighthouse in city to build	+2 trade routes in coastal cities, more likely to generate Great Merchant, Obsolete w/Corporation
Great Wall	1	250	stone	Engineer	1	Masonry		massive wall around cultural borders keeps barbarians out, 2x chance of getting Great General, city more likely to generate Great Engineer
Hagia Sophia	8	550	marble	Engineer	+2	Engineering (Theology <b>BTS</b> )		Workers build improvements 50% faster, more likely to generate Great Engineer, obsolete with Steam Power
Hanging Gardens	6	300	stone	Engineer	+2	Mathematics	Aqueduct in city to build	+1 health & population in all cities, more likely to generate Great Engineer
Hollywood	+50%	1000		Artist	+2	Mass Media		Provides 5 hit movies, +1 happy face, more likely to generate Great Artist
Kashi Vishwanath	4	Special				Hindu holy city, great prophet		+1 commerce/turn for every city with Hinduism, spreads Hinduism, can turn 3 citizens to Priest; Immune to nukes <b>C4W</b>
Kong Mao	4	Special				Confucian holy city, great prophet		+1 commerce/turn for every city with Confucianism, spreads Conf., can turn 3 citizens to Priest; Immune to nukes <b>C4W</b>
Kremlin		1000	stone	Artist (Sov <b>BTS</b> )	+2	Communism		-33% cost to hurry production, more likely to generate Great Artist, obsolete with Fiber Optics
Mahabodhi	4	Special				Buddhist holy city, great prophet		+1 commerce/turn for every city with Buddhism, spreads Buddhism, can turn 3 citizens to Priest
Masjid al-Haram	4	Special				Islamic holy city, great prophet		+1 commerce/turn for every city with Islam, spreads Islam, can turn 3 citizens to Priest
Mausoleum of Maussollos	10	450	marble	Scientist	+2	Calendar		+50% golden age length
Mining Inc	2			Engineer	+1	Corporation, Railroad	Either Coal, Iron, Copper, Gold or Silver	+4 gold/city with Mining
Notre Dame	10	650	stone	Artist	+2	Music (Engineering <b>BTS</b> )		+1 happy face for all cities on same continent, more likely to generate Great Artist
Oracle	8	150	marble	Prophet	+2	Priesthood		1 free technology, more likely to generate Great Prophet
Parthenon	10	400	marble	Artist	+2	Polytheism		+50% great person birth rate in all cities, more likely to generate Great Artist, obsolete w/Chemistry
Pentagon		1250		Engineer	+2	Assembly Line		+2 experience points for units built in all cities, more likely to generate Great Engineer
Pyramids	6	450	stone	Engineer	+2	Masonry		Enables all Government civics, more likely to generate Great Engineer
Pyramids	8	500	stone	Engineer	+2	Masonry		Enables all Government civics, more likely to generate Great Engineer
Rock & Roll	+50%	800		Artist	+2	Radio		Provides 5 hit singles, +1 happy face, more likely to generate Great Artist
Schwedagon Paya	8	450	Gold	Prophet	+2	Aesthetics, Meditation		Enables all Religion Civics
Sid's Sushi Co	2	Special		Merchant	+2	Corporation, Medicine		+4 gold/city with Sushi
Standard Ethanol	2	Special		Scientist	+2	Corporation, Plastics		+4 gold/city with Ethanol
Sistine Chapel	10	600	marble	Artist	+2	Theology (Music <b>BTS</b> )		+2 culture per specialist in all cities, more likely to generate Great Artist
Space Elevator		2000	aluminium	Scientist	+2	Robotics (and Satellites <b>BTS</b> )		+50% spaceship production in all cities, required for Space Race victory, more likely to generate Great Scientist
Spiral Minaret	8	550	stone	Prophet	+2	Divine Right		+1 (+2 <b>C4W</b> ) commerce from all state religion buildings, more likely to generate Great Prophet, obsolete w/Computers
Statue of Liberty	6	1500	copper	Merchant	+2	Democracy	Forge in city to build	+1 specialist in all cities on same continent, more likely to generate Great Merchant
Statue of Zeus	10	300	ivory	Artist	+2	Aesthetics	2 monuments	Enemies suffer +100% war weariness
Stonehenge	8	120	stone	Prophet	+2	Mysticism		Free obelisk in every city, centers world map, obsolete with Calendar, more likely to generate Great Prophet
Taj Mahal	10	700	marble	Artist	+2	Nationalism		Starts a golden age, more likely to generate Great Artist
Temple of Artemis	8	300	marble	Merchant	+2	Polytheism		+100% trade route yield, +1 free priest in city, more likely to generate Great Merchant
