

SIXTH GRADE SCIENCE CRCT STUDY GUIDE

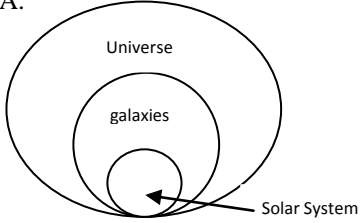
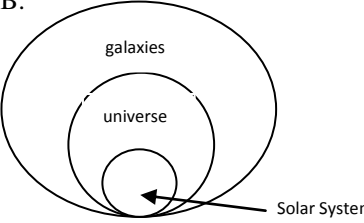
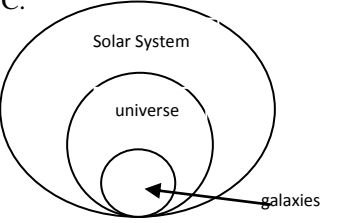
S6E1. Students will explore current scientific views of the universe and how those views evolved.

a. relate the Nature of science to the progression of basic historical scientific models.

1. According to the big bang theory, the _____ formed about 13.7 billion years ago.

2. The theory that astronomers have developed to describe the formation of the universe is called the a. big crunch theory. b. collision-ring theory. c. big bang theory.	3. The solar system formed from a. a giant cloud of gas and dust. b. an enormous explosion. c. a black hole.
--	---

b. Describe position of the solar system in the milkyway and the universe.

Which of the following diagrams best represents the relationship between galaxies, universe, solar system	A. 	B. 	C. 
---	--	---	--

4. The Milky Way galaxy is an example of a (an) _____ galaxy.(spiral)

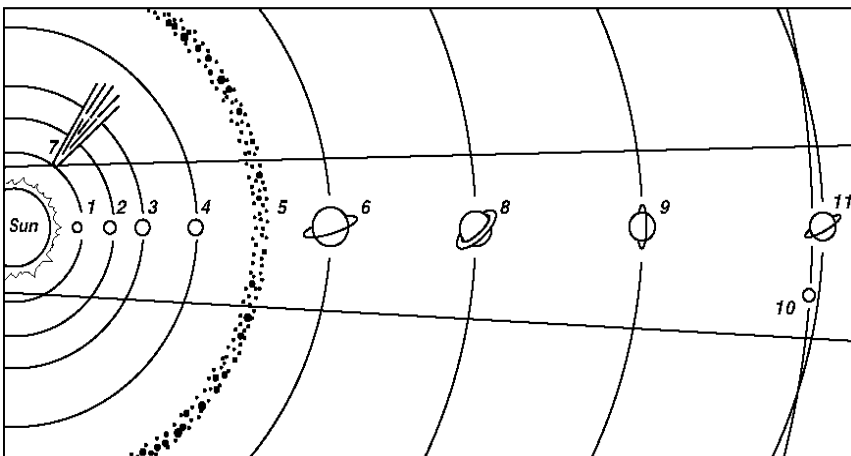
5. Our solar system is located in the _____ galaxy.(milky way)

c. planets in terms of Size relative to the earth; Surface and atmospheric features; Relative distance from the sun; Ability to support life

6. _____ was formerly considered to be a planet but is now classified as a dwarf planet.(pluto)	7. The solar system consists of the sun, several kinds of smaller objects such as comets and asteroids, and a. eight planets and their moons. b. the star Proxima Centauri. c. more than 100 planets.
---	--

The Solar System

Not to scale



Write the name of the planet that is labeled with each number.

1 _____ 2 _____ 3 _____ 6 _____

8. Name one planet that is a gas planet? _____

9. Which planet is closest to sun? _____

10. Sister planets _____ and _____ are much alike in terms of their size and density or their atmospheres.

11. Earth is the only planet that can sustain _____.

<p>12. What do all of the inner planets have in common?</p> <p>a. They all have rings.</p> <p>b. They all have abundant liquid water.</p> <p>c. They all are small and have rocky surfaces.</p>	<p>13. The asteroid belt is located</p> <p>a. between Earth and Mars.</p> <p>b. between Mars and Jupiter.</p> <p>c. between Saturn and Uranus.</p>
<p>14. Saturn's rings are made up mostly of</p> <p>a. nitrogen and helium.</p> <p>b. ice and water vapor.</p> <p>c. chunks of ice and rock.</p>	<p>15. Aside from Earth, which inner planet once had liquid water on its surface?</p> <p>a. Mercury</p> <p>b. Europa</p> <p>c. Mars</p>
<p>16. Where might water be found on the moon?</p> <p>a. inside moon rocks</p> <p>b. near the poles</p> <p>c. in the maria</p>	<p>17. What do scientists call the favorable conditions that make life livable on Earth?</p> <p>a. The "Goldilocks" conditions</p> <p>b. Rare conditions</p> <p>c. Prominences</p>

