New York State Student Learning Objective: Science 6th Grade

All SLOs MUST include the following basic components:	
Population	*These are the students assigned to the course section(s) in this SLO - all students who are assigned to the course section(s) must be included in the SLO. (Full class rosters of all students must be provided for all included course sections.)* Three sections of 6th grade science, heterogeneously grouped, 75 students
Learning Content	*What is being taught over the instructional period covered? Common Core/National/State standards? Will this goal apply to all standards applicable to a course or just to specific priority standards?* Students will be able to explain, analyze, and interpret scientific processes and phenomena related to the physical setting and environmental science.
Interval of Instructional Time	*What is the instructional period covered (if not a year, rationale for semester/quarter/etc.)?* 2012-2013 school year
Evidence	*What specific assessment(s) will be used to measure this goal? The assessment must align to the learning content of the course.* Baseline assessment: Given a set of graphs, charts, and tables containing scientific observations, data, and information, students will answer 10 multiple choice questions pertaining to the scientific method, inferences, and predictions. Students will complete two short answer responses related to a written explanation of a scientific experiment (total points possible is 14 pts.) Summative assessment: Students will complete 20 questions (15 multiple choice, 5 short answers) specific to Earth's four spheres. Students will answer four skill based questions pertaining to graphed data and written explanations (total possible is 25 pts.)

Baseline

What is the starting level of students' knowledge of the learning content at the beginning of the instructional period?

points	# of students	Points	# of students
14	0	7	5
13	0	6	5
12	3	5	5
11	12	4	0
10	15	3	0
9	15	2	0
8	5	1	0

Target(s)

What is the expected outcome (target) of students' level of knowledge of the learning content at the end of the instructional period?

Seventy-five percent of all students will score twenty or more points

HEDI Scoring

How will evaluators determine what range of student performance "meets" the goal (effective) versus "well-below" (ineffective), "below" (developing), and "well-above" (highly effective)?

The targets below are based on the baseline and the district history.

HIGHLY EFFECTIVE			EFFECTIVE									DEVELOPING						INEFFECTIVE		
20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0
99-100%	95-98%	90-94%	87-89%	83-86%	80-82%	76-79%	73-75%	71-73%	69-70%	67-68%	65-66%	63-64%	61-62%	59-60%	57-58%	55-56%	53-54%	51-52%	49-50%	<48%

Rationale

Describe the reasoning behind the choices regarding learning content, evidence, and target and how they will be used together to prepare students for future growth and development in subsequent grades/courses, as well as college and career readiness.

The Learning Content is based on the Intermediate Level Science Core Curriculum. The baseline evidence will provide teachers with a basis of students' abilities to explain, analyze, and interpret scientific processes and phenomena. The summative assessment will combine the students' abilities to explain, analyze and interpret scientific processes and phenomena specific to the atmosphere, hydrosphere, biosphere, and lithosphere.

Use the chart below to answer question 4.

Amount of Oxygen Produced in a Pond	
Location	**Oxygen Produced (grams per cubic meter)**
Top Meter	4
Second Meter	3
Third Meter	1
Fourth Meter	0

4.) Which statement is consistent with the data in the table?

A.)More oxygen production occurs near the surface because there is more light there.

B.)More oxygen production occurs near the bottom because there are more plants there.

C.)The greater the water pressure, the more oxygen production occurs.

D.)The rate of oxygen production is not related to depth.

5.) George will conduct a scientific experiment. In what order should George follow the steps below?

Steps in an Experiment

A.) Run a scientific test
B.) Analyze data
C.) Form a conclusion
D.) Form a hypothesis

A.) Step A, Step B, Step C, Step D

B.) Step B, Step C, Step A, Step D

C.) Step C, Step A, Step D, Step C

D.) Step D, Step A, Step B, Step C

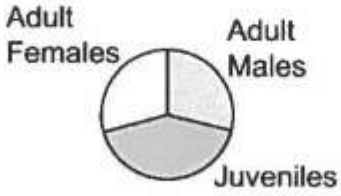
6.) Jessica was studying a group of mammals. The data below shows some of her results.

