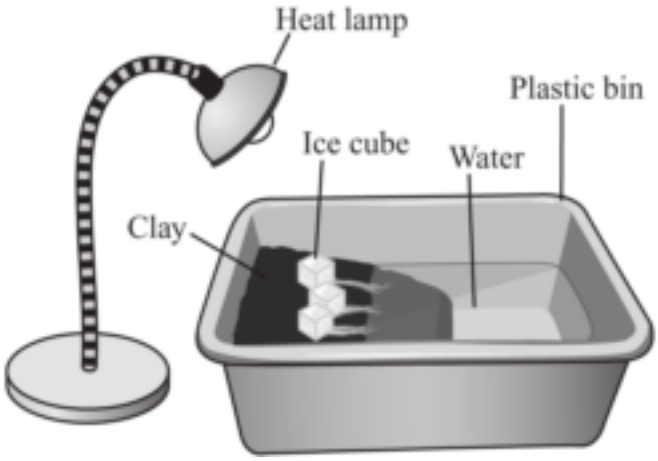
MCAS Questions: Oceans

1. *(2013)* Manuel is building a model to show how water from melting glaciers moves through the ocean. He puts clay, water, and ice cubes into a plastic bin. He places a heat lamp next to the bin. His model is shown in the diagram below.



Which of the following would **most likely** help Manuel show how water from melting glaciers moves in his model?

A. using colored water to represent the water in the ocean
B. using colored water to make the ice cubes that represent the glaciers
C. using different colors of clay to represent dry land and the bottom of the ocean
D. using different colors of light to represent sunlight shining on the glaciers and dry land

2. *(2013)* The map below shows the location of South Carolina.

South Carolina is humid during the summer months. Which of the following is the **most likely** cause of the humid conditions?

A. runoff from inland mountains
B. flooding from rivers and streams
C. groundwater bubbling to the surface
D. evaporation from the surface of the ocean

3. *(2014)* Temperature changes along the coast are usually less extreme than temperature changes farther inland. Which of the following statements **best** explains why?

A. It is much windier at the coast than farther inland.
B. The temperature of the land remains fairly constant.
C. It is much less humid at the coast than farther inland.
D. The temperature of the ocean remains fairly constant.

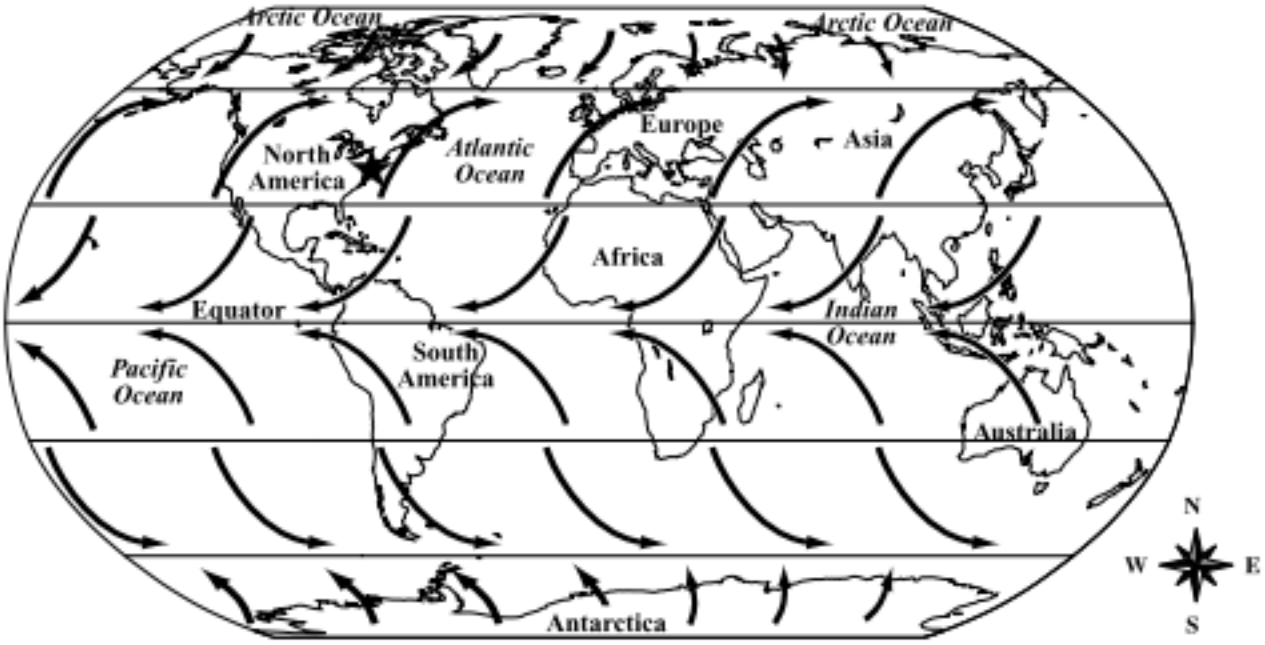
4. *(2014)* The table below shows the average high temperature and average relative humidity for a city in Massachusetts for the months of July, August, and September.