d. position of objects in the day/night sky

18. The _____ is a huge, hot ball of glowing gas. It is a medium bright _____.
19. Draw a sun and label with the following parts: sunspot chromospheres, photosphere, prominence, core, radiation zone, solar flare.
20. When you see the image of the sun, you are looking at the _____.
21. Sunspots can tell about earths _____ from many years ago.
22. Put the planets in order beginning with the closest to the sun.

e. gravity is the force that governs the motion in the solar system.

<p>23. The two factors that combine to keep Earth and the moon in their orbits are</p> <p>a. gravity and orbital speed.</p> <p>b. mass and inertia.</p> <p>c. gravity and inertia.</p>	<p>24. All objects are attracted to each other by the force of</p> <p>a. mass.</p> <p>b. inertia.</p> <p>c. gravity.</p>
--	--

f. Describe comets, asteroids, meteors.

25. A comet's head consists of a nucleus and a fuzzy outer layer called the _____.
26. Comets are loose collections of ice, _____, and _____.
27. When it flies close to the sun his tail will _____
28. Most asteroids revolve around the sun between the orbits of _____ and _____.
29. Scientists hypothesize that an _____ hit the earth causing extinction of dinosaurs.

<p>30. When a meteoroid enters Earth's atmosphere, it produces a streak of light called a(an)</p> <p>a. meteor.</p> <p>b. asteroid.</p> <p>c. meteorite.</p>	<p>31. A meteoroid comes from a comet or asteroid but changes to a _____ upon entering earth's atmosphere. It will be renamed a _____ if it eventually hits earth's surface.</p>
--	--

S6E2. Students will understand the effects of the relative positions of the earth, moon and sun.

a. phases of the moon by showing the alignment of the earth, moon, and sun.

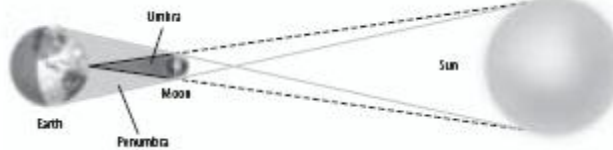
	<p>32. The entire sunlit side faces earth during a _____</p> <p>33. The sunlit side faces away from Earth during a _____.</p> <p>34. Draw the first quarter _____</p> <p>35. What day does a new moon occur on of the phase cycle? _____</p> <p>36. What do you see from earth on day 14? _____</p>
--	---

b. alignment of the earth, moon, and sun during solar and lunar eclipses.

37. During a _____ eclipse, Earth is directly between the sun and the moon, causing the moon to pass through Earth's shadow.

38. During a _____ eclipse, the moon is directly between the sun and Earth, casting a shadow upon Earth

What type of eclipse is shown?



39. For a solar eclipse to occur,
- the sun must be directly between Earth and the moon.
 - the moon must be directly between Earth and the sun.
 - Earth must be directly between the sun and the moon.

40. During what phase of the moon can a lunar eclipse occur?
- new moon
 - first quarter
 - full moon

40. The moon takes about 28 days to go around Earth. Can you think of a reason why there is not an eclipse every month? _____.

c. tilt of the earth to the distribution of sunlight throughout the year and its effect on climate.

41. Earth has seasons because
- it rotates on its axis.
 - the distance between Earth and the sun changes.
 - its axis is tilted as it moves around the sun.

42. An equinox occurs when
- neither end of Earth's axis is tilted toward or away from the sun.
 - the north end of Earth's axis is tilted away from the sun.
 - the north end of Earth's axis is tilted toward the sun.

