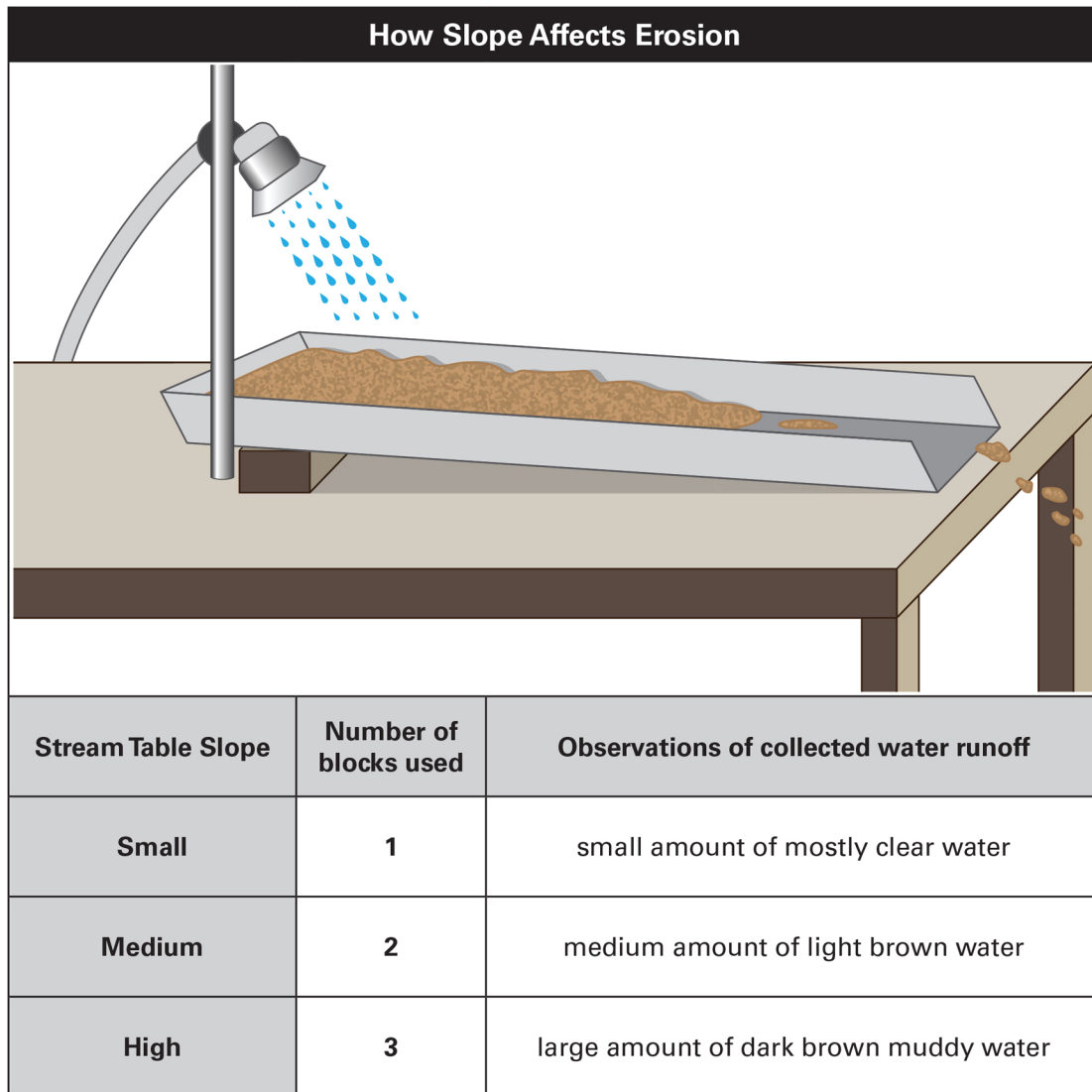


Marta and Jose see a muddy stream form on a hillside on a rainy day. They wonder what difference the steepness of the hill makes in the amount of erosion.