Month	Average High Temperature (°F)	Average Relative Humidity (%)
July	79	77
August	77	79
September	69	82

Which of the following statements describes how the average weather in this city changes from July to September?

A. The weather becomes cooler and less humid.
B. The weather becomes warmer and less humid.
C. The weather becomes cooler and more humid.
D. The weather becomes warmer and more humid.

5. *(2012)* The map below shows global wind patterns. The east coast of the United States is marked with a star.



Global winds blow in the directions shown on the map. Winds blowing from the east coast of the United States have the **most** effect on the weather in which of the following regions?

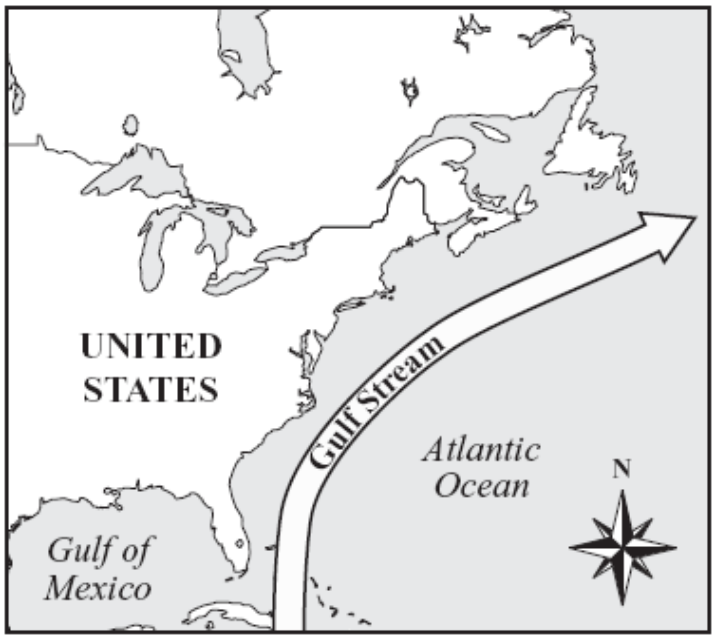
A. Africa
B. Asia
C. Europe
D. South America

6. *(2009)* The picture below shows an island that was formed in an ocean.

Which of the following **most likely** caused the formation of this island?

A. wave erosion
B. sand deposits
C. wind movement
D. volcanic eruptions

7. *(2009)* The map below shows the location of the Gulf Stream, an ocean current that moves tropical water along the east coast of the United States.



Which of the following statements **best** describes how the Gulf Stream affects the weather along the east coast?

- **A.** It makes the air less humid and brings less rain to the area.
- **B.** It makes the air temperature cooler and the winds stronger.
- **C.** It makes the winds stronger and brings less rain to the area.
- **D.** It makes the air temperature warmer and the air more humid.

8. *(2008)* During most of the year, the air overBoston, Massachusetts, contains a highamount of moisture. Which of thefollowing **best** explains why there is ahigh amount of moisture in the air?

A. Boston is close to an ocean.
B. Boston is at a low elevation.
C. Boston is near many mountains.
D. Boston is far north of the equator.

9. *(2008)* Which of the following events involves aconsumer and producer in a food chain?

