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Science

Released Life Science Task

Bush Honeysuckles

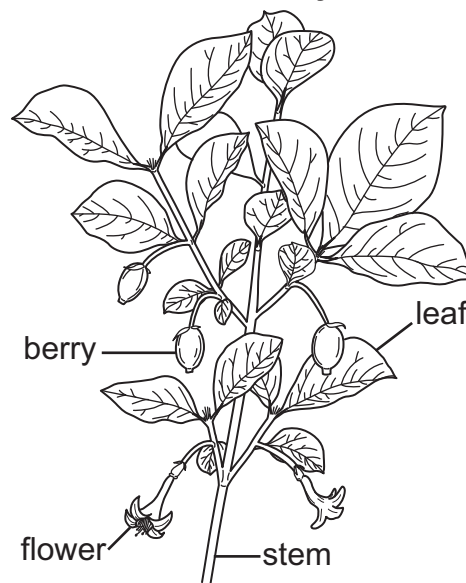
Bush honeysuckle is a problem in Missouri. This plant was brought to Missouri for decoration and to control erosion. The plant species is spreading quickly across the state. Birds that are attracted to the bush honeysuckle's brightly colored flowers eat the berries and spread the seeds to nearby areas. Bush honeysuckle plants form a dense cover that blocks sunlight, preventing growth of native plants underneath. Surrounding plants also struggle to get enough water because bush honeysuckle roots are located mostly within the top 10 centimeters of the soil and absorb much of the water. Some characteristics of bush honeysuckle plants are listed below.

Bush Honeysuckle Plant Characteristics

- Grow between 6 and 15 feet tall
- Grow in full sun or full shade
- Go through a complete life cycle from seed to flower to fruit
- Can grow in many environments

The diagram shows some parts of a bush honeysuckle plant.

Parts of a Bush Honeysuckle Plant



People are being creative in the way they solve the problem of the overgrowth of bush honeysuckles. Some people are using strategies such as burning the plants, spraying chemicals that kill the plants, cutting down the plants, and pulling out entire plants by their roots.

1. Which statement **best** describes how the roots and stems of a bush honeysuckle plant support its survival?
- A. The roots and stems work together to help the flowers reproduce.
 - B. The roots and stems work together to bring water to parts of the plant.
 - C. The roots and stems work separately from each other to help the flowers reproduce.
 - D. The roots and stems work separately from each other to bring water to parts of the plant.

2. Which information from the scenario supports the argument that plants get what they need for growth mainly from air and water?
- A. Bush honeysuckle plants go through a complete life cycle from seed to flower to fruit.
 - B. Bush honeysuckle plants were brought to Missouri for decoration and to control erosion.
 - C. Bush honeysuckle plants form a dense cover that blocks sunlight, preventing growth of native plants underneath.
 - D. Birds that are attracted to the bush honeysuckle's brightly colored flowers eat the berries and spread the seeds to nearby areas.

3. Three students investigated how access to resources affects bush honeysuckle plant growth. The chart below provides the conditions the students used during their investigation.

Bush Honeysuckle Plant Growth Investigation

Student	Growth Conditions for Plants (all outdoors)	Average Change in Plant Height in One Month (centimeters)
1	in rocky soil	20
2	using hydroponics (grown in water without soil)	20
3	in sandy soil	20

The students each grew 20 plants under the conditions listed in the chart. The plants were the same height at the beginning of the investigation. What can the students conclude from the data shown in the table?

- A. Rocky soil is best for bush honeysuckle plant growth.
- B. Hydroponics is best for bush honeysuckle plant growth.
- C. Soil conditions do not affect the growth of bush honeysuckle plants.
- D. Soil conditions greatly affect the growth of bush honeysuckle plants.

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4. In each row of the chart below, identify whether each of the characteristics of a bush honeysuckle plant is inherited or is influenced by the environment.