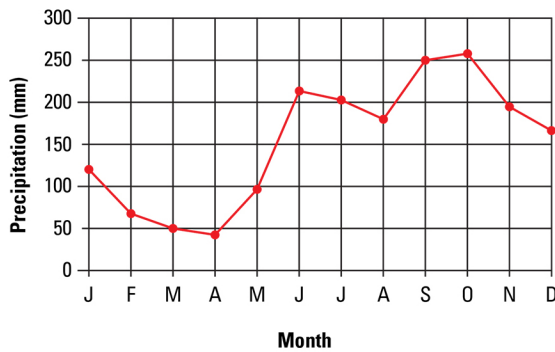
They decide to investigate erosion by setting up three stream tables. To change the steepness, they use a different number of blocks under the top part of the tray. They spray an equal amount of water onto each stream table and collect and observe the runoff at the bottom. Their data is shown in the table below.



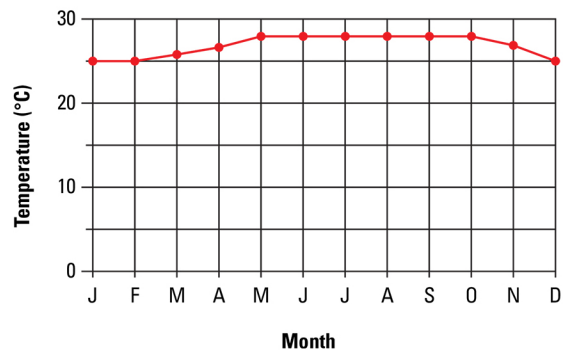
11. Based on the table, which of the following observations is shown?
- A. Water ran more quickly off the tray with one block.
 - B. The soil in the tray with two blocks lost the most water.
 - C. The soil in the tray with three blocks could hold more water.
 - D. Water in the trays with more blocks carried more soil away.

Rainfall and temperature are two important nonliving factors in any ecosystem. The first pair of graphs below show the average precipitation (rainfall or snow) amounts and temperatures of a tropical rainforest ecosystem. The second pair of graphs shows the rainfall and temperature data for a temperate forest ecosystem.

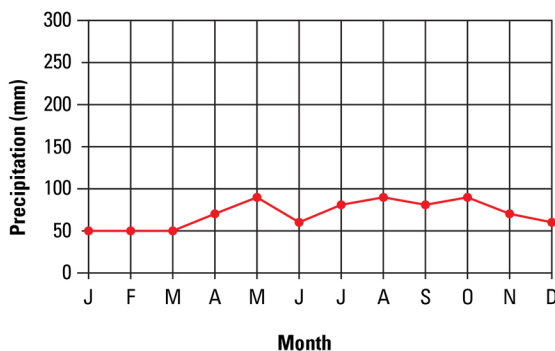
Rainfall Data for a Tropical Rainforest in Central America



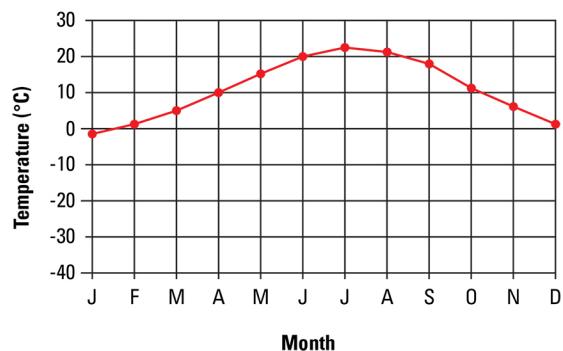
Temperature Data for a Tropical Rainforest in Central America