43. In the Northern Hemisphere, the summer solstice occurs when the sun is
- farthest south.
 - farthest north.
 - closest to Earth.

44. Earth's rotation takes about
- 365 days.
 - 24 hours.
 - 1 month.

45. Earth rotates on its axis about once every _____ hours,(24) thus causing day and _____.

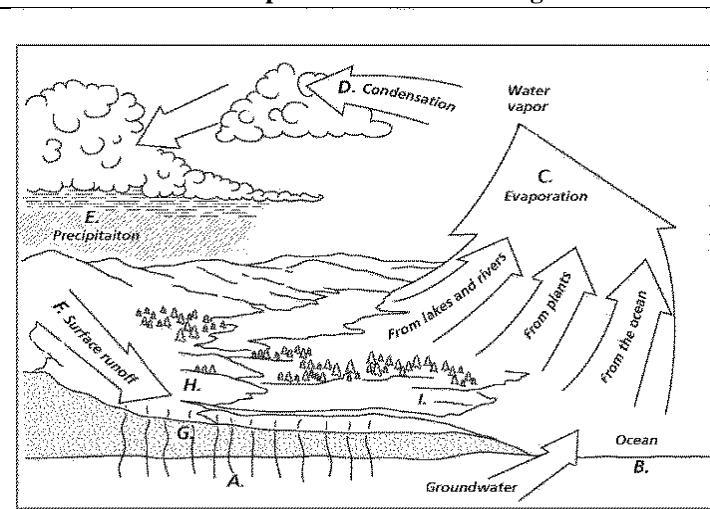
S6E3. Students will recognize the significant role of water in earth processes.

a. what portion of the Earth's surface is water, consisting of oceans, rivers, lakes, underground water, and ice.

46-49 Answer True or False and correct if False

- _____ Most of Earth's fresh water is in our rivers _____
- _____ Approximately 3% of Earth's water is fresh water? _____
- _____ Sources of salt water on Earth include ice, rivers, lakes, and groundwater. _____
- _____ Approximately 97% of our earth is covered with water. _____

b. relate various atmospheric conditions to stages of the water cycle.



- The energy for the water cycle originally comes from the _____.
- Describe three things that can happen to water when it falls on Earth's surface.
- Identify the step in which water changes from a liquid to a gas.
- What must happen to water vapor to form a cloud? _____
- Where does evaporation come from?
- What is evaporation that comes from plants called?

56. Plants are part of the water cycle, they take water in through their _____ and release water through their _____ which is called _____.

57. Water that falls to Earth as rain, snow, sleet, or hail is called a. evaporation. b. precipitation. c. transpiration.	58. Water that fills the cracks and spaces in underground soil and rock layers is called a. rainwater. b. groundwater. c. water vapor.
--	---

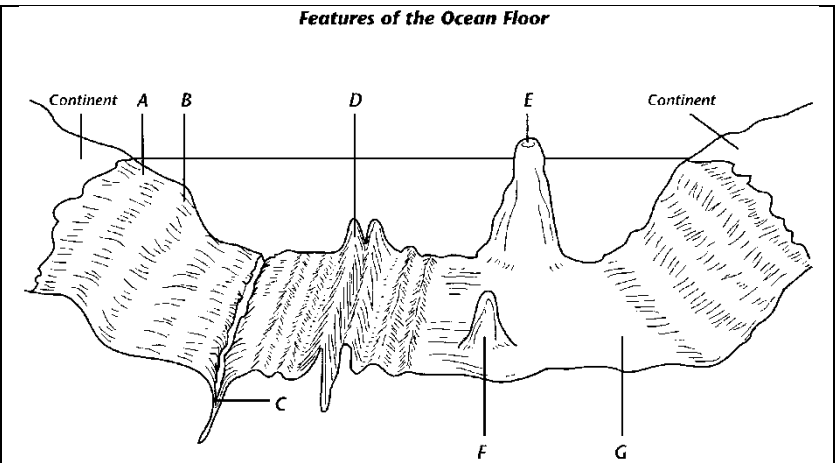
Answer True or False and correct if False, 59-62

59. ____ The three main types of clouds are cumulus, stratus, and altos. _____
 60. ____ Fog is a cloud near the ground? _____
 61. ____ Flat, layered cirrus clouds can cover most of the sky.
 62. ____ Large clouds that often produce thunderstorms are called stratus clouds.

c. Describe the composition, location, and subsurface topography of the world's oceans.