Temple of Solomon	4	Special				Jewish holy city, great prophet		+1 commerce/turn for every city with Judaism, spreads Judaism, can turn 3 citizens to Priest; Immune to nukes <b>C4W</b>
Three Gorges Dam		1750		Engineer	+2	Plastics	Build in city on river	Provides power for all cities on same continent, more likely to generate Great Engineer
United Nations		1000		Merchant	+2	Mass Media		Required for diplomatic victory, allows global elections, guarantees eligibility for diplomatic votes, more likely to generate Great Merchant
University of Sankor	8	550	stone	Scientist	2	Paper		+2 research for all buildings associated with state religion, more likely to generate Great Scientist
Versailles	10	800	marble	Merchant	+2	Divine Right		Reduces maintenance costs in nearby cities, more likely to generate Great Merchant
National Wonders								
Forbidden Palace	4	200		Merchant	+1		8+ cities, 4 cities with court-houses (1 in city for Palace)	Reduces maintenance in nearby cities, more likely to generate Great Merchant
Globe Theatre	6	300		Artist	+1	Drama		No unhappiness in city where built, can turn 3 citizens to Artist, more likely to generate Great Artist
Hermitage	+100%	300	marble	Artist	+1	Nationalism		+100% culture, more likely to generate Great Artist
Heroic Epic	4	200	marble	Artist	+1	Literature	Barracks in city, 1 unit lvl 4 exp.	+100% military unit production in city, more likely to generate Great Artist
Iron Works		700		Engineer	+1	Steel	4 forges, 1 in city to build	+50% production in city if built in city with access to iron or coal, can turn 3 citizens to Engineer, more likely to generate Great Engineer, -2 health
Moai Statues	4	250	stone	Prophet	+1	Sailing		Waterlilies +1 production
Mt. Rushmore	4	500	stone	Artist	+1	Fascism		-25% war weariness in all cities, more likely to generate Great Artist
National Epic	4	250	marble	Artist	+1	Literature	Library in city	+100% great person birth rate in city, more likely to generate Great Artist
National Park	3	300		Scientist	+1	Biology		Removes access to coal from city, no unhealthy from population, +1 free specialist/forest preserve
Oxford University	4	400	stone	Scientist	+1	Education	4 universities, 1 in city to build	+100% research in city, can turn 3 citizens into Scientist, more likely to generate Great Scientist
Palace	2	160					4+ cities	Makes city the capital, reduces maintenance in nearby cities, +1 happiness, +8 commerce, -2 culture
Red Cross	2	600		Scientist	+1	Medicine	4 hospitals, 1 in city to build	Free Medic 1 promotion for units built in city, more likely to generate Great Scientist
Scotland Yard		500		Scientist	+1	Communism		City can build spy units, more likely to generate Great Scientist
Wall Street		600		Merchant	+1	Corporation	4 banks, 1 in city to build	+100% commerce, can turn 3 citizens to Merchant, more likely to generate Great Merchant
West Point		800	stone	Engineer	+1	Military Tradition	1 unit level 5 (6 <b>C4W</b> ) experience	+4 experience points for units built in city, more likely to generate Great Engineer
Projects								
Apollo Program		1000	aluminium			Rocketry		Required to build spaceship parts
The Internet		2000	copper			Fiber Optics		Grants all technologies acquired by any 2 known civilization
The Manhattan Project		1500	uranium			Fission		Enables nuclear weapons & bomb shelters for all players
SDI		1000	aluminium			Satellites	Manhattan Project built	75% chance of intercepting nukes
Spaceship								
Casing		400	aluminium			Rocketry (Composites <b>BTS</b> )	Apollo Program	Space race victory (5 required) (1 to 5 required <b>BTS</b> )
Cockpit		800	copper			Fiber Optics	Apollo Program	Space race victory (1 required)
Docking Bay		1200	aluminium			Robotics (Satellites <b>BTS</b> )	Apollo Program	Space race victory (1 required)
Engine		1000				Fusion	Apollo Program	Space race victory (1 required) (1 to 2 required <b>BTS</b> )
Life Support		600	copper			Ecology	Apollo Program	Space race victory (1 required)
Stasis Chamber		1000				Genetics	Apollo Program	Space race victory (1 required)
Thrusters		600	aluminium			Satellites (Super conductors <b>BTS</b> )	Apollo Program	Space race victory (3 required) (1 to 5 required <b>BTS</b> )