A. A cat eats a mouse.
B. A deer eats a leaf.
C. A hawk eats a mouse.
D. A snake eats a rat.

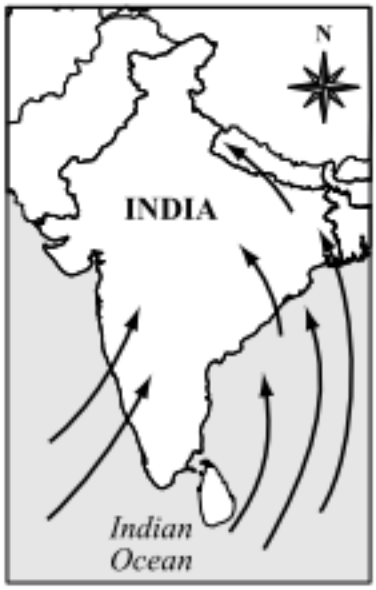
10. *(2007)* Each year, humpback whales migrate from the coast of Antarctica to the north coast of Australia. The map below shows the whales' migration route.

Which of the following are the whales **most likely** responding to when they begin to migrate?

A. the force of gravity
B. a shift in ocean waves
C. a change in water temperature
D. the approach of stormy weather

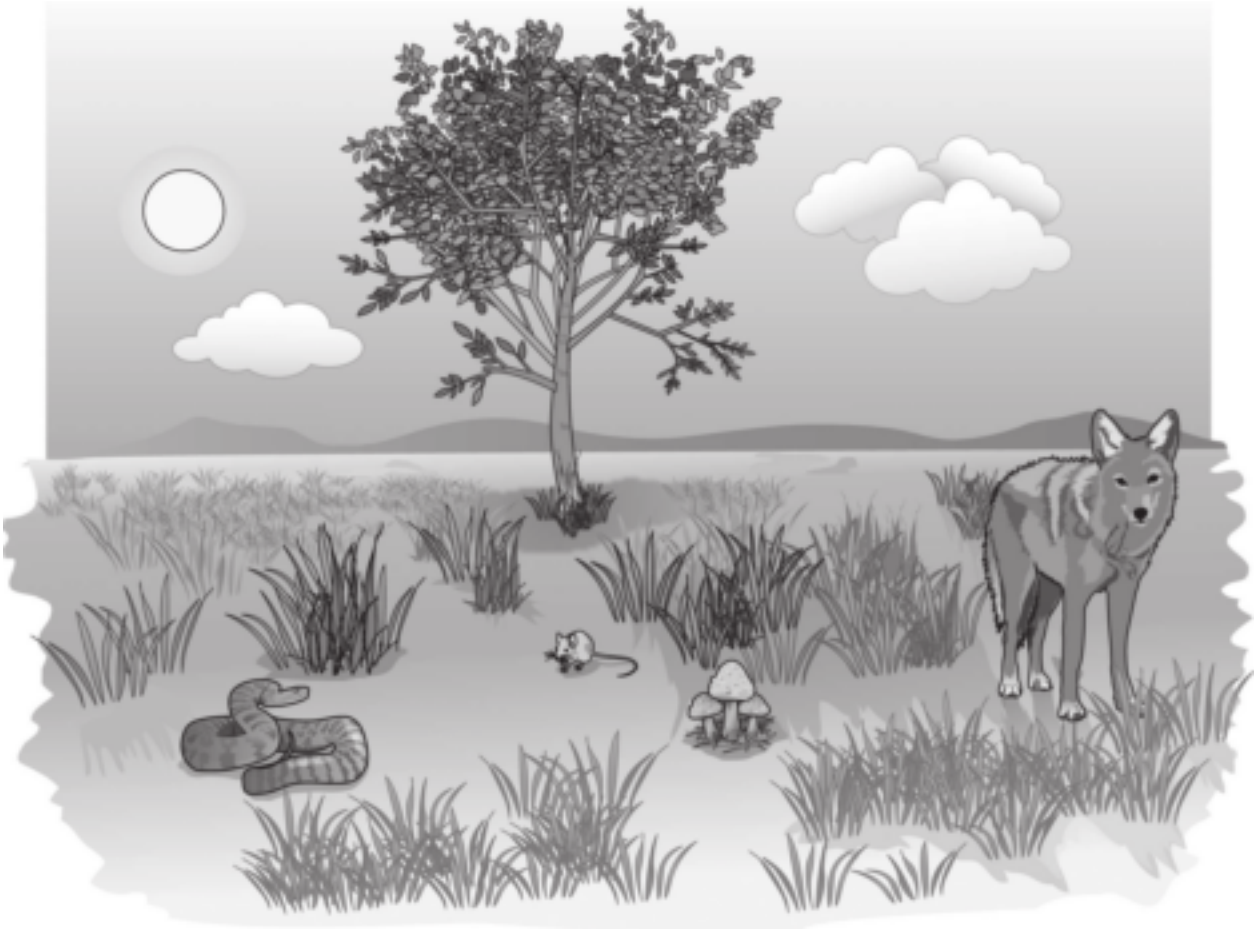
Open Response

1. *(2014)* In parts of India, the spring season is typically hot and dry. As spring changes to summer, strong winds blow moist air over the land. The map below shows the direction of these strong summer winds.



a. Based on the map, identify the source of the moisture in the wind.
b. Identify **and** describe the water cycle process that moves water from the source you identified in part (a) into the atmosphere. Be sure to include states of matter in your description.
c. Describe how the moisture in the air causes clouds to form **and** rain to fall in India.

2. (2013) A prairie ecosystem includes many different organisms, such as grasses, coyotes, trees, mushrooms, snakes, and mice, as shown in the picture below. The energy needed by all the organisms in the ecosystem comes from one primary source.



a. Identify the primary source of energy in the prairie ecosystem.

b. Identify one producer, one consumer, and one decomposer shown in the picture of the prairie ecosystem.

c. Explain how the energy from the primary source you identified in part (a) moves through the prairie ecosystem. Be sure to include producers, consumers, and decomposers in your answer.

3. *(2009)* Janna's class is on a field trip at the seashore. The students are classifying some of the animals they find into one of the three groups shown below.

Janna looked into a tide pool and observed the animals shown below.

a. Classify the animals that Janna observed in the tide pool into one of the three groups.

b. Describe the **main** characteristic used to classify the animals from the tide pool into the group you identified in part (a).