Rainfall Data for a Temperate Forest in Virginia, United States

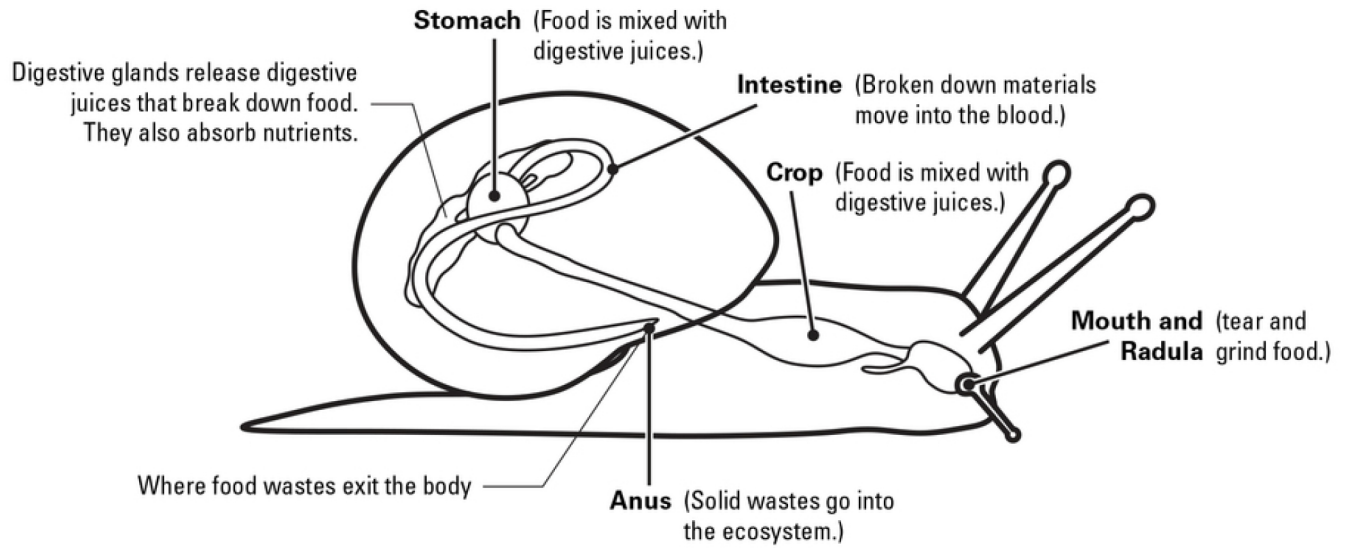


Temperature Data for a Temperate Forest in Virginia, United States



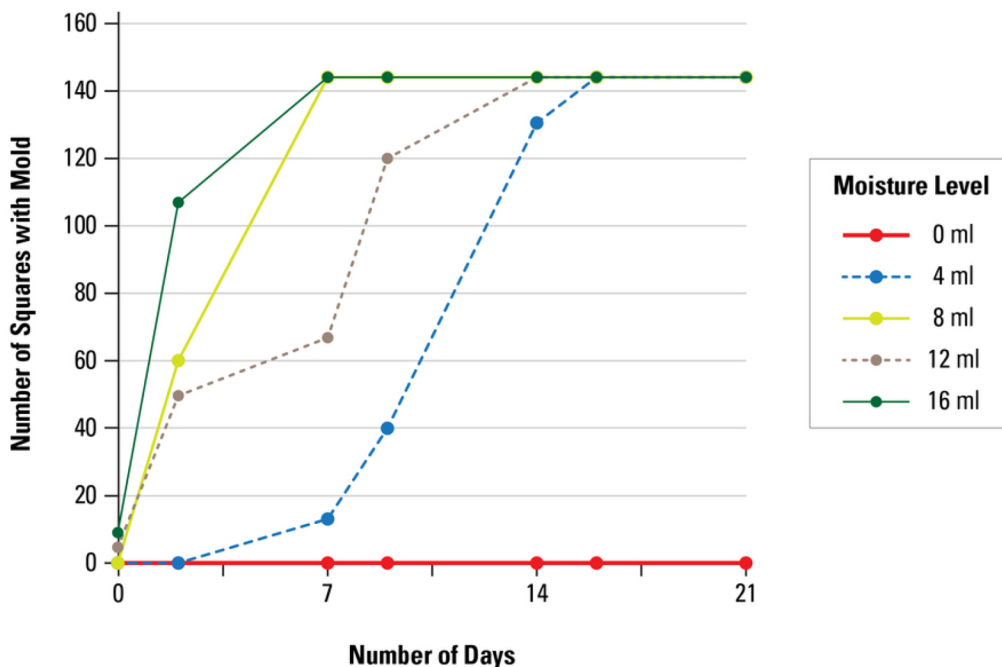
12. Based on the evidence in the graphs, which of the following statements is true?
- A. A tropical rainforest ecosystem gets more rainfall and is hotter than a temperate forest ecosystem.
 - B. A temperate forest ecosystem gets more rainfall and is hotter than a tropical rainforest ecosystem.
 - C. Tropical rainforest ecosystems and temperate forest ecosystems are both very wet, hot places.
 - D. Tropical rainforest ecosystems and temperate forest ecosystems are both very cold, dry places.

