

World Geography Curriculum Bundle #1

Title	Suggested Dates
Introduction to Physical Geography	August 22 – September 30, 2011

Big Idea/Enduring Understanding	Guiding Questions
Physical geography looks for relationships among patterns and processes within the physical environment.	<ul style="list-style-type: none"> •What are the physical processes that cause the development of different landforms? •How do physical processes (WG.3B) affect the following: lithosphere, atmosphere, hydrosphere, and biosphere? •How do physical processes affect the environments of regions? •What is the relationship between weather conditions and climate to annual changes in Earth-Sun relationships? •How do elevation, latitude, wind systems, ocean currents, position on a continent, and mountain barriers influence temperature, precipitation, and distribution of climate regions? •What is the influence of climate on the distribution of biomes in different regions? •What is the interaction between humans and the physical environment? What are the consequences of extreme weather and other natural disasters? •What are physical and/or human factors that constitute a region?

The resources included here provide teaching examples and/or meaningful learning experiences to address the District Curriculum. In order to address the TEKS to the proper depth and complexity, teachers are encouraged to use resources to the degree that they are congruent with the TEKS and research-based best practices. Teaching using only the suggested resources does not guarantee student mastery of all standards. Teachers must use professional judgment to select among these and/or other resources to teach the district curriculum.

Knowledge & Skills with Student Expectations	Specificity & Examples	Suggested Resources (Read the note above)
Ongoing TEKS		
WG.22 Social studies Skills. The student communicates in written, oral, and visual forms. The student is expected to: WG.22C use geographic terminology correctly;	Assurance words	Websites, chapters and diagrams in textbook. Videos, etc.
WG.20 Science, technology, and society. The student understands how current technology affects human interaction. The student is expected to: WG20A describe the impact of new information technologies such as the Internet, Global Positioning System (GPS), or Geographic Information Systems (GIS); and	TEACHER NOTE: You could teach these TEKS through ongoing current events study. And/or this TEKS could be taught through a research project on something like careers in geography. The City of New Braunfels and surrounding cities websites also have GIS information posted. This TEKS does need to be planned and taught before the STAAR (EOC) test.	

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<p>WG.23 Social studies skills. The student uses problem-solving and decision-making skills, working independently and with others, in a variety of settings. The student is expected to:</p> <p>WG.23B use case students and GIS to identify contemporary challenges and to answer real-world questions; and</p>	<p>TEACHER NOTE: You could use case studies and maps to identify and solve real world current event questions.</p>	<p>CNN Student News</p> <p>Issues databases from ABC-CLIO have excellent and in-depth material (Login information on Internet)</p>
<p>TEKS Specific to Bundle #1</p>		
<p>WG.3 Geography. The student understands how physical processes shape patterns in the physical environment. The student is expected to:</p> <p>WG.3B describe the physical processes that affect the environments of regions, including weather, tectonic forces, erosion, and soil-building processes; and</p>	<p>How do physical processes affect the environments of regions?</p> <p>Weather – the condition of the atmosphere at a particular location and time.</p> <p>Tectonic Forces – an enormous moving shelf that forms the earth’s crust (i.e. Pangaea)</p> <p>Gravity – the natural force that causes objects to move to tend to move toward the center of the earth.</p> <p>Soil Building Processes – Climate plays a role in the process through the interaction of wind, water, and temperature on parent rock material. As soil is built, it is also being eroded. The types of vegetation found in a region are the result of the interplay of soil building processes, geology (parent rock), and climate (precipitation and temperature).</p> <p>Physical processes can be grouped into four categories: those operating in the atmosphere, (climate and meteorology); those operating in the lithosphere, (plate tectonics, erosion, and soil formation); those operating in the hydrosphere, (the circulation of oceans and the hydrologic cycle); and those operating in the biosphere, (plant and animal communities and ecosystems).</p> <p>TEACHER NOTE: You will probably want to use specific examples from different regions so that the students will be able to visualize these forces. Tell the students that they will</p>	<p>USGS This Dynamic Earth: The story of plate tectonics http://pubs.usgs.gov/gip/dynamic/dynamic.html</p> <p>National Geographic Everest Expedition (article, video, pictures and map) http://adventure.nationalgeographic.com/adventure/everest/</p> <p>United Streaming Video Clips</p> <ul style="list-style-type: none"> •Mount Everest 4:48 •Sir Edmund Hillary 2:35 <p>Land Bridge Map 40,000 years when sea levels were lower. Allowed people to walk to Australia. http://www.donsmaps.com/images12/sahulmap60to120mcontour.jpg</p> <p>Aboriginal Map of Australia, over 700 different tribal groups. http://livingknowledge.anu.edu.au/learningsites/aa_map.htm</p>