c. Describe **two** differences between the animals from the tide pool and the animals in the other groups.

MCAS Questions: Oceans
Multiple Choice

1. B.
2. D.
3. D.
4. C.
5. C.
6. D.
7. D.
8. A.
9. B.
10. C.

MCAS Questions: Oceans
Open Responses

Question 1

Score Point 4

A.) The source of the moisture in the wind is the Indian Ocean.

B.) The liquid water in the Indian ocean will get heated by the sun and turn into water vapor. The water vapor then goes up in the air. This process is called evaporation. The water vapor then cools and condense to a liquid to form a cloud. This is called condensation.

C.) The moisture in the air is a gas called water vapor. As water vapor goes higher into the atmosphere, it cools and condenses to form a cloud. When the water droplets in the cloud become to heavy, it precipitates rain.

Score Point 4

a): Based on the map, the source of the moisture in the wind is the Indian Ocean.

b): Evaporation is the process of the water cycle in which it moves water from the source into the atmosphere. This occurs when the sun heats up the water of the source. When the water gets too warm, it changes from a state of liquid into a matter of gas — otherwise known as water vapor (evaporation). The water vapor then rises into the atmosphere.

c): The moisture in the air eventually cools down and condenses. At this stage of the water cycle, the moisture/water vapor changes from a matter of gas back into water droplets. Then, these water droplets join and form a cloud. When the droplets get too heavy, it precipitates from the cloud as rain.

Score Point 3

A. The source of moisture in the wind is the water from the Indian Ocean.

B. The water cycle process that moves the water from the ocean is evaporation. That is because evaporation turns liquids into gases. So it's state of matter is a gas.

C. The moisture in the air causes clouds to form from all the gases that get mixed. The rain falls because the moisture in the clouds got to heavy.

Score Point 2

a) The source of moisture the wind is coming from is the Indian Ocean.

b) The water cycle process that moves water from the source is evaporation.

c) The clouds form and the wind moves them. Eventually when they get heavy it will rain on India.