Have you ever found a snail gliding across the ground or a plant's leaf? If so, you know that consumers come in all shapes and sizes. Snails are consumers that get their energy from food. Let's take a look at a model of the digestive system of a snail.

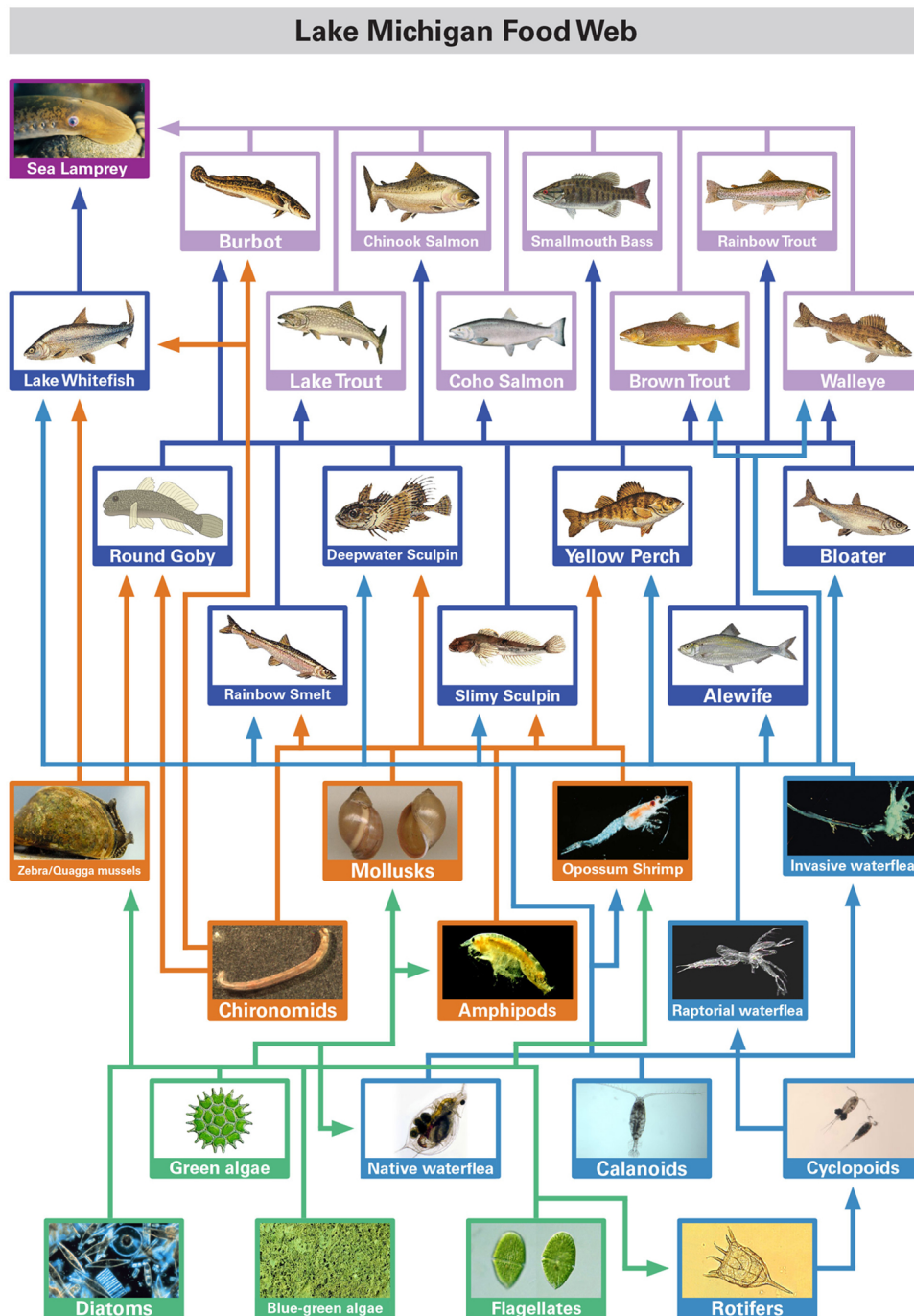


Your class conducts an investigation about how moisture affects the growth of a fungus known as bread mold. To test this, you get five identical squares of bread and place each one in a warm, dark corner of your classroom. Each piece of bread has been pre-cut to cover one plastic square grid with 144 small squares. Each square of bread is placed in a sealed