## Color coding

Civ 4 only

Civ 4 Warlords Only

Civ4 BTS only

## Units

Game Speed:	Normal									
Unit	Strength	Move	Cost	Unit Type	Tech(s) Required	Resource(s) Required	Special Abilities	Upgradeable to	Unit best for	Don't use against
<b>Non-Combat Units</b>										
Executive	0	2	100	Establish corporations	Special		Can expand corporation, 5 units allowed			
Explorer	4	2	40	Recon	Compass		Better results from huts, cannot attack, no terrain movement costs, starts w/Cuencila & Woodman			
Missionary	0	2	40	Special			Can spread religion, requires monastery			
Scout	1	2	15	Recon	Hunting		Better results from huts, can only defend, +100% vs wild animals	Explorer		
Settler	0	2	100	Non-combat			Can only defend, can found new city, +50% with Imperialistic <b>BTS</b>			
Spy	0	2	80	Special	Communism		Requires Scotland Yard national wonder, invisible to all units (not other spies), explore rival territory, expose rival spies, starts with Sentry			
Spy	0	1	40	Special	Alphabet		Invisible to all units (not other spies), explore rival territory, expose rival spies, starts with Commando, perform Espionage Missions			
Work Boat	0	2	30	Non-combat	Fishing		Can't enter ocean tiles, create fishing boats, whaling boats, & offshore platforms			
Worker	0	2	60	Non-combat			Can improve tiles			
<b>Foot Units</b>										
Anti Tank	14	1	120	Gunpowder	Artillery		+100% vs Armored Units, starts with Ambush, 20% chance to intercept aircraft	Mech. Infantry	Armored Units	Infantry
Archer	3	1	25	Archery	Archery		1 First strike, +50% city defense, +25% hills defense	Longbowman, Crossbowman	City defense	Horse Archer
Axeman	5	1	35	Melee	Bronze Working	Copper or Iron	+50% vs melee	Maceman	Other melee	
Crossbowman	6	1	60	Archery	Machinery, Archery	Iron	1 first strike, +50% melee	Grenadier, Rifleman	Melee units	Knights
Grenadier	12	1	100	Gunpowder	Chemistry (Military Science <b>BTS</b> )		+50% attack vs rifleman	Infantry, Machine Gun	Rifleman	
Infantry	20	1	140	Gunpowder	Assembly Line, Rifling		+25% vs gunpowder	SAM Infantry, Mech. Infantry	Gunpowder units	Machine Gun
Longbowman	6	1	50	Archery	Feudalism, Archery		1 first strike, +25% city defense, +25% hills defense	Rifleman	City defense	Knights
Maceman	8	1	70	Melee	Civil Service, Machinery	Copper or Iron	+50% vs melee	Grenadier, Rifleman	Melee units	Crossbowman
Machine Gun	18	1	125	Siege	Railroad		Can only defend, 1 first strike, +50% vs gunpowder	(SAM Infantry <b>CIV</b> )	Gunpowder units	Marine
Marine	24	1	160	Gunpowder	Industrialism, Rifling		Immune to collateral damage, <b>BTS</b> 20% chance to intercept	Mech Infantry	Machine gun, artillery	
Muskelman	9	1	80	Gunpowder	Gunpowder		Starts w/Amphibious, +50% attack vs machine gun & artillery	Rifleman	City defense	
Paratrooper	24	1	160	Gunpowder	Fascism, Rifling, Flight		Can perform paratroops (range=5), evasion chance 25%		Attack	
Pikeman	6	1	60	Melee	Engineering	Iron	+100% vs mounted units	Grenadier, Rifleman	Mounted units	Crossbowman
Rifleman	14	1	110	Gunpowder	Rifling		+25% vs mounted	Infantry	Mounted units	Grenadier
SAM Infantry	18	1	150	Gunpowder	Rocketry		40% chance to intercept aircraft, +75% vs helicopter		Air units	Land units
Spearman	4	1	35	Melee	Hunting	Copper or Iron	+100% vs mounted units	Pikeman	Mounted units	Axeman
Swordsman	6	1	40	Melee	Iron Working	Iron	+10% city attack	Maceman	City attacks	Axeman
Warrior	2	1	15	Melee			+25% city defense	Axeman, Spearman	City defense	Axeman
<b>Mobile/Mounted Units</b>										