63. As you descend through the water column, a. temperature decreases. b. pressure decreases. c. light increases. d. temperature and pressure increase	64. A major advance in ocean floor mapping that uses sounds waves is a. tiny pings c. diving equipment b. sonar
--	--

65. Which letter identifies the continental shelf?
 66. Write what ocean floor feature is located at letter (D) and describe what happens here to create new crust?
 68. What letter identifies the abyssal plain? ____ and what is it made up of. _____
 69. Name one other feature found on the ocean floor.



d. Explain the causes of waves, currents, tides

70. The energy that produces ocean waves comes from a. the rise and fall of the tides. b. rivers flowing into the ocean. c. wind blowing across the water's surface.	71. When a tsunami hits the shore, it can be very destructive because of its large a. sandbar. b. trough. c. wave height.
72. The size of a wave is NOT affected by the a. length of time the wind blows across the water. b. salinity of the water. c. strength of the wind. d. distance the wind blows across the water.	73. A tidal power plant produces energy using the movement of water a. in surface waves. b. between high tide and low tide. c. due to earthquakes. d. between neap tide and spring tide.
74. Tsunamis are caused by _____ on the ocean floor.	75. Large ocean waves are the result of powerful _____ far out at sea.

Answer True or False and correct if False, 76-80

- ____ 76. A tide is a large stream of water that flows through the ocean. _____
 ____ 77. The movement of cold, deep ocean water to replace warm water at the surface is upwelling. _____
 ____ 78. Without the motion caused by upwelling, the surface waters of the open ocean would be very scarce in algae. _____
 ____ 79. Our Earth's rotation known as "Coriolis effect" helps direct ocean currents. _____

80. A tide with the LEAST difference between low and high tide is called a a. spring tide. b. neap tide. c. rip tide.	81. When are tides highest? a. during the moon's first quarter phase b. when the sun, Earth, and the moon are nearly in a line c. during the moon's third quarter phase
--	--

82. Tides are caused by the force of _____ from the sun and moon acting on Earth.

83. The daily rise and fall of water on Earth's coastlines are called _____.

S6E4. Students will understand how the distribution of land and oceans affects climate and weather.
a. uneven heating of earth causes weather

	84. Which continent lies almost completely within a polar zone? 85. Which zone is the tropical zone? 86. In which zone does Georgia lie? 87. Which zone is coldest? 88. Which continent is almost split in half at the equator? 89. The tropical zone lies from ____
--	---

90. The main factors that influence temperature are latitude, altitude, distance from ocean and ocean currents.

Explain how altitude affects temperature.

91. Explain why it is generally warmer near the equator than it is near the poles.

Answer True or False and correct if False 92-99

- ___ 92. Oceans make the temperatures of nearby land more extreme.
- ___ 93. A well-known warm current is the Gulf Stream, it moves from Gulf of Mexico toward the East Coast.
- ___ 94. Warm currents move from tropic toward Poles warming the air.
- ___ 95. Cool air is less dense and therefore flows over warm air.
- ___ 96. A cold current moves from poles toward Poles and cools the air.
- ___ 97. El Niño is a weather pattern that forms in the polar Pacific Ocean.
- ___ 98. Uneven heating of the atmosphere leads to differences in air pressure which causes wind.
- ___ 99. The layer of our atmosphere in which weather occurs is the mesosphere.

Wet		Dry		Air masses
Warm	Maritime tropical	Continental tropical		100. Which air mass forms over land? 101. Which air mass can bring thunderstorms to the United States in summer.
Cold	Maritime polar	Continental polar		102. Which air mass is warm and moist? 103. Which air mass is most likely near water?

Which front is which? Use occluded, stationary, cold or warm.