Score Point 1

A. It is coming from the Indian ocean.
B. The ocean makes the air go up.
C. The clouds make the rain.

Score Point 0

a. The source of moisture in the wind blows around India for summer and makes the moist air blow over the land.

b. The water cycle process the move of the water is that the summer of strong wind and spring is typically hot and dry but India usually have little rain and usually water cycle process that moves.

C From the summer and spring it makes the moisture in the air cause clouds to form rain to fall in India.

Question 2

Score Point 4

(A) the Sun is the primary source of energy in a prairie ecosystem because it gives solar (sun) energy to the plants (b.) One producer is the grass because it makes its own food (sugar) in a process called photosynthesis, One consumer is the mouse because it consumes (eats) grass seeds to get energy, and one decomposer is the fungi, and mushrooms because they feed on dieing or dead plants, and animals (c.) energy from the sun (sun light) hits the grass using photo synthisis the grass turns water, carbon dioxide, and sunlight into a food (sugar), making it a prodycer, then the consume (mouse) eats the grass and gets some of it's energy, making it a herbivore, the snake then eats the mouse geting some of its energy, the wolf may eat the snake, and get some of its energy, and when the plants or animals in the prairie die the decomposers (fungi, mushrooms) feed on them.

Score Point 4

a. The sun.

b. A producer would be grass, a consumer would be a coyote, and a decomposer would be a mushroom.

c. The sun is the primary source. It's light gives energy for the grass and trees to grow. A mouse will eat the grass and get the energy, and then a coyote might eat the mouse and get the energy. When the coyote dies the mushrooms will break down the nutrients.