Artillery	18	1	150	Siege	Artillery		No defensive bonus, 25% withdraw chance, causes collateral damage, bombard city defenses (-25%/turn), +50% vs siege units		Bombarding cities/stacks	Marines
Artillery	18	1	150	Siege	Artillery		No defensive bonus, causes collateral damage, +50% vs siege units, Immune to coll. damage from Siege Weapons, max 85% damage on attack, -16% on cities	Mobile artillery	Bombarding cities/stacks	Marines
Cannon	12	1	100	Siege	Steel	Iron	No defensive bonus, 25% withdraw chance, causes collateral damage, bombard city defense (-20%/turn)	Artillery	Bombarding cities/stacks	Cavalry
Cannon	12	1	100	Siege	Steel	Iron	No defensive bonus, causes collateral damage, Immune to coll. damage from Siege Weapons, max 80% damage on attack, -12% on cities	Artillery	Bombarding cities/stacks	Cavalry
Catapult	5	1	40	Siege	Construction		No defensive bonus, 25% withdraw chance, causes collateral damage, bombard city defense (-15%/turn)	Cannon	Bombarding cities/stacks	Horse Archer
Catapult	5	1	50	Siege	Construction		No defensive bonus, causes collateral damage, Immune to coll. damage from Siege Weapons, max 75% damage on attack, -8% on cities	Cannon	Bombarding cities/stacks	Horse Archer
Cavalry	15	2	120	Mounted	Military Tradition, & Gunpowder (Rifling <b>BTS</b> ), Horseback Riding	Horses	No defensive bonus, 30% withdraw chance, +50% attack vs cannon, Flank attack vs Cannon, Trebuchet & Catapult <b>BTS</b>	Gunship	Musketman, grenadier, cannon, city attacks	Rifleman
Chariot	4	2	25	Mounted	The Wheel	Horses	No defensive bonus, 20% (10% <b>BTS</b> ) withdraw chance, +100% vs Axeman <b>BTS</b>	Knight, (Horse Archer)	Pillaging	Spearman
Cuirassier	12	2	100	Mounted	Military Tradition, & Gunpowder, Horseback Riding	Horses, Iron	No defensive bonus, Immune to First Strikes, withdraw 15%, Flank attack vs Cannon, Trebuchet & Catapult	Cavalry	Cannon	Rifleman
Horse Archer	6	2	50	Mounted	Horseback Riding, Archery	Horses	Immune to first strikes, no defensive bonus, +50% attack vs catapult	Knight	Archer, catapult	Spearman
Horse Archer	6	2	50	Mounted	Horseback Riding, Archery	Horses	Immune to first strikes, no defensive bonus, +50% attack vs catapult, Flank attack vs Catapult, Trebuchet	Knight	Archer, catapult	Spearman
Knight	10	2	90	Mounted	Guilds, Horseback Riding	Iron, Horses	Immune to first strikes, no defensive bonuses, Flank attack vs Catapult, Trebuchet <b>BTS</b>	Cavalry (Cuirassier <b>BTS</b> )	Archer units	Pikeman
Mechanized Infantry	32	2	200	Gunpowder	Robotics, Rifling		Starts with March, 20% chance to intercept aircraft		City defense	
Mobile Artillery	26	2	200	Siege	Laser, Artillery	Oil	No defensive bonus, causes collateral damage, +50% vs siege units, Immune to coll. damage from Siege Weapons, max 85% damage on attack, -16% on cities		Artillery, cities	Spearman
Modern Armor	40	2	240	Armored	Composites, Computers	Oil, Aluminum	1 first strike, no defensive bonuses, causes collateral damage, starts with Blitz		City attack	Gunship
Tank	28	2	180	Armored	Industrialism, Rifling	Oil	No def. bonus, causes collateral damage, starts with Blitz	Modern Armor	Offensive units	Gunship
Trebuchet <b>C4W</b> <b>BTS</b>	4	1	80	Siege	Engineering		No defensive bonus, 25% withdraw chance, causes collateral damage, bombard city defense (-25%/turn), +100% city attack, Immune to collateral damage	Cannon	Bombarding cities/stacks	Horse Archer
War Elephant	8	1	60	Mounted	Construction, Horseback riding	Ivory	No defensive bonus, +50% vs mounted	Cavalry (Cuirassier <b>BTS</b> )	Other mounted units	Spearman, pikeman
<b>Naval Units</b>										