Mammal Population

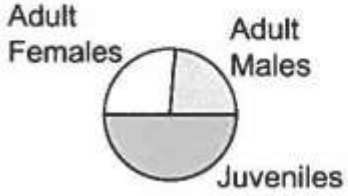
Segment of mammal population	Number of individuals in Population
Adult Males	49
Adult Females	52
Juveniles	104

Which of the circle graphs below best represents the data that Jessica gathered?

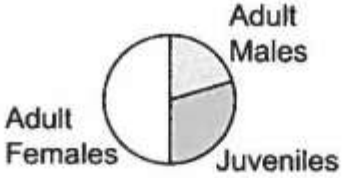
Mammal Population



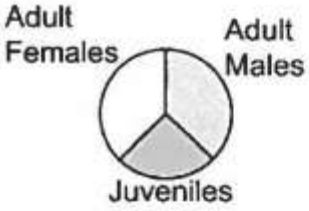
Mammal Population



Mammal Population



Mammal Population



Use the table below for questions 7 & 8.

Temperature	Percent of water evaporated after 5 days
70° F	15%
65° F	13%
60° F	11%

7.) Thomas constructed the table below to keep track of his data during an experiment in which he

8.) Based on Thomas' data table, a jar of water from which 9% of the water has evaporated after 5 days was most likely placed at what temperature?

a.) 50 °
b.) 55 °
c.) 75°
d.) None of the above

9.) Lucy used the chart below to organize her data during a science experiment in which she grew four bean plants.

Plant Number	Height at the beginning of the experiment (cm.)	Amount of plant food each day (mL)	Amount of sunlight each day (hours)	Amount of water each day (mL)	Height at the end of the experiment (cm.)
1	5	10	4	100	45
2	5	12	6	100	48
3	5	10	3	100	38
4	5	10	8	100	55

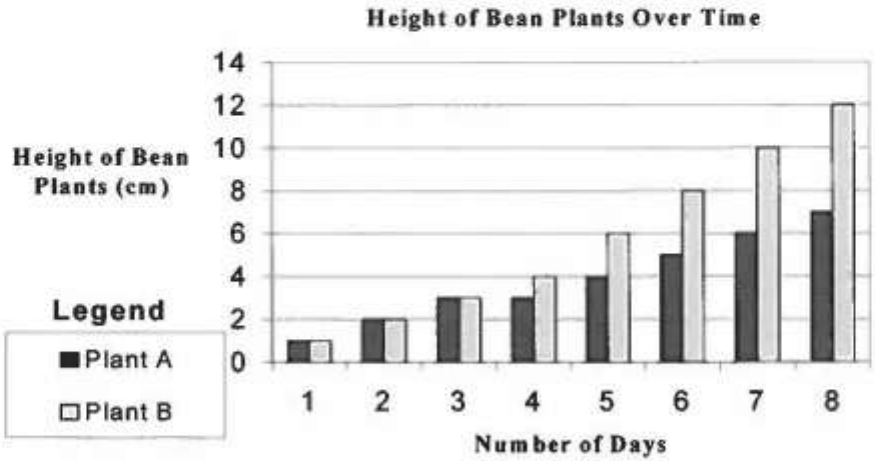
Based on the data, what was the most important variable affecting plant growth?

A.) Amount of water
B.) Amount of sunlight
C.) Amount of plant food
D.) Height at the beginning of the experiment

10.) What is one prediction that can be made based on the data if Lucy continues the experiment?

A.) Plant 1 will grow at the fastest rate.
B.) Plant 2 will be the tallest by the end of the experiment.
C.) Plant 3 will continue to grow at the slowest rate.
D.) Plant 4 will be the tallest by the end of the experiment.

11. Two young plants were planted at the same time. One plant was labeled A, and the other plant was labeled B. The plants were observed each day, and their heights were graphed. **The cotyledon from Plant A was removed on Day 3.**



A.) Use **specific data** from the graph to describe **two differences** in the growth of Plant A and Plant B, from Day 4 to Day 8.