104. When a warm air mass overtakes a cold air mass, it forms a(an)_____.

105. When a rapidly moving cold air mass overtakes a slow-moving warm air mass, the result is a(an)_____.

106. Where a warm air mass is caught between two cooler air masses, a(an) _____ front occurs.

107. Contrast the three ways in which heat is transferred; Conduction, Convection Radiation.

108. The transfer of energy through empty space is called a. conduction. b. convection. c. radiation.	109. Scientists think that convection currents flow in Earth's a. mantle. b. lithosphere. c. inner core.
--	---

Match these

- | | |
|--|--|
| 110. _____ deserts | A. Clue to what ancient climates were like |
| 111. _____ tree rings and plant pollens. | B. Regions that receive less than 25 centimeters of rain annually |
| 112. _____ climate | C. Permafrost and mosses, lichens, and wildflowers are common |
| 113. _____ tundra climate. | D. The average, year-after-year conditions of temperature, precipitation, winds, and cloud in an area. |
| 114. _____ atmosphere | E. Climate in Southern states including most of Georgia |
| 115. _____ Humid Subtropical | F. The layer of gases that surrounds Earth |

b. Unequal heating of land and water surfaces cause large global wind systems tornados and thunderstorms.

116. Global winds generally a. are not influenced by heating of Earth's surface. b. are unpredictable. c. blow from specific directions over long distances.	117. Earth's rotation makes global winds curve. This is called the a. convection effect. b. Coriolis effect. c. rotational effect.	118. The doldrums are characterized by a. high pressure. b. cool temperatures. c. weak winds.
119. The prevailing westerlies, the major wind belts over the continental United States, generally push air masses from a. east to west. b. west to east. c. south to north.	*Global and Local winds are created by unequal heating of the earth.	*Trade winds guided sailors' ships with valuable cargo.

Answer True or False and correct if False 120-121

- _____ 120. A funnel-shaped cloud that touches Earth's surface is called a hurricane.
 _____ 121. Thunderstorms form within high altocumulus clouds.

c. moisture evaporating from the oceans affects the weather patterns and weather events such as hurricanes.

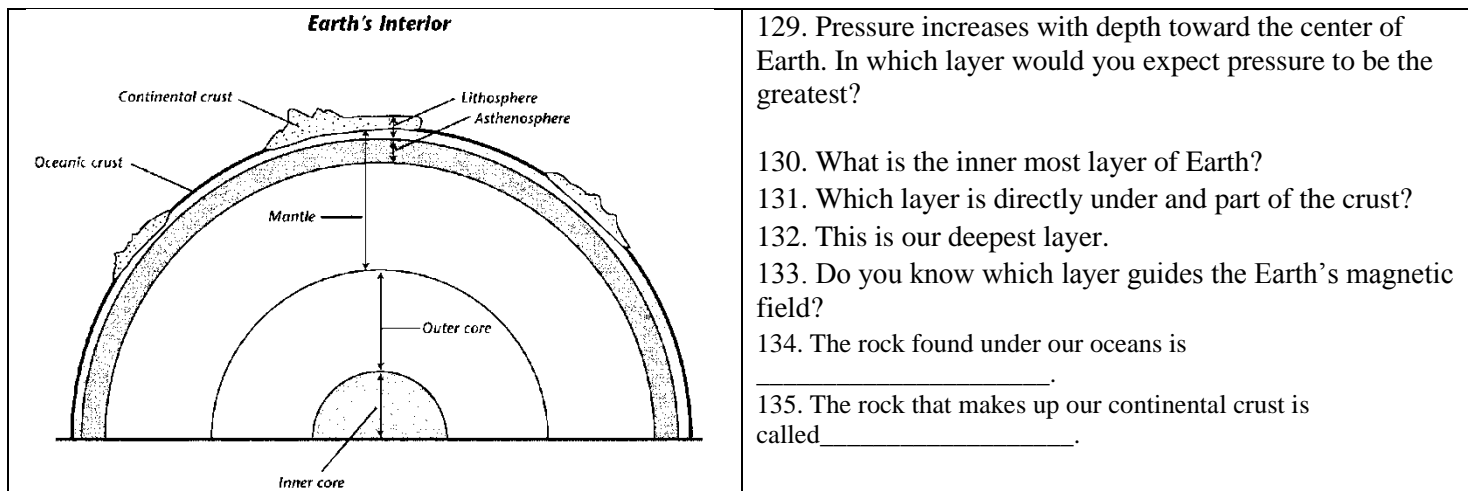
122. A long-lasting storm that begins over the warm surface of the ocean and has winds of 119 kilometers per hour or higher is a(an) _____.
 123. When is the typical hurricane season?
 124. What parts of the Northern Hemisphere have the highest occurrences of hurricanes? _____

125. The eye of a hurricane a. has the highest winds. b. produces the storm surge. c. is calm.	126. A "dome" of water that sweeps across the coast where a hurricane lands is called a(an) a. eye. b. storm surge. c. jet stream.
---	---

S6E5. Students will investigate the scientific view of how the earth's surface is formed.

a. Earth's crust, mantle, and core including temperature, density, and composition.