Attack Submarine	30	7	200	Naval	Rocketry, Radio, Combustion	Uranium	Invisible, Can see Submarines, Can move through impassable, rival terrain, Cargo 1 non military, +50% vs Submarine		Submarine, reconnaissance	
Battleship	40	6	225	Naval	Industrialism	Oil or Uranium	Bombard city defenses (-20%/turn), causes collateral damage	Missile Cruiser <b>BTS</b>		
Caravel	3	3	60	Naval	Optics		Cargo space: 1, can explore rival territory w/out open borders	Frigate, Submarine (Attack Submarine <b>BTS</b> ),		
Carrier	16	5	175	Naval	Flight	Oil or Uranium	Cargo space: 3 (fighters)			
Destroyer	30	8	200	Naval	Combustion	Oil or Uranium	Can see subs, 30% chance to intercept aircraft, bombard city defenses (-15% (16% )/turn) <b>BTS</b>			
Frigate	8	4	90	Naval	Astronomy, Chemistry	Iron	Bombard city defenses (-10% (-8% <b>BTS</b> )/turn)	Destroyer		Ship o't Line
Galleon	4	4	80	Naval	Astronomy		Cargo space: 3	Transport		
Galley	2	2	50	Naval	Sailing		Cargo space: 2, cannot enter ocean tiles	Galleon		
Ironclad	12	2	100	Naval	Steel, Steam Power	Iron, Coal	Cannot enter ocean tiles, can bombard city defenses (-10% (-12% <b>BTS</b> )/turn)	Destroyer		
Missile Cruiser	40	7	260	Naval	Robotics	Oil or Uranium	Cargo space: 4 missiles, Collateral damage, Bombard cities 20%			
Ship of the Line	8	3	150	Naval	Military Science, Astronomy	Iron	+50% vs Frigate, can bombard city defenses -12%/turn	Destroyer	Frigate	
Submarine	24	6	150	Naval	Radio, Combustion	Oil or Uranium	Cargo space: 1 (transport missionaries, scouts, explorers, spies, great people), invisible to most units, 50% withdraw chance, can see other subs, can enter rival territory without open borders			
Stealth Destroyer	30	8	220	Naval	Stealth Robotics	Oil or Uranium	2 First strikes, Invisible, Can see stealth units			
Transport	16	5	125	Naval	Combustion	Oil or Uranium	Cargo space: 4			
Treeme <b>C4W</b> <b>BTS</b>	2	2	50	Naval	Sailing, Bronze Working		+50% attack vs galley, cannot enter ocean tiles	Caravel, Frigate		
<b>Air Units</b>										
Airship	4	1	80	Air	Physics		Can see Submarines, 20% maximum air strike damage	Fighter	Naval units	
Bomber	16	8	140	Air	Radio, Flight	Oil	Causes collateral damage 50% vs naval, bomb city defenses (-15% (-16% <b>BTS</b> )/turn)	Stealth Bomber	Bombarding cities/stacks	Naval units
Fighter	12	6	100	Air	Flight	Oil	Intercept aircraft (50% (100% <b>BTS</b> ) chance), bomb city defenses (-5% (-8% <b>BTS</b> )/turn)	Jet Fighter	Air units, cities	Stealth bomber
Guided Missile	40	1	80	Air	Rocketry, Radio		Can evade interception (100% chance), bomb city defenses (-16%/turn)	Fighter	Naval units	
Gunship	20	4	160	Helicopter	Rocketry, Flight	Oil	Cannot capture cities (or units <b>BTS</b> ), no defensive bonus, ignores terrain modifiers, 25% withdraw chance, +100% vs armored, rails increase movement rate, Flank attack Cannons, Artillery & Mobile Artillery		Tank	SAM Infantry
ICBM	0	1	500	Air	Rocketry, Fission	Uranium	Nuke enemy territory, requires any Civ to build Manhattan Project			
Jet Fighter	24	10	150	Air	Composites, Flight	Oil, Aluminum	Intercept aircraft (70% chance), bomb city defenses (-10%/turn)		Air units, cities	
Jet Fighter	24	10	150	Air	Advanced Flight	Oil, Aluminum	Intercept aircraft (100% chance), bomb city defenses (-12%/turn)		Air units, cities	
Stealth Bomber	20	12	200	Air	(Composites, Flight ) (Stealth <b>BTS</b> ) or Robotics	Oil, Aluminum	50% chance to evade interception, collateral damage, -50% vs naval units, bombard city defenses (-20%/turn)		Bombarding cities/stacks, SAM Infantry	