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be learning about these forces in more specific detail as you cover the regions. For example, SOUTH ASIA – Tectonic forces and plate movement created the Himalayas when the Indian and Asian plates moved together creating uplift. Extreme weather conditions are found in the Himalayas dependent upon elevation. Freezing and thawing in some areas lead to rock weathering and avalanches (gravity). Along the fertile alluvial plains, the soil building process occurs. These fertile alluvial plains have been created by the flooding of the region's major river system of the Ganges, Indus, and Brahmaputra. Erosion of soil along these river systems due to wave actions have also occurred redirecting the rivers themselves.

SOUTH ASIA

Tectonic forces and plate movement created the Himalayas when the Indian and Asian plates moved together creating uplift (Convergent boundary).

Extreme weather conditions are found in the Himalayas dependent upon elevation. Freezing and thawing in some areas lead to rock weathering and avalanches (gravity).

Along the fertile alluvial plains, the soil building process occurs. These fertile alluvial plains have been created by the flooding of the region's major river system of the Ganges, Indus, and Brahmaputra. Erosion of soil along these river systems due to wave actions have occurred redirecting the rivers themselves.

OCEANIA – Consists of about 20,000 islands, but that number is constantly changing

Describe how the following create or destroy islands.

- erosion
- volcanoes
- coral reefs

Formation of the **Hawaiian Islands:**
http://www.soest.hawaii.edu/GG/HCV/haw_formation.html

Hot Spot Diagram shows formation of Hawaiian Islands.
http://oceanexplorer.noaa.gov/explorations/03mountains/background/geology/media/chain_600.jpg

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WG.4 Geography. The student understands the patterns and characteristics of major landforms, climates, and ecosystems of Earth and the interrelated processes that produce the. The student is expect to:

WG.4B describe different landforms and the physical processes that cause their development; and

What are the physical processes that cause the development of different landforms?

Mountain range – When two continental plates collide, they push up against each other and the plates buckle. The fold results in a mountain range.

Volcanoes – As plates push together, one plate is forced under the other in a process called subduction. As the bottom plate starts to melt, magma rises and forms volcanoes.

Canyons – Weathering of rocks and erosion over time creates canyons.

Delta – A triangular area of land formed from deposits of sediment at the mouth of a river.

Examples: Mississippi Delta, Nile Delta

Students must be able to locate the following physical features on a map

- Andes Mountains
- Galapagos Islands
- Atacama Desert
- Amazon River
- Amazon Basin (rainforest)

Andes Mountains as example of how mountains are formed (When two continental plates collide, push against each other and slide past one another) Causes buckling and folds which result in a mountain range.

Galapagos Islands as example of how volcanoes are created (As plates push together, one plate is forced under the other in a process called subduction (transform). As the bottom plate starts to melt, magma rises and forms volcanoes.)

www.usgs.gov

www.nws.gov

www.weather.com

Landform Picture Gallery at About.com
<http://geology.about.com/library/bl/images/blandformindex.htm>

United Streaming Video: Geography Basics: Landforms and Living patterns (20:00)

United Streaming Video: Geographical Features; landforms (18:00)

United Streaming Video: Uplifting and Erosion; how landforms are formed (1:06)

United Streaming Video: How Landforms Affect Human Activities and Living patterns (3:16)

Use landforms and river maps

Review of tectonic plates and convergent boundaries and subduction.

<http://www.scarborough.k12.me.us/wis/teachers/dtewhey/webquest/nature/plate%20boundaries.htm>

Subduction caused the formation of the Andes Mountain range.