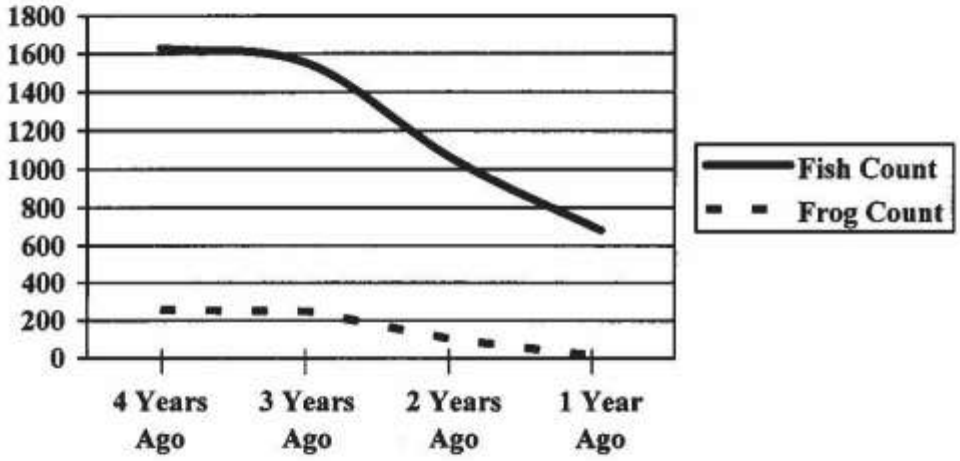
B.) What effect does removing the **cotyledon** have on Plant A? How do you know?

Name: _____

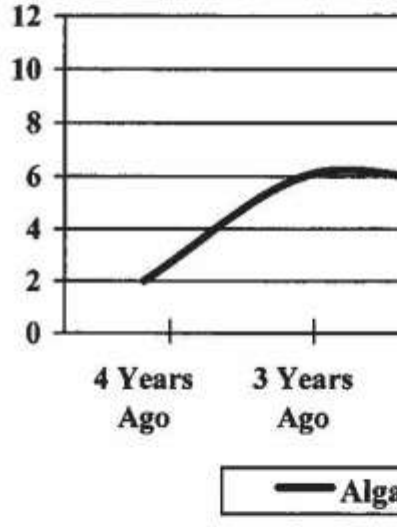
12.) Use the data below to answer question 12 on the following page.

Rocky River Data Sheet

Rocky River Fish and Frog Count



Rocky River Al



Algae Growt

Low Algae Level
Medium Algae L
High Algae Level

Name: _____

12.) What are **two possible causes** for the changes in the Rocky River over the four-year period?

A.)_____

_____

_____

B.)_____

_____

_____

What are **two predictions** that you can make about the future of the Rocky River based on the graphs?

A.)_____

_____

_____

B.)_____

_____

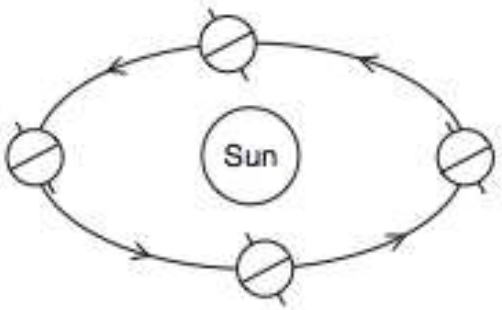
_____

Name: _____ Class: _____

6th Grade Science Summative Assessment 2012-2013

Directions: For questions 1 - 5, circle the letter of the correct answer.

1 The diagram below shows Earth at four locations in its orbit around the Sun.



(Not drawn to scale)

Which motion do the arrows in the diagram represent?