Color coding

Civ4 BIS only

Civ 4 Warlords Only

### Unique Units

Game Speed:	Normal										
Unit	Strength	Move	Cost	Unit Type	Tech(s) Required	Resource(s) Required	Replaces	Special Abilities	Upgradeable to	Unit best for	Don't use against

[illegible]

Unique Units	Warlords
Beserker (Viking)	8 1 70 Melee Civil Service, Machinery Copper or Iron Maceman Replaces Maceman, +10% city attack, +50 %vs Melee, starts with Amphibious Rifleman, Grenadier Melee units Axeman
Galic Warrior (Celts)	6 1 40 Melee Iron Working Copper or Iron Swordsman Replaces Swordsman, +10% City Attack, starts with Guerilla I Maceman City Attack Axeman
Hwacha (Korea)	5 1 40 Siege Construction Catapult Replaces catapult, +50% vs melee units, no defense bonus, 25% withdrawal chance, causes collateral damage, bombard city defenses (15%km) Cannon Bombarding cities/stacks Horse Archer
Hwacha (Korea)	5 1 50 Siege Construction Catapult Replaces Catapult, No defensive bonuses, max 75% damage on attack, Causes collateral damage, Immune to collateral damage from siege weapons, +50% vs Meleee, can bombard cities Cannon Bombard
Impi (Zulu)	4 2 35 Melee Hunting Copper or Iron Spearman Replaces Spearman, +100% vs Mounted, starts with Mobility Pikeman Mounted units Axeman
Janissary (Ottoman)	9 1 80 Gunpowder Gunpowder  Muskettman Replaces Muskettman, +25% vs Archery, Mounted and Melee units Rifleman Allround
Numidian Cavalry (Carthage)	5 2 50 Mounted Horseback riding, Hunting Horses Horse Archer Replaces Horse Archer, Immune to First strikes, no defensive Bonuses, 20% withdraw, 50% vs Catapult, Trebuchet and Melee units, Flank attack vs Catapult and Trebuchet Knight Catapult, Trebuchet

Unique Units	BTS										
Ballista Elephant (Khmer Empire)	8	1	60	Mounted	Construction, Horseback Riding	Ivory	War Elephant	Replaces War Elephant, +50% vs Mounted Units, targets Mounted units first	Cuirassier	Mounted units	Pikeman
Bowman (Babylonia)	3	1	25	Archery	Archery		Archer	Replaces Archer, 1 First Strike, +50% city defense, +25% Hills defense	Longbowman, Crossbowman	City Defense	
Carrack (Portugal)	3	3	60	Naval	Optics		Caravel	Replaces Caravel, Cargo space: 2, Can explore rival territory	Frigate, Destroyer, Attack Sub	Exploration	
Cataphract (Byzantium)	12	2	90	Mounted	Guilds, Horseback Riding	Horses, Iron	Knight	Replaces Knight, no defensive bonus, Flank attack vs Catapult and Trebuchet	Cuirassier	Catapult, Trebuchet	Rifeman
Dog Soldier (Native America)	4	1	35	Melee	Bronze Working		Axeman	Replaces Axeman, +100% vs Melee	Maceman	Melee units	
East Indianan (Dutch)	6	4	80	Naval	Astronomy		Galleon	Replaces Galleon, Cargo space: 4, Can explore rival territory	Transport	Transport	
Holkan (Maya)	4	1	35	Melee	Hunting, Bronze working		Spearman	Replaces Spearman, +100% vs Mounted Units, Immune to first strikes	Pikeman	Mounted units	Axeman
Landsknecht (HRE)	6	1	60	Melee	Engineering	Iron	Pikeman	Replaces Pikeman, +100% vs Mounted and Melee units	Rifeman, Grenadier	Mounted, Melee	
Oromo Warrior (Ethiopia)	9	1	80	Gunpowder	Gunpowder		Musketman	Replaces Musketman, 1 First strike, immune to first strikes, Starts with Drill I and II	Rifeman		
Vulture (Sumeria)	6	1	35	Melee	Bronze Working	Copper or Iron	Axeman	Replaces Axeman, +25% vs Melee	Maceman	Swordsmen	Axeman