127. Holes drilled several kilometers into Earth's crust provide direct evidence about Earth's interior in the form of a. seismic waves. b. rock samples. c. volcanic eruption.	128. Geologists obtain indirect evidence about Earth's interior by a. measuring pressure differences at Earth's surface. b. estimating temperature inside earth. c. recording and studying seismic waves.
--	--



129. Pressure increases with depth toward the center of Earth. In which layer would you expect pressure to be the greatest?
130. What is the inner most layer of Earth?
131. Which layer is directly under and part of the crust?
132. This is our deepest layer.
133. Do you know which layer guides the Earth's magnetic field?
134. The rock found under our oceans is _____.
135. The rock that makes up our continental crust is called _____.

b. Investigate the contribution of minerals to rock composition

Match the definitions

136. ___ cleavage A. a mineral splits easily
137. ___ minerals B. The shininess of a rock.
138. ___ luster C. The color the mineral makes when scratched across a surface.
139. ___ streak D. A non-living substance that rocks are made of.

Mohs' Scale of Hardness:

Mineral	Rating	Testing Method
Talc	1	Softest known mineral. can scratch with a fingernail.
Gypsum	2	A fingernail can easily scratch it.
Calcite	3	A fingernail cannot scratch it, but a copper penny can.
Fluorite	4	A steel knife can easily scratch it.
Apatite	5	A steel knife can scratch it.
Feldspar	6	Cannot be scratched by a steel knife, but it can scratch window glass.
Quartz	7	Can scratch steel and hard glass easily.
Topaz	8	Can scratch quartz.
Corundum	9	Can scratch topaz.
Diamond	10	Hardest known mineral. Diamond can scratch all other substances.

140. What mineral is hardest? _____
141. Which mineral is the softest? _____ (
142. Which minerals can be stretched with your fingernail? _____

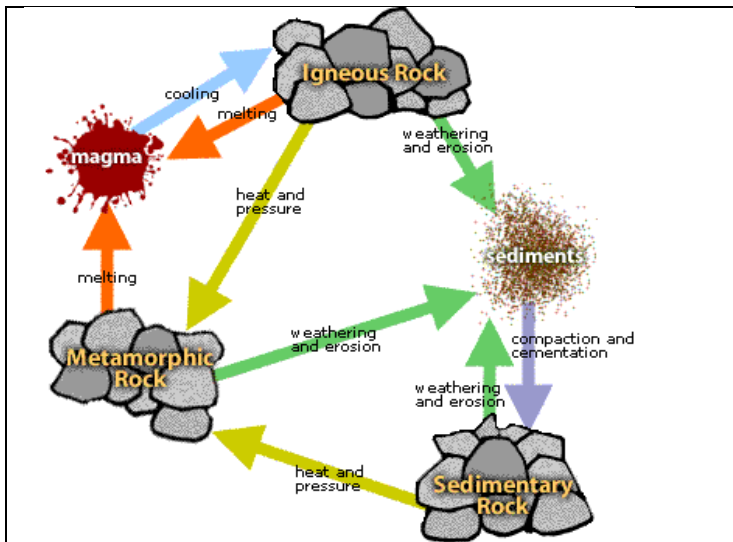
d. Describe processes that changes rocks and the surface of the earth.

143. Weathering, _____, and _____ work hand in hand in a cycle to change earth's surface.
144. What type of weathering occurs underground?
145. What develops and hangs from the ceiling of a cave _____ and on the ground _____.

c. Classify rocks by their processes of formation

146. Put the following rocks into one group: limestone; sandstone; coal; basalt; pumice; granite; basalt; obsidian marble; slate;

Metamorphic	Sedimentary	Igneous



147. What are the three types of rocks? _____, _____, _____.
148. The Rock Cycle is a group of changes that never _____.
149. What are the two ways igneous rock can form? _____ and _____.
150. Sedimentary rock can change into _____ or into igneous rock.
151. Metamorphic rock can change into _____ or sedimentary rock.

e. lithospheric plates constantly move and cause major geological events on the earth's surface.