tight plastic bag. The only thing you vary is the amount of water you put into each bag. Every few days, you measure the number of squares the mold covers on each slice of bread. The results of your class study are shown in the graph.

Mold Growth



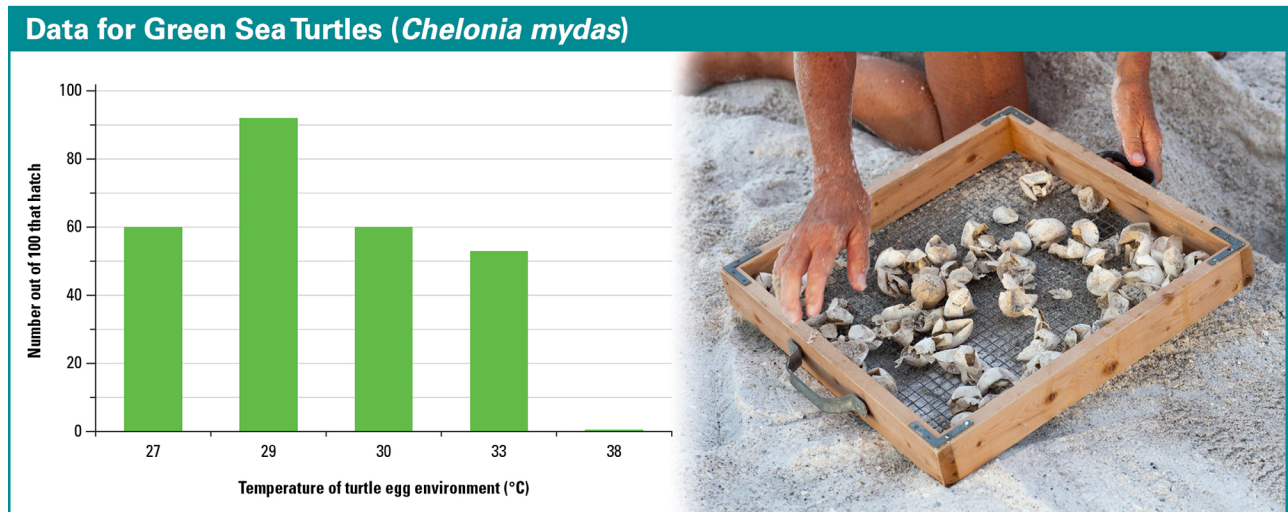
Lake Michigan is one of the Great Lakes. A team of scientists wanted to investigate how animals that were accidentally brought there now affect the Lake Michigan food web. To do so, they had to learn what each of these animals eats in its new home. After investigating the animals of Lake Michigan, the scientists were able to develop a food web, like the one shown.