### Color coding

Civ4 BtS only

Civ 4 Warlords Only

# Unit Upgrade Costs

Game Speed:	Normal														
Unit to Upgrade To	Unit to Upgrade From														
Land Units	Warrior	Archer	Axeman	Spearman	Swordsman	Longbowman	Pikeman	Crossbowman	Maceman	Musketman	Grenadier	Rifleman	Machine Gun	Infantry	Anti tank
Axeman	80														
Spearman	80														
Pikeman	155			95											
Longbowman		95													
Crossbowman		125													
Maceman	185		125		110										
Grenadier	275	245	215	215	200		140	140	110						
Rifleman	305	275	245	245	230	200	170	170	140	110					
Machine Gun	350	320	290	290	275		215	215	185		95				
Infantry	395	365	335	335	320	290	260	260	230	200	140	110			
SAM Infantry	425	395	365	365	350	320	290	290	260	230	170	140	95	50	
Mechanized Infantry	575	545	515	515	500	470	440	440	410	380	320	290			260

Fast Units	Chariot	Cuirassier	Horse Archer	War Elephant	Knight	Cavalry
Horse Archer	95					
Knight	215		140			
Cuirassier	245		170		50	
Cavalry	305	80	230	200	110	
Gunship	425		350	320	230	140

Transports	Galley	Galleon
Galleon	110	
Transport	245	155

Naval Units	Caravel	Trireme	Frigate	Ironclad	Ship of the Line
Frigate	110	140			
Destroyer	440	470	350	320	170
Submarine	290				
Attack Submarine	440				
Stealth Destroyer	500	530	410	380	230
Missile Cruiser	620	650	530	500	350

Siege Units	Trebuchet	Catapult	Catapult	Cannon	Artillery
Cannon	80	200	170		
Artillery	230	350	320	170	
Mobile Artillery	380	500	470	320	170

Air Units	Airship	Guided missile	Fighter	Bomber
Fighter	80	80	20	
Jet Fighter	230	230	170	
Stealth Bomber				200