(1) Earth's rotation
(2) the Sun's rotation
(3) Earth's revolution
(4) the Sun's revolution

2 Earth's hydrosphere is best described as the

(1) relatively thin layer of rock found above Earth's mantle
(2) relatively thin layer of water covering most of Earth's crust
(3) hot liquid rock located in Earth's outer core
(4) very dense rock located in Earth's inner core

3 Most scientists agree that an increase in the amount of greenhouse gases entering Earth's atmosphere causes

(1) a decrease in sea level
(2) a decrease in average surface temperatures
(3) an increase in melting of polar ice caps
(4) an increase in crustal plate movement

4 Which energy source is considered *nonrenewable*?

(1) moving water
(2) fossil fuel
(3) wind
(4) biomass

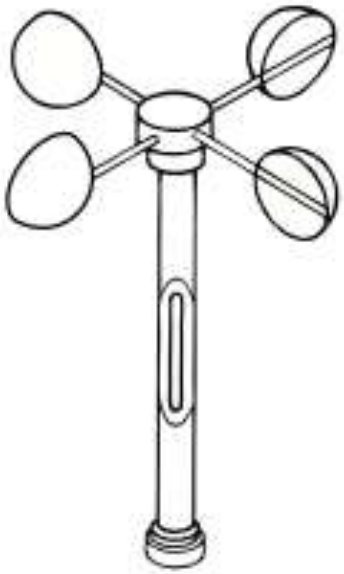
5 In which type of rock is the fossil imprint of a fern leaf most likely to be found?

(1) igneous
(2) metamorphic
(3) sedimentary
(4) volcanic

6 Part of the east coast of South America and the west coast of Africa have matching fossils within the same series of rock layers. This provides evidence that these two continents were once

(1) separated by a much larger ocean
(2) joined together as one landmass
(3) located near the North Pole
(4) in a different hemisphere

7 The diagram below shows a weather instrument.



Which weather condition is measured by this instrument?

(1) air humidity
(2) air pressure
(3) wind direction
(4) wind speed

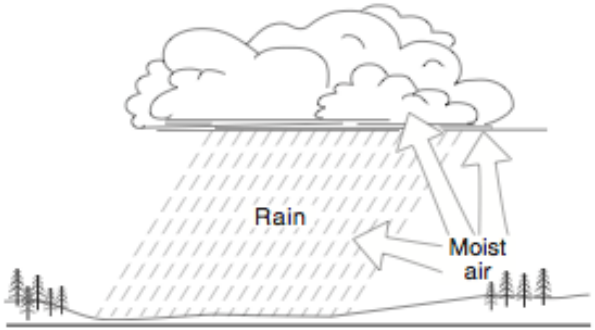
8

A sudden change in the weather at a certain location is most likely caused by

(1) the arrival of an air mass
(2) a severe earthquake
(3) a high ocean tide
(4) an eclipse of the Moon

9

The diagram below shows a material being cycled between the living and nonliving environments.



Which material is being cycled?

(1) carbon dioxide
(2) nitrogen
(3) oxygen
(4) water

10

The surface of Earth is covered mostly by

(1) solid rock
(2) molten rock
(3) ice
(4) water

11 The gravitational force between the Moon and Earth depends on

(1) their masses, only
(2) their diameters, only
(3) their masses and how far apart they are
(4) their diameters and how far apart they are

12 The movement of an air mass over Earth's surface causes

(1) earthquake activity
(2) local weather changes
(3) global warming
(4) ecological succession

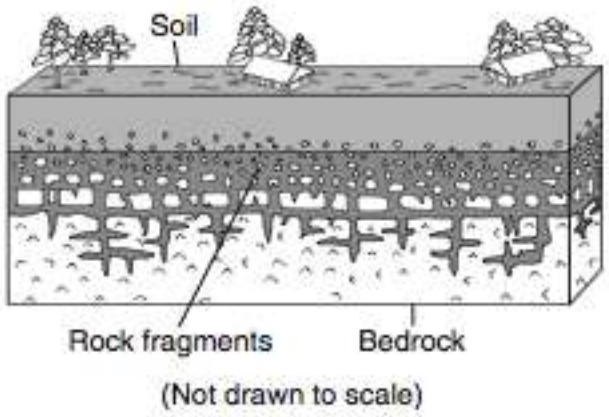
13 Which two processes could result in the formation of high mountains with well-rounded peaks?