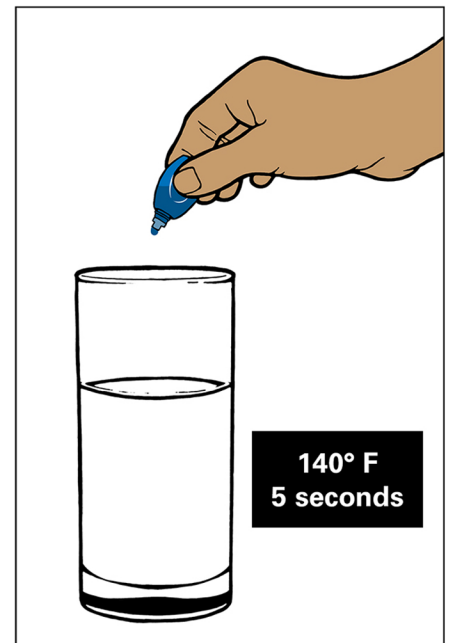
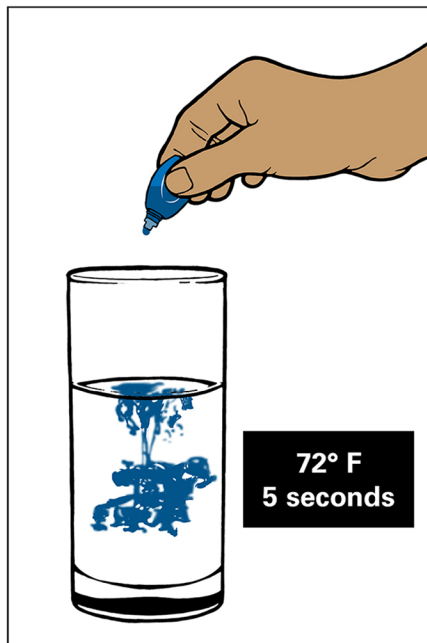
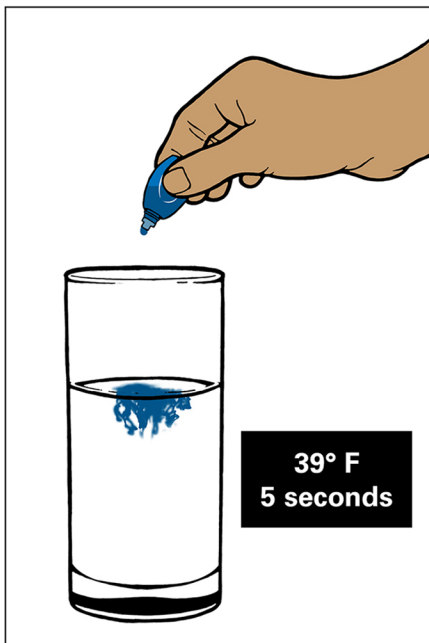
13. What do the green arrows show on this food web?
- A. They point from consumers to the decomposers that digest them.
 - B. They point to where producers get their matter and energy from.
 - C. They point from producers to the first-stage consumers that eat them.
 - D. They point from first-stage consumers to the producers that feed them.

Climate change means that temperatures around the world are warming. The increased temperatures affect the ocean and the land, as well as the temperature of the air. Seas turtles spend most of their lives in the ocean, but the females dig nest holes and lay their eggs on sandy beaches.

Scientists asked the following question: What is the effect of warmer beach sand temperatures on hatching eggs? To find out, they visited green sea turtle nests and measured the temperature of the sand around the nests. They also counted the number of baby turtles that hatched compared to the total number of eggs that were in the nest. The graph shows some of their results.