<http://www.windows2universe.org/geography/andes.html>

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Atacama Desert which was created by the Andes Mountains working as a barrier against the moisture off the Pacific Ocean (Humboldt ocean current) creating a rain shadow effect.

Amazon River is the largest by volume in the world due to its location in a tropical rainforest.

How and why are islands of Oceania different?

- low islands including atolls – created by coral reefs (soil is poor because they are not created by volcanoes and coral does not enrich low island soil)
- high islands – created by volcanoes

Galapagos Islands formed by subduction.
<http://www.geol.umd.edu/~jmerck/galsite/search/projects/leonard/Geospot.htm>

Volcanic processes contributed to the islands formation.
http://www.ecuador.us/travel/galapagos_islands/history/galapagos_volcanic_formation/

The Andes Mountains affect the climate, vegetation and ecosystem of **the Atacama Desert**.
<http://www.windows2universe.org/geography/andes.html>

Extreme Atacama Desert introductory material.
http://www.windows2universe.org/earth/atacama_desert.html

Images of Amazon River on United streaming – search Amazon River.

How the **Amazon River formed**.
<http://library.thinkquest.org/21395/graphics/river/history.html>

Ring of Fire maps
http://www.maps101.com/index.php?option=com_user&view=login&return=aHR0cDovL3d3dy5tYXBzMTAxLmNvbS9pbmRleC5waHA/b3B0aW9uPWV9mbGV4aWVbnRlbnQmdmldz1pdGVtZyZpZD0zNTg4OnRoZS13b3JsZCdzLXZvbGNhbm9lcyZjaWQ9MTc4OmstMw==

Teacher Information on Pacific Islands
http://en.wikipedia.org/wiki/Pacific_Islands

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		<p>High islands are made from volcanoes (picture) http://media-2.web.britannica.com/eb-media/16/60016-004-E02EBE3E.jpg</p> <p>Low islands are made from coral reef (picture) http://www.fjitime.com/images/artpics/91354.jpg</p>
<p>WG.3. Geography. The student understands how physical processes shape patterns in the physical environment. The student is expected to:</p> <p>WG.3C examine the physical processes that affect the lithosphere, atmosphere, hydrosphere, and biosphere.</p>	<p>How do physical processes (WG.3B) affect the following - lithosphere, atmosphere, hydrosphere, and biosphere?</p> <ul style="list-style-type: none"> • Lithosphere – solid rock portion of earth’s surface. • Atmosphere – layer of gases surround the earth. • Hydrosphere – All waters comprising the earth’s surface. • Biosphere – All the parts of the earth where plants and animals live. <p>TEACHER NOTE: You could speak with the biology teachers at your campus to work on integration of these concepts across disciplines.</p>	
<p>WG.3 Geography. The student understands how physical processes shape patterns in the physical environment. The student is expected to:</p> <p>WG.3A explain weather conditions and climate in relation to annual changes in Earth-Sun relationships;</p>	<p>What is the relationship between weather conditions and climate to annual changes in Earth-Sun relationships?</p> <p>Solstice – The two times of year when the sun’s rays shine directly overhead at noon at the furthest points north. The summer solstice is the longer day of the year and the winter solstice is the shortest day of the year.</p> <p>Equinox – The two days in a year on which day and night are equal in length. This marks the beginning of spring and autumn. This combination of tilt and revolution produces seasonal variation in the amount of energy different parts of Earth receive. This variation, along with other factors,</p>	<p>JetStream: Online School for Weather – Weather modules http://www.srh.noaa.gov/srh/jetstream/</p>