Boundary Type	Motion	Effects on crust	Fault Type	Stress	Feature formed	Example
		Sheared, slips past		shearing	earthquakes	San Andreas Fault in CA
	Two plates come together		Reverse			Rocky Mountains in US
Divergent		Crust pulled apart			Mid-ocean ridge, rift valley	Rio Grande in New Mexico

A force that acts on rock to change its shape or volume is called _____.

A break in earth's crust is called a _____.

f. Explain the effects of physical processes (plate tectonics, erosion, deposition, volcanic eruption, gravity) on geological features including oceans (composition, currents, and tides).

Type of mass movement	Slope	Cause	Effect
	steep		Rock and soil slide quickly downhill
mudflow	gentle to steep		
slump		Water soaked soil	
			Slow downhill movement

Mass movement is caused by _____.

Landslides, mudflows, slump, and creep are all examples of _____.

<p>The volcanoes along converging oceanic plate boundaries may form</p> <p>a. a hot spot. b. a part of the mid-ocean ridge. c. an island arc.</p>	<p>Volcanic belts form along</p> <p>a. islands in the Pacific Ocean. b. North American mountain ranges. c. the boundaries of Earth's plates.</p>	<p>Which of the following is made of layers of ash and cooled lava flows?</p> <p>a. Shield volcano b. Plateau c. Composite</p>
---	--	--

Most volcanoes form along _____ and _____ plate boundaries.

A volcano that erupts violently has a high content of _____.

A major volcanic belt known as the _____ circles the Pacific Ocean.
 Molten material that leaves a volcano's vent is called _____.

Which of the following describes liquefaction? a. Ice melting b. Soil and sediments shaken so violently it liquefies c. S waves traveling as fast as P waves	The point beneath Earth's surface where rock breaks under stress and triggers an earthquake is called the a. syncline. b. epicenter. c. focus.
---	---

Distinguish between the focus and the epicenter of an earthquake.

What were these Landforms caused by? _____

Grand Canyon_____	Desert_____	Spit_____	Moraine_____	Delta_____
-------------------	-------------	-----------	--------------	------------

Answer True or False and correct if False

- _____ The stronger the wind, the larger the particles it erodes. _____
- _____ A river flowing across a wide flood plain begins to form looplike bends called rills. _____
- _____ Deltas form at the mouth of a river and are built up by deposition. _____
- _____ Type of erosion that occurs when runoff from rainfall flows in a thin layer over the land is called mass erosion. _____

The major agent of erosion that shapes Earth's land surface is moving _____.
 As waves repeatedly hit a beach, some of the beach sediment moves down the beach with the current, in a process called _____.

A large area of flat land elevated high above sea level is called a _____.

g. What do fossils show -evidence of the changing surface and climate of the Earth.

Fossils are preserved remains or traces of _____ .

Match each fossil to its correct definition

- _____ mold A. solid copy of the shape of an organism.
- _____ cast B. hollow area in sediment in the shape of an organism.
- _____ petrified C. fossils in which minerals replace all or part of an organism
- _____ trace fossil D. provide evidence of activity of ancient organisms.

Fossils that get trapped in amber (tree sap) or frozen ice can be _____ .
 Scientists know how groups of animals changed over time by studying information contained in the _____ .
 Define index fossils and state what geologists learn from them.

h. soil composition weathered rocks and decomposed organic material.

Draw and label the soil horizon.-see page 188

Which layer of soil contains fine soil particles and minerals but little organic matter? _____

In which soil layer would you find loam that is rich in humus? _____

Soil formation begins with the weathering of _____.

When earthworms add their wastes to the soil, then die and decay in the soil, they are contributing to the formation of a. silt. b. litter. c. humus.	Soil that is rich in humus has high a. fertility. b. water content. c. sand content. d. clay content.
--	---

i. human impact on the erosion of the earth's surface.