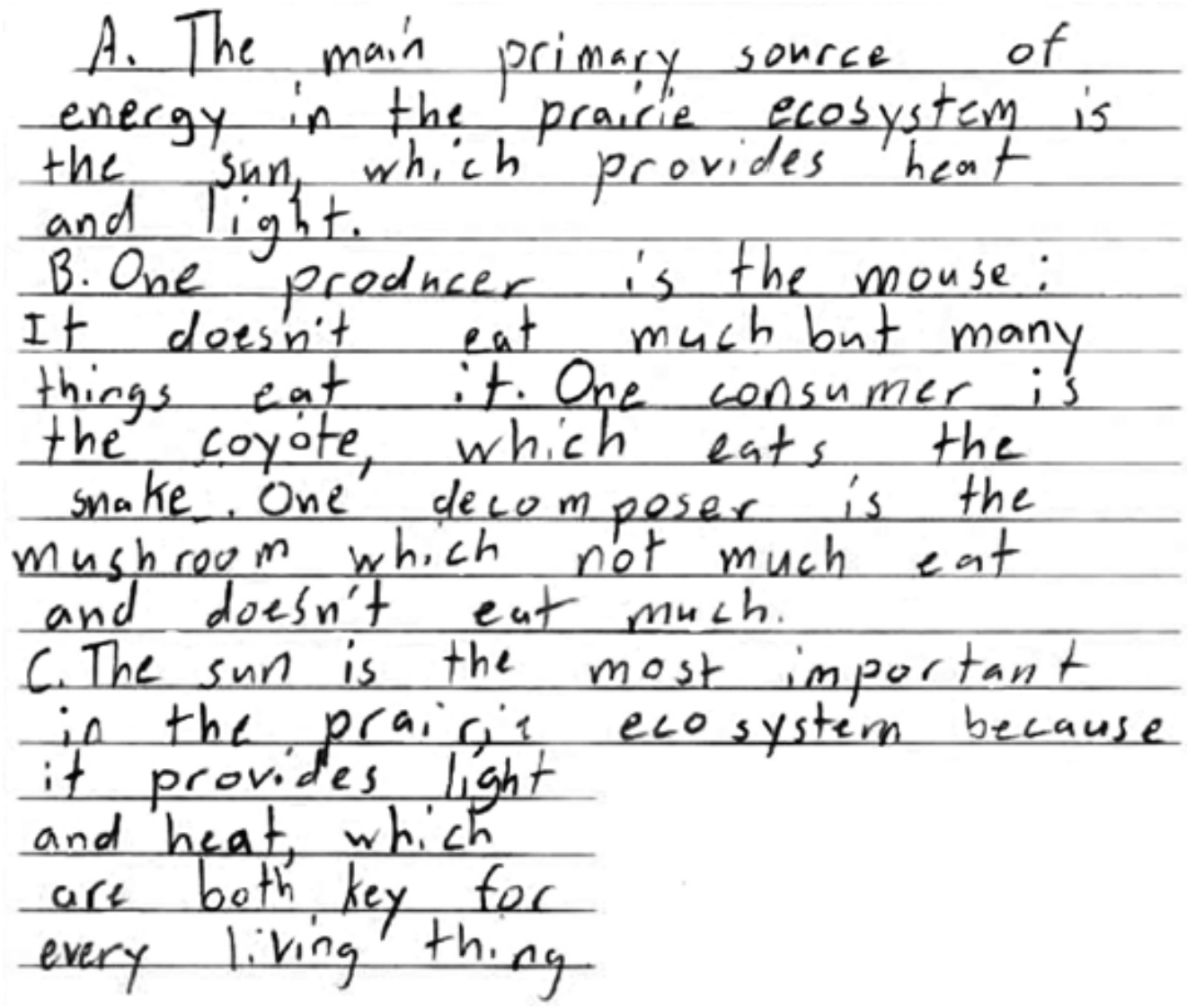
Score Point 3

A. The primary source of the pantry is the sun.

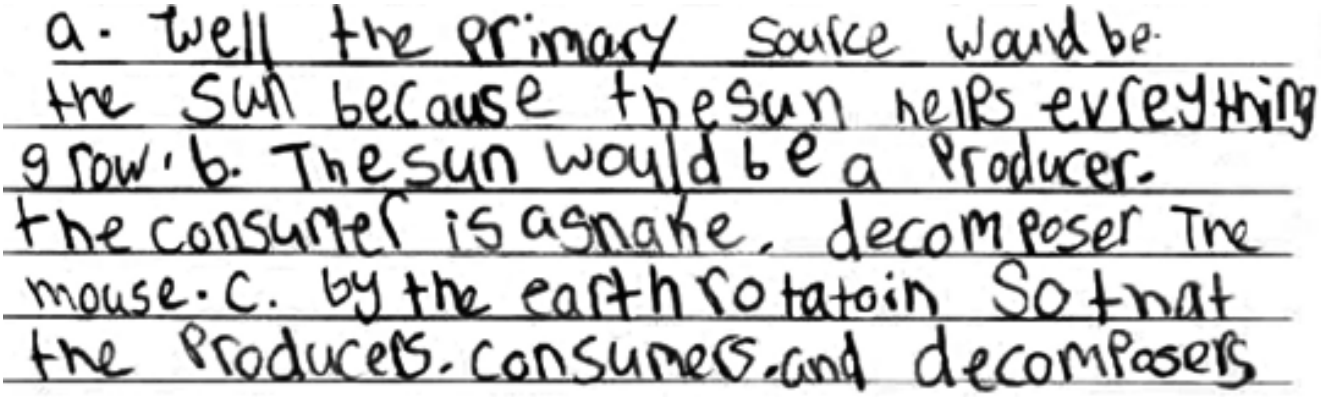
B. Well the producer is the grass, the mouse eats the grass (consumer) The decomposer is the mushroom.

C. Well the sun gives food to the plant (producer), Then the mouse eats the grass, (consumer 1st) And the snake eats the mouse (consumer 2nd) Then the sun gives life to the mushroom (decomposer) then it dies giving life to the ground.

Score Point 2


A. The main primary source of energy in the prairie ecosystem is the sun, which provides heat and light.
B. One producer is the mouse; It doesn't eat much but many things eat it. One consumer is the coyote, which eats the snake. One decomposer is the mushroom which not much eat and doesn't eat much.
C. The sun is the most important in the prairie ecosystem because it provides light and heat, which are both key for every living thing.

Score Point 1


a. well the primary source would be the sun because the sun helps everything grow. b. The sun would be a producer. the consumer is a snake, decomposer The mouse. c. by the earth so tatoin So that the producers. consumers. and decomposers

Score Point 0

(A.) The primary source of energy in the prairie ecosystem is rain. (B) One producer is the mushrooms and one consumer is grass and one decomposer is the coyote. (C.) The primary source is rain and it moves by all the humidity.