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	<p>produces global patterns of temperature and precipitation, the two key components of climate. The Sun's rays are most intense north of the equator (23 ½ degrees N – The Tropic of Cancer) in June and south of the equator (23 ½ degrees S – The Tropic of Capricorn) in December.</p>	
<p>WG.4 Geography. The student understands the patterns and characteristics of major landforms, climates, and ecosystems of Earth and the interrelated processes that produce them. The student is expected to:</p> <p>WG.4A explain how elevation, latitude, wind systems, ocean currents, position on a continent, and mountain barriers influence temperature, precipitation, and distribution of climate regions.</p>	<p>How do elevation, latitude, wind systems, ocean currents, position on a continent, and mountain barriers influence temperature, precipitation, and distribution of climate regions?</p> <p>Elevation – Describe climate patterns as you go higher and lower in elevation.</p> <p>Latitude – Explain the trade winds, doldrums, and westerlies and their effect on ocean currents and land temperature and compare climates in low, middle, and high latitude zones.</p> <p>Location near warm and cold ocean currents – Identify and compare climate along the Atlantic coast and the Pacific coast of North America, South America, and Europe.</p> <p>Position on a continent – Locate and describe the main climate patterns of the world, according to their general geographic distribution, major weather patterns, and native vegetation; tropical rain forest, tropical savanna, tropical monsoon, desert, steppe, marine west coast, Mediterranean, humid subtropical, humid continental, subarctic, tundra, ice cap, and highland.</p> <p>Mountain barriers – Identify climates on either side of a mountain range.</p> <p>U.S. and Canada Climate Regions:</p> <ul style="list-style-type: none"> •Tropical – tropical wet/dry, tropical wet •Arid – desert, semi-arid 	<p>Internet Geography – Great for climate zones among other topics. http://www.geography.learnontheinternet.co.uk/topics/climatezones.html</p> <p>Biomes of the World – Definitions and maps http://users.rcn.com/jkimball.ma.ultranet/BiologyPages/B/Biomes.html</p> <p>Introduction to Biomes from Radford Geography Dept. http://www.radford.edu/~swoodwar/CLASS/ES/GEOG235/biomes/intro.html</p> <p>United Streaming: Global Warming: Predicting Climate Changes (05:33) Climate changes (04:35)</p>

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	<ul style="list-style-type: none"> •Subtropical – Mediterranean, humid subtropical, marine west coast •Humid continental (Midwest) •Subarctic •Tundra •Highland <p>TEACHER NOTE: Be sure to cover elevation, latitude, location near warm and cold ocean currents, position on continent, and relation to landforms (ex. Mountain ranges block moisture as necessary within the specific region.</p> <p>Specific landforms that should be mentioned in relation to climate include:</p> <ul style="list-style-type: none"> •Plateaus – “Plateau continent, “ Ethiopian Plateau •Highlands – Ethiopian Highlands •Congo, Niger, Nile Rivers – Deltas and dam •Cold ocean currents off west coast helps create the Namib Desert (same effect as cold ocean currents off South America/Atacama Desert) 	
<p>WG.4 Geography. The student understands the patterns and characteristics of major landforms, climates, and ecosystems of Earth and the interrelated processes that produce them. The student is expected to:</p> <p>WG.4C explain the influence of climate on the distribution of biomes in different regions.</p>	<p>What is the influence of climate on the distribution of biomes in different regions?</p> <p>Students must be able to locate the following physical features on a map:</p> <ul style="list-style-type: none"> •Andes Mountains •Amazon Basin (rainforest) •Llanos •Pampas •Brazilian Highlands •Atacama Desert <p>Students must be able to explain the relationship between the climate and vegetation of certain areas of Latin America and how that influences human-environment interaction.</p> <ul style="list-style-type: none"> •Andes Mountains: formation of mountains affects vegetation and animals. 	<p>World Biomes from Kids do Ecology http://kids.nceas.ucsb.edu/biomes/</p> <p>Biomes of the World http://users.rcn.com/jkimball.ma.ultranet/BiologyPages/B/Biomes.html</p> <p>Introduction to Biomes from Radford Geography Dept. http://www.radford.edu/~swoodwar/CLASS/ES/GEOG235/biomes/intro.html</p> <p>Compare and contrast climate and vegetation maps of Latin America in textbook.</p>