Dunes reduce beach erosion because a. they cause waves to break offshore. b. the roots of dune plants hold sand in place. c. they prevent people from walking on the beach.	Plowing removed the grass from the Great Plains and exposed the soil. What effect did this have when a drought struck the Great Plains during the 1930s? a. It had no effect. b. It reduced the soil's fertility. c. It helped to cause the Dust Bowl.
--	---

<p>What term describes overuse of soil that also causes loss of fertility.</p> <p>a. soil exhaustion</p> <p>b. soil decomposition</p> <p>c. soil conservation</p>	<p>In conservation plowing, why are dead weeds and stalks of the previous year's crop left in the ground?</p> <p>a. to keep the soil from becoming too fertile</p> <p>b. to retain moisture and hold the soil in place</p> <p>c. to keep more organisms out of the soil</p>
---	---

*A groin is a man made wall to prevent beach erosion.

j. how to conserve natural resources such as water, soil, and air.

Fact: Soil is a valuable resource because it is important to all living things on land and is nonrenewable.

<p>The process of supplying water to areas of land to make them suitable for growing crops is</p> <p>a. conservation.</p> <p>b. coagulation.</p> <p>c. irrigation.</p>	<p>Increased carbon dioxide may cause global warming by</p> <p>a. allowing more sunlight into the atmosphere.</p> <p>b. reflecting more sunlight from clouds.</p> <p>c. reducing the amount of oxygen in the air.</p> <p>d. trapping more heat in the atmosphere.</p>
--	---

Briefly describe two hypotheses for the cause of global warming. _____

What would you predict that banning the use of chlorofluorocarbons will do?

S6E6. Students will describe various sources of energy and with their uses and conservation.

a. Explain the role of the sun as the major source of energy and its relationship to wind and water energy.

<p>Which of the following is an advantage of solar energy?</p> <p>a. It will not run out for billions of years.</p> <p>b. It is not available at night.</p> <p>c. No backup energy sources are needed.</p>	<p>The sun produces energy by</p> <p>a. attracting it with the force of gravity.</p> <p>b. nuclear fission.</p> <p>c. burning fuels such as oil.</p>	<p>Earth's atmosphere traps energy from the sun, which</p> <p>a. allows water to exist as a liquid.</p> <p>b. allows solar radiation to penetrate to the surface.</p> <p>c. allows ozone to form easily.</p>
--	--	--

b. Identify renewable and nonrenewable resources

Matching: draw a line from term to meaning

- | | |
|-------------------|---|
| Geothermal energy | coal, oil, and natural gas |
| Tidal energy. | Energy from the sun |
| Hydroelectricity | electrical power produced by the force of flowing water |
| Solar energy. | Intense heat from Earth's interior that warms the magma beneath Earth's surface |
| Fossil fuels | Uses windmills to create electricity |
| Wind | large difference between high and low tides helps create energy |

Answer True or False and correct if False

- _____ The most widely used renewable energy today is Hydroelectric Power.
- _____ Fossil fuels are considered nonrenewable resources because they are in such high demand.
- _____ If fossil fuels continue to be used more rapidly than they are formed, the reserves will eventually be renewed.
- _____ People add the greenhouse gas carbon dioxide to the atmosphere by burning wood, oil, natural gas, and coal.
- _____ Industries that reduce water use, recycle water, and reuse water are practicing soil conservation.

Fill in the Energy Conservation table by inserting correct ways to save.

*Use fluorescent bulbs	turn off lights when not in room
driving a car alone into the city at rush hour	turn off water as you brush teeth
leaving lights on whenever you leave a room	Take a shorter shower
recycling aluminum cans	Insulate your house
leaving your home uninsulated	hydrogen powered cars
Taking a bike ride instead of a car	double window panes

Electricity	Gas	Water
Use fluorescent bulbs		

<p>Energy conservation means</p> <ol style="list-style-type: none"> slowing down a chemical change. burning a fuel to release energy. using fossil fuels to produce electricity. reducing energy use. 	<p>Efficiency is</p> <ol style="list-style-type: none"> the percentage of energy lost to the surroundings as heat. the percentage of energy that is actually used to perform work. the entire amount of energy. the time it takes for half of the energy to be used.
---	--