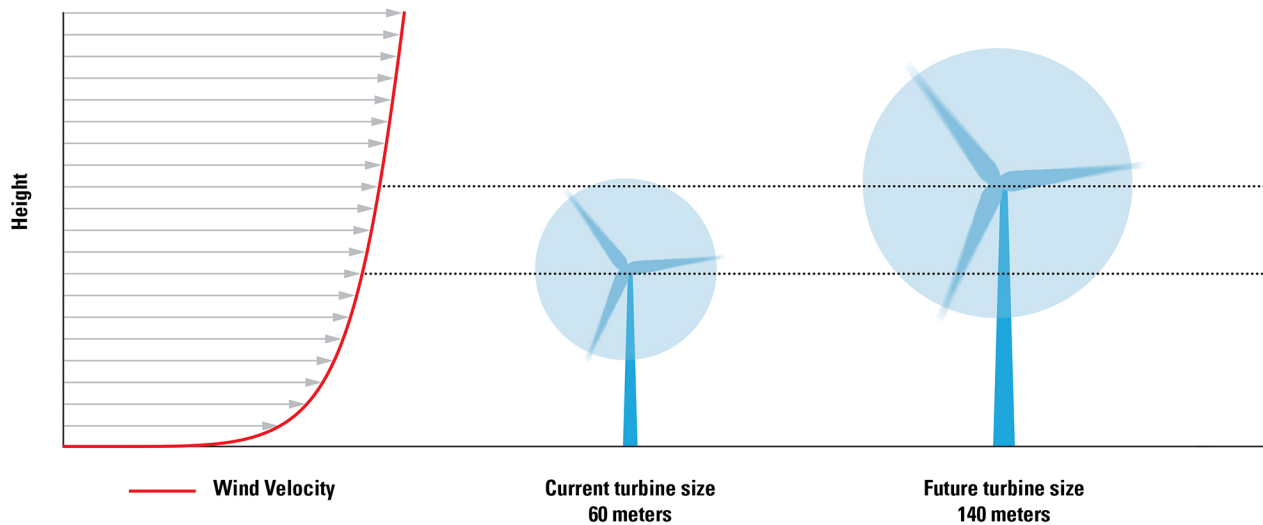
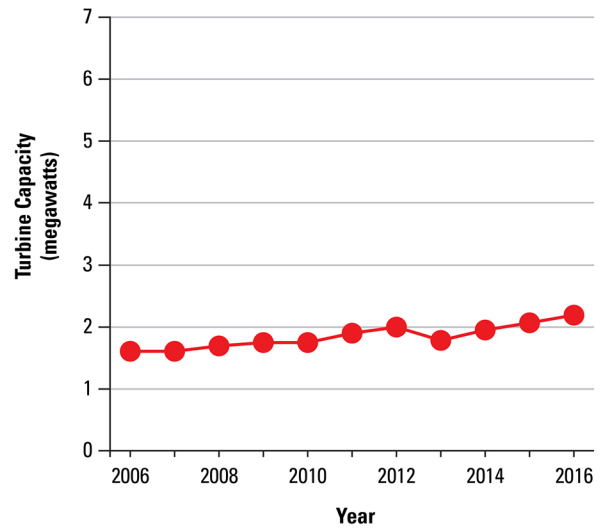
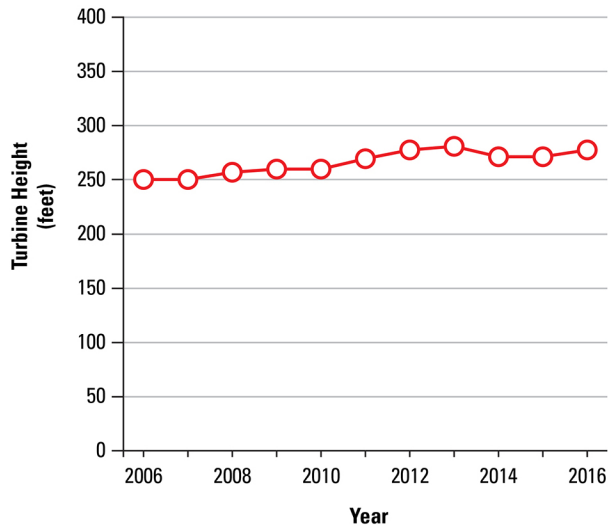


9. Duc does a science investigation at home in which he puts one drop of food dye into a glass of cold water and watches what happens for 5 seconds. Then he does it again, but uses room temperature water. What do you predict will happen to the food dye when it is dropped into the glass with 140 degree F water, and why?



A group of scientists conducted a study to compare the heights of wind turbines over time and compared the results to the megawatts of power the turbines produced. The top graph shows the results of this study. The bottom graph shows the expected changes in wind turbine height in the future compared to wind speed at higher elevations.

Wind Turbine and Capacity by Installed Year (2006–2016)



7. Which statement describes the trends shown in the data?
- A. Turbine size has increased, and larger turbines have a lower capacity.
 - B. Turbine size has increased, and larger turbines have a higher capacity.
 - C. Turbine size has decreased, and smaller turbines have a lower capacity.
 - D. Turbine size has decreased, and smaller turbines have a higher capacity.