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	<ul style="list-style-type: none"> • Tropical rainforests of the Amazon Basin: climate influences vegetation which influences the logging industry. • Llanos and cerrado (Venezuela and Brazil): climate influences vegetation (grasslands) which influences the agricultural industry because of the expansive flat and treeless land. • Atacama Desert: lack of precipitation caused by rainshadow (orographic effect) affect vegetation and animals. • Desert – Sahara, Namib, Kalahari • Savanna – Serengeti <p>Nearly 90% of Africa lies within the Tropic of Cancer and the Tropic of Capricorn. The vegetation consists of grasslands, rain forests, and a wide variety of plant life. This allows this area of the world to be a habitat for a large variety of animals.</p> <ul style="list-style-type: none"> • Climate regions within Africa mirror each other across the equator. <p>Research the different biomes of areas:</p> <ul style="list-style-type: none"> • Tropical Grassland • Rainforest • Desert 	<p>United Streaming – video clip on effect of vegetation and animals: <u>World’s Best: South America, Andes Mountains clip(3:20)</u></p> <p>United Streaming video clip on effect of vegetation and animals: <u>World’s Best: South America, Amazon River clip (3:51) and Amazon Rainforest clip (3:48)</u></p> <p>United Streaming video clip on effect of vegetation and animals: <u>World’s Best: South America, Cerrado Savanna clip (3:59)</u></p> <p>United Streaming video clip on effect of vegetation and animals: <u>World’s Best: South America, Atacama Desert clip (3:42)</u></p> <p>Blue Planet Biomes Map http://www.blueplanetbiomes.org/world_biomes.htm</p> <p>United Streaming video: <u>Fearless Planet: Sahara Desert (42:57)</u> <u>The Serengeti (16:51)</u></p>
<p>WG.8 Geography. The student understands how people, places, and environments are connected and interdependent. The student is expected to:</p> <p>WG.8B describe the interaction between humans and the physical environment and analyze the consequences of extreme weather</p>	<p>What is the interaction between humans and the physical environment? What are the consequences of extreme weather and other natural disasters?</p> <p>TEACHER NOTE: For each region, identify how humans have modified, adapted to, depended on, and interacted with their environment. Understand that the ways people interact with the environment depend upon three factors:</p>	<p>Students conduct internet research to analyze hurricane formation and their effects.</p> <p><u>El Nino Theme Page</u> from National Oceanic and Atmospheric Administration http://www.pmel.noaa.gov/tao/elnino/nino-home.html</p>

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and other natural disasters such as El Niño, floods, tsunamis, and volcanoes, etc.

the nature of the environment; the culture and values of the human group; and their level of technology.

SOUTH ASIA

Global Warming over extended time would result in the melting of the polar ice caps. Even slight melting would result in rising sea levels, which would prove disastrous for the lower islands such as the Maldives. A 20-inch rise in the level of the Indian Ocean would place 80% of the island nation under water.

EAST AFRICA – El Niño

Periods of drought in Sudan and the Horn of Africa have created the loss of vegetation used for grazing. As livestock dies people migrate to other areas so that their animals might graze. Over grazing of these areas lead to the desertification of land.

NORTH AMERICA – El Niño effect

North America specifically the Gulf Coast and the Southern East Coast of the United States is in a cyclical period where there have been a large number of hurricanes during the season. During 2005, Hurricane Katrina and Rita category four and five hurricanes devastated the coast of Texas, Louisiana, and Mississippi.

SOUTH AMERICA

Connections among economic development – Harvesting tropical hardwoods for export by the timber industry is taking place in the Amazon rain forest of South America.

Population Growth – small towns and cities have sprung up in mining and lumber centers within Amazon rainforest.

Environmental change – Indigenous people utilize the slash-

Hurricane Digital Memory Bank (Collection tab)

<http://www.hurricanearchive.org/>

Hurricanes and Extreme Weather from the National Oceanic and Atmosphere Administration

http://lwf.ncdc.noaa.gov/oa/climate/severe_weather/extremes.html

USGS: National Hazards Gateway –

Earthquakes, Floods, Hurricanes, Landslides, Tsunamis, Volcanoes, Wildfires, Drought

http://www.usgs.gov/natural_hazards/

Students do internet research to create a multimedia presentation on global warming (climatic change)

Hurricane Katrina: Complete coverage article from National Geographic

http://news.nationalgeographic.com/news/2005/09/0902_050902_katrina_coverage.html

Making Waves from University of South Florida (Natural disasters, El Nino, Breaking News, Coral Reefs, Red Tide, etc)

<http://waves.marine.usf.edu/mwhome.htm>

United Streaming Videos – El Nino; the Driving Force of Weather Patterns

National Geographic Article on El Nino

http://www.nationalgeographic.com/el_nino/mainpage.html

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and-burn technique to create agricultural land, which they use for a short time due to the lack of soil fertility. This is usually done by the clear-cutting method with no regard for preserving the environment.