Question 3

Score Point 4

a. The animal that Janna observed is a bivalve. Bivalves have 2 shells attached to each other to protect the animal inside. The animals she found have 2 shells connected at a point therefore, they are bivalves.

b. Bivalves have 2 shells connected at one point. A strong muscle in the animal inside keeps the 2 shells together. The animal inside the shell has a soft body and needs the shell to protect itself.

c. 2 differences between bivalves and crustaceans are that crustaceans have exoskeletons instead of shells to protect their bodies. They also have legs. 2 differences between bivalves and gastropods are that Gastropods only have 1 shell not 2. Also the animal inside the shell comes out of it's shell.

Score Point 4

A.) The animals that Jana saw in the tide pool will be in the group Bivalves.

B.) The tide pool animal has two shells and the Bivalves do too.

C.) the other groups animals can move by their feet or foot. they also have one shell not two like the group Bivalves.

Score Point 3

A, The animals Janna found were under the group called "Bivalves"

B, The main characteristicts that the Bivalves have are that it lives in shells to protect itself.

C, One difference between the Bivalves and the other animals is that it cant move around to different places. Another difference is that some of the animals outside the tide pool have claws and legs and the Bivalves don't.

Score Point 2

a. The animals that Janna found would go into the bivalves group.
b. The animal would go into the bivalves group because it has two hard shells that protect it's body from predators and to camouflauge with underwater plants and sand like the other shellfish in the picture of the bivalve group.
c. The animals from the tide pool are different from the animals we see all the time because the animals in the tide pool have protective armor to protect their soft bodies. Common animals we see everyday like birds and squirrels use their fur and feathers to keep warm. The tide pool animals need water and sand to hide themselves while birds and squirrels hide in trees.

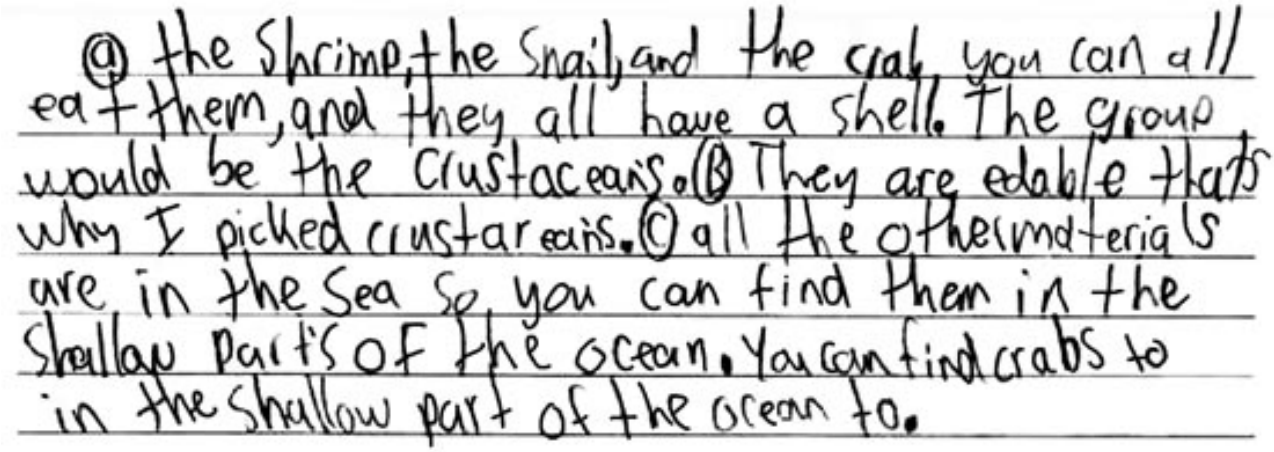
Score Point 1

A) I classify it into the Bivalves.

B) The Bivalves look like clames and It is a clam.

C) the ones in the tide pools are like clame and other things like that. the Gastropods are like snails. Crutaceans are like crabs srips, lobsters and othun like that.

Score Point 0


A the Shrimp, the Snail, and the crab you can all eat them, and they all have a shell. The group would be the Crustaceans. B They are edable that's why I picked crustareans. C all the other materials are in the Sea So you can find them in the Shallow parts of the ocean. You can find crabs to in the Shallow part of the ocean to.