Armored Units	Tank
Modern Armor	200

Recon	Scout
Explorer	95

Color coding

Civ 4 Warlords Only

Civ 4 BTS Only



# Unit Promotions

Promotion	Required	Available To	Effect
Accuracy	City Raider I or Barrage I	Siege	+10% (+8% <b>BTS</b> ) city bombard damage
Ace	Combat III	Air Units	+25% Evasion
Ambush	Combat II	Siege, Gunpowder, Armored, Helicopter, Air	+25% vs. armored units
Amphibious	Combat II	Recon, Mounted, Archery, Melee, Siege, Gunpowder	No combat penalty for attacking from sea or across river
Barrage I	None	Siege, Armored	+20% collateral damage
Barrage II	Barrage I	Siege, Armored	+30% collateral damage, +10% vs. melee units
Barrage III	Barrage II	Siege, Armored	+50% collateral damage, +10% vs. gunpowder units
Blitz	Combat II	Mounted, Armored, Helicopter	Can attack multiple times per turn
Charge	Combat II	Mounted, Melee, Armored, Helicopter	+25% vs. siege weapons
City Garrison I	None	Archery, Gunpowder	+20% city defense
City Garrison II	City Garrison I	Archery, Gunpowder	+25% city defense
City Garrison III	City Garrison II	Archery, Gunpowder	+30% city defense, +10% vs. melee units
City Raider I	None	Melee, Siege, Armored	+20% city attack
City Raider II	City Raider I	Melee, Siege, Armored	+25% city attack
City Raider III	City Raider II	Melee, Siege, Armored	+30% city attack, +10% vs. gunpowder units
Combat I	None	All	+10% strength
Combat II	Combat I	All	+10% strength
Combat III	Combat II	All	+10% strength
Combat IV	Combat III	All	+10% strength, heals extra 10% damage per turn in neutral lands
Combat V	Combat IV	All	+10% strength, heals extra 10% damage per turn in enemy lands
Combat VI	Combat V	units lead by warlord	+25% strength Also BTS
Commando	Combat IV	Recon, Archery, Mounted, Melee, Gunpowder, Armored	Can use enemy roads
Cover	Combat I	Archery, Melee, Gunpowder	+25% vs. archery units
Drill I	None	Archery, Siege, Armored, Helicopter, Naval	1 extra first strike chance
Drill II	Drill I	Archery, Siege, Armored, Helicopter, Naval	1 extra first strike
Drill II	Drill I	Archery, Siege, Armored, Helicopter, Naval	1 extra first strike, -20% collateral damage (WL + BTS only)
Drill III	Drill II	Archery, Siege, Armored, Helicopter, Naval	+2 first strike chances
Drill III	Drill II	Archery, Siege, Armored, Helicopter, Naval	+2 first strike chances, -20% collateral damage (WL +BTS only)
Drill IV	Drill III	Archery, Siege, Armored, Helicopter, Naval	+2 first strikes, +10% vs. mounted units
Drill IV	Drill III	Archery, Siege, Armored, Helicopter, Naval	+2 first strikes, +10% vs. mounted units, -20% collateral damage (WL +BTS only)
Flanking I	None	Mounted, Armored, Helicopter, Naval	+10% withdraw chance
Flanking II	Flanking I	Mounted, Armored, Helicopter, Naval	+20% withdraw chance, immune to first strikes
Formation	Combat II	Archery, Mounted, Melee, Gunpowder	+25% vs. mounted units
Guerilla I	None	Recon, Archery, Gunpowder	+20% defense in hills
Guerilla II	Guerilla I	Recon, Archery, Gunpowder	+30% defense in hills, double movement in hills
Guerilla III	Guerilla II	Recon, Archery, Gunpowder	+25% hills attack, +30% withdrawal chance
Interception I		Gunpowder, Air	+10% Interception
Interception II	Interception I	Gunpowder, Air	+20% Interception
Leadership		units lead by warlord	+100% XP from combat
March	Combat III or Medic I	Recon, Archery, Mounted, Melee, Siege, Gunpowder	Can heal while moving
Medic I	Combat I	All except Armored & Helicopter	Heals units in the same tile extra 10% damage per turn
Medic II	Medic I	All except Armored & Helicopter	Heals units in adjacent tiles extra 10% damage per turn
Medic III	Medic II	units lead by warlord	Heals units in same and adjacent tiles extra 15% damage per turn Also BTS
Mobility	Flanking II	Mounted, Armored	-1 terrain movement cost
Morale		units lead by warlord	+1 movement range
Navigation I	Flanking I	Naval	+1 movement range
Navigation II	Navigation I	Naval	+1 movement range
Pinch	Combat I	Mounted, Gunpowder, Armored, Helicopter	+25% vs. gunpowder units
Range I	Combat II	Air Units	+1 Operational Range
Range II	Range I	Air Units	+1 Operational Range
Sentry	Combat III or Flanking I	Recon, Mounted, Helicopter, Naval	+1 visibility range
Shock	Combat I	Archery, Mounted, Melee, Siege	+25% vs. melee units
Tactics		units lead by warlord	+30% withdrawal chance
Woodsman I	None	Recon, Melee, Gunpowder	+20% jungle & forest defense
Woodsman II	Woodsman I	Recon, Melee, Gunpowder	+30% jungle & forest defense, double movement in jungle & forest
Woodsman III	Woodsman II	Melee, Gunpowder	+50% jungle & forest attack & defense, Heals extra 15%, +2 First Strikes

## Color coding

Civ 4 only

Civ 4 Warlords +BTS

Civ 4 BTS only

# Unit Promotions Flow Chart