UNITED STATES

- hurricanes
- El Niño, La Niña
- Floods
- droughts

TEACHER NOTE: Students should be able to identify the relationship between the human interaction with the land and the resulting consequence (drought leads to famine in primarily agricultural societies with little options for other types of economic activities).

SOUTH ASIA

TEACHER NOTE: Specific to South Asia would be discussion of monsoon winds and cyclones and how they create wet and dry seasons on the subcontinent. In addition are the effects of flooding due to global warming.

Students should understand:

- Monsoon winds** (seasonal winds) blow from the northeast from October through February bringing dry air. From June through September the winds blow from the southwest bringing much needed moisture.
- Cyclones** also affect the region due to the flooding that occurs in low-lying areas like Bangladesh.

United Streaming Video Clip – “Natural Disasters and Famine in Africa” (5:38)

NPR Article – Maldives Builds Barriers to Global Warming

<http://www.npr.org/templates/story/story.php?storyId=18425626>

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<p>WG.9 Geography. The student understands the concept of region as an area of Earth’s surface with related geographic characteristics. The student is expected to:</p> <p>WG.9A identify physical and/or human factors such as climate, vegetation, language, trade networks, political units, river systems, and religion that constitute a region; and</p>	<p>What are the physical and/or human factors that constitute a region?</p> <p>Suggestions: Choose a region and discuss characteristics that identify the region such as: soil type, climate, vegetation patterns, languages, government, economic activity, religion. Tie everything together – make connections.</p> <p><i>Central Texas Examples:</i></p> <ul style="list-style-type: none"> •Soil region – Blackland Prairie (as opposed to Hill Country – soil changes to hard limestone) •Climate region – Humid subtropical v. Semi-arid •Vegetation – (determined by climate) •Language region – English v. Spanish (where is each of the dominant languages?) What about German? •Trade Network region – IH 35 (old Chisholm Trail), NAFTA, etc. •River system region – Guadalupe River system (system of dam) •Religion region – Protestants and Catholics in Texas 	<p>United Streaming Video : The Five Themes of Geography (17:44)</p> <p>United Streaming Video: American Geography Close-Ups: Maps, Regions, Resources and Climate.</p> <p>Students interpret maps showing “Tornado Alley”</p>
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DIFFERENCES FOR THE PRE-AP CLASSROOM

I. Collecting and Acquiring Information–These skills are used at all levels of Pre-AP* and AP* coursework with progressively more detailed readings and note-taking efforts. These techniques promote active reading and increased comprehension skills. As skills develop, students begin to organize information, identify key concepts and relationships, and acquire knowledge for interpretation and analysis of content materials. *Examples: SQ3Rs, Cornell Note-taking, working with Matrixes’, etc.*

II. Processing Information- Practicing the techniques of collecting and acquiring data will allow the student to prepare for higher-level critical thinking, such as assessing, analyzing, and interpreting trends, connections, and relationships. The goal of Pre-AP classes is to introduce these skills and give students the opportunity to practice them with teacher guidance. As students progress, they will rely less on their instructor and can become more independent thinkers. *Examples: Organizing – APPARTs, SOAPS, Mapshots, PERSIA, etc.*

III. Study Skills - Students who accept the academic challenge of higher-level classes often are not prepared for the task of studying for tests or cumulative examinations. Perhaps in previous learning experiences, simply being in class and attending to the presentation at hand was sufficient to retain the level of

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information necessary to do well in class. However, as students progress with their courses of study, it is necessary to ensure that students have a basic idea of how to study efficiently.

**See the Skills Matrix in the WG- Gearing up for the EOC/STAAR binder for these different types of processes.*