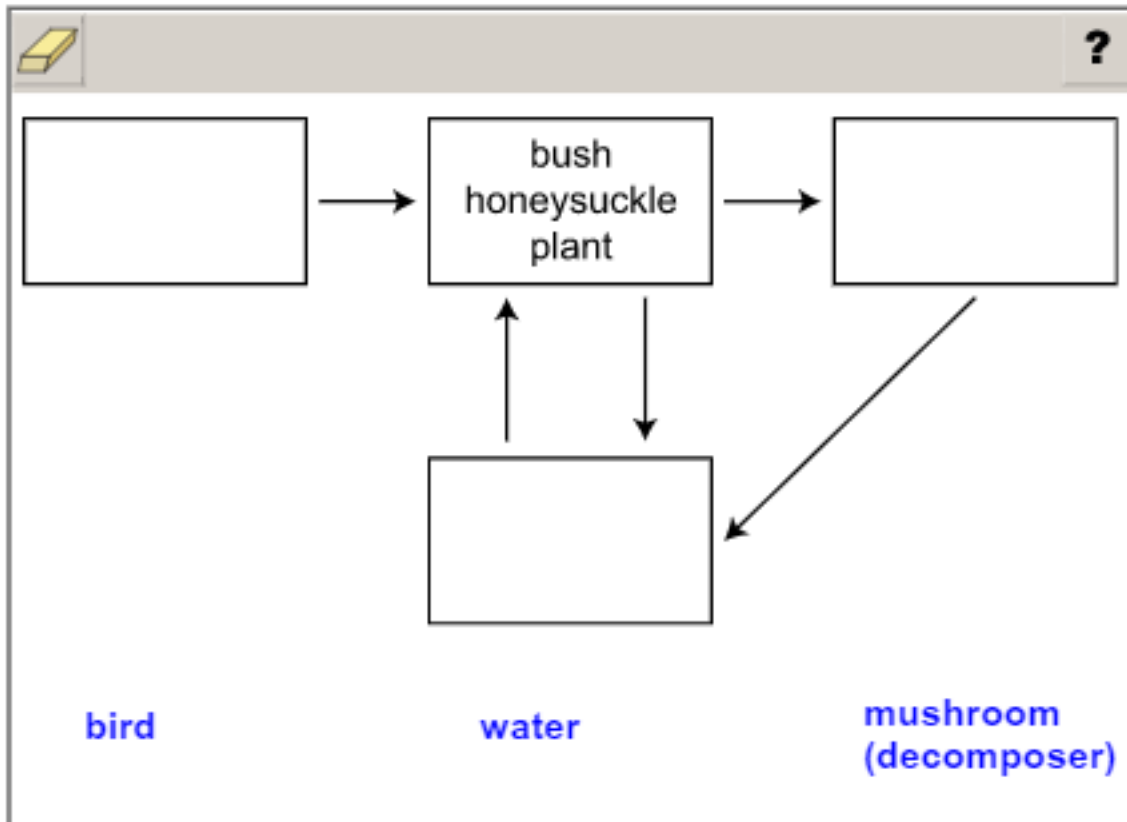
Select the correct box next to each characteristic.

	Inherited	Influenced by the Environment
color of flower	<input type="checkbox"/>	<input type="checkbox"/>
browning of leaves	<input type="checkbox"/>	<input type="checkbox"/>
shape of leaves	<input type="checkbox"/>	<input type="checkbox"/>

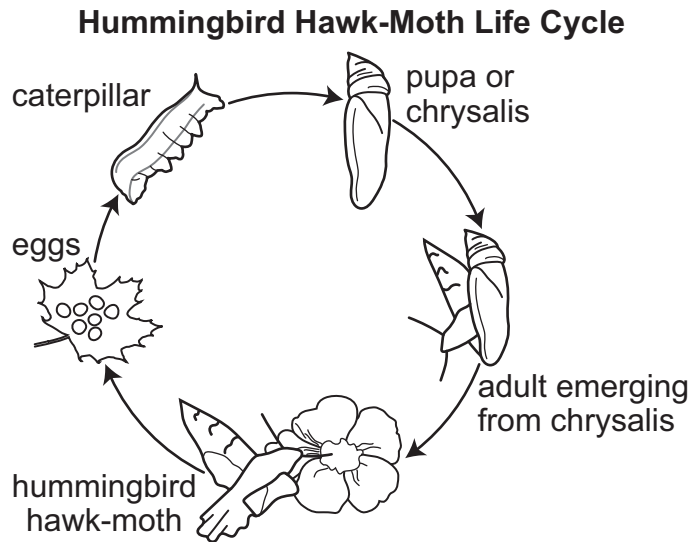
5. Bush honeysuckle plants can grow in forested areas. Some of the parts of this forest system are listed below.

Drag each label into the diagram to show the movement of matter between parts of this forest system.

Parts of the Forest System



6. Hummingbird hawk-moths are one of the pollinators of bush honeysuckle plants. The diagram below shows the life cycle of a hummingbird hawk-moth.




Which pair of models **best** shows when birth and growth occur in a hummingbird hawk-moth's life cycle?

- A. **Birth:** moth → eggs
Growth: eggs → caterpillar
- B. **Birth:** pupa → adult
Growth: moth → eggs
- C. **Birth:** pupa → moth
Growth: caterpillar → pupa
- D. **Birth:** caterpillar → eggs
Growth: pupa → adult

7. A student has noticed that the vegetables in the school garden are not growing and look very dry. The student also notices that large bush honeysuckle plants are growing over the vegetables. The student researches possible solutions for removing the bush honeysuckles from the garden. The chart below lists some of the solutions the student is proposing for their removal.

Drag the effects into the chart below to identify what will **most likely** happen to the vegetables in the garden as a result of each proposed solution.

?

Proposed Solutions for Removing Bush Honeysuckle Plants

Proposed Solution	Effect on Garden Vegetables
burning the bush honeysuckle	
spraying the bush honeysuckle with chemicals	
cutting the bush honeysuckle down at the stem but leaving the roots	

pollution to surrounding plants

regrowth of bush honeysuckles

death of surrounding plants

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8. Scientists at a research center are investigating how differences between individual bush honeysuckle plants can affect their growth and reproduction. The scientists study two plants. Both plants are visited by the same number of pollinators and birds and grow in the same area.

Plant X has a variation that allows it to produce fruits with a greater than normal number of seeds. Plant Y produces fruits with a normal number of seeds.

Identify which plant would likely be **more** successful in terms of growth and reproduction. Explain your answer.

ATTENTION!

**Do NOT go on
until you are
told to do so.**



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