(1) volcanic eruptions and global warming
(2) earthquakes and tidal activity
(3) collision of crustal plates and erosion
(4) production of greenhouse gases and weathering

14 What is one factor that contributes to seasons occurring in New York State?

(1) the revolution of the Moon around Earth
(2) the tilt of Earth on its axis
(3) the rising and falling of ocean tides
(4) the distance of Earth from the Sun

15 The diagram below shows a portion of Earth's crust.



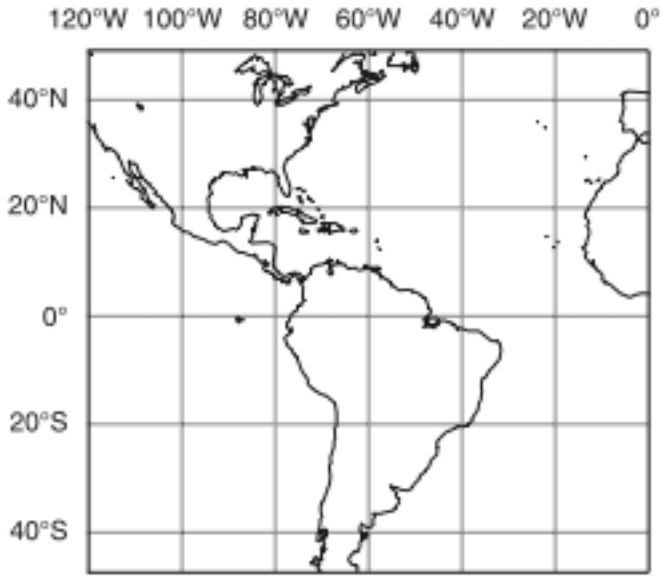
(Not drawn to scale)

The formation of the rock fragments was most likely a result of

(1) cooling
(2) folding
(3) melting
(4) weathering

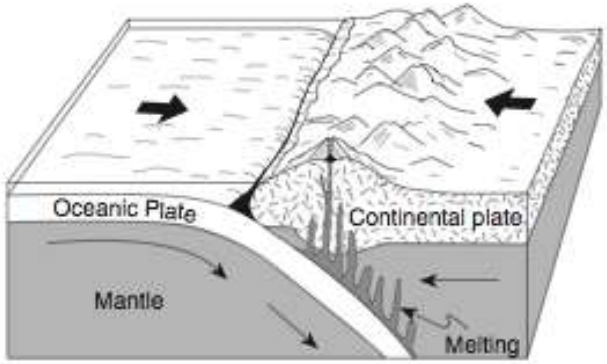
16.

Place an **X** on the map below to indicate a location at 20° S 60° W. [1]



17.

This diagram shows a boundary between crustal plates. The arrows show the direction of plate movement.

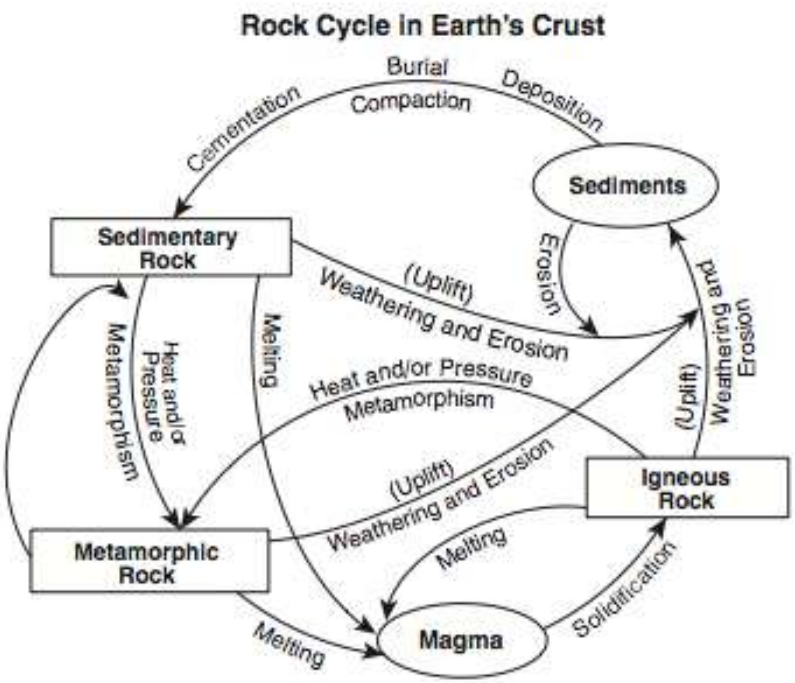


(Not drawn to scale)

What theory is used to explain the movement of crustal plates? [1]

Identify *one* geologic event that often occurs near this type of crustal plate boundary. [1]

18. Base your answer to the questions on the diagram below and your knowledge of science. The diagram shows the rock cycle in Earth's crust.



What type of rock forms directly from magma? [1]

_____

Identify *two* processes required for the formation of a sedimentary rock. [1]

(1) _____

(2) _____

19.

The four types of organisms listed below obtain their energy from different food sources.

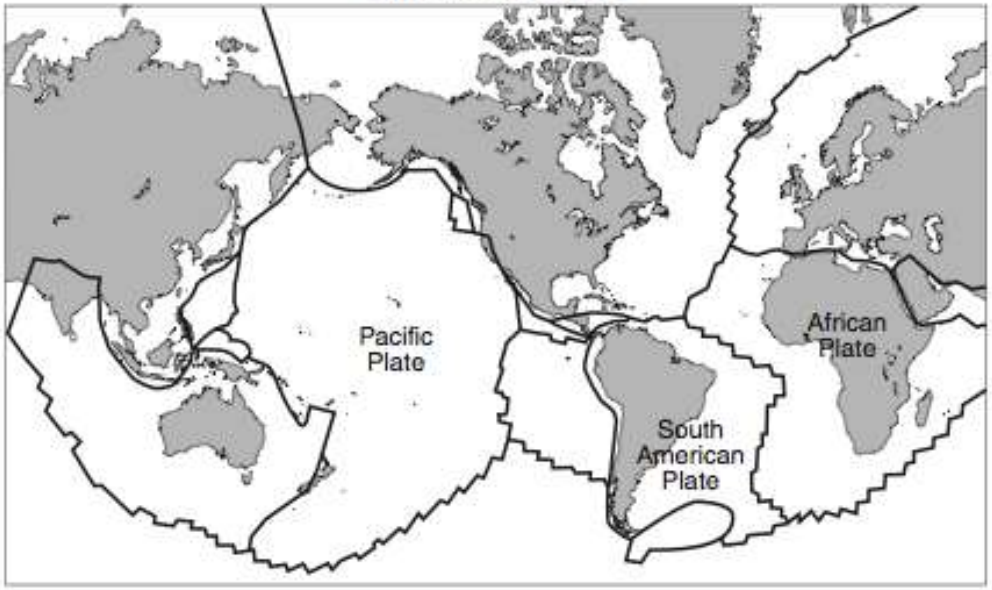
carnivore
herbivore
omnivore
decomposer

The chart below lists four specific organisms and describes the diet of each. Complete the chart by placing the correct term from the list above in the blank spaces. The first row has been completed as an example. [2]

Organism	Diet	Type of Organism
white-tailed deer	eats grasses and other plant parts	herbivore
Alaskan brown bear	eats wild berries, leaves, fish, and small rodents	
shelf fungus	absorbs nutrients from the wood of dead trees	
African lion	eats antelope and other grazing mammals	

20. Base your answers on the map below and your knowledge of science. The map shows the seven continents and several lithospheric plates. The dark lines between the plates represent the boundaries that separate them. Three of the plates are labeled.

Lithospheric Plates



Describe *one* piece of evidence shown on the map suggesting that the continents of South America and Africa were once joined together. [1]

Identify *one* geologic event or feature that frequently occurs when lithospheric plates collide (converge) or move apart from each other (diverge). [1]