Tennessee Comprehensive Assessment Program

TCAP

Science

Grade 4 Test Practice

TN Department of Education

Metadata—Science

Items

Page Number	Grade	Item Type	Key	TN Standards	SEP	CCC
1	4	MC	C	4.ESS3.1	CEDS	EM
2	4	MS	A, B, E	4.PS4.2	CEDS	CE
3	4	MC	D	4.LS2.3	MOD	CE
4	4	MC	B	4.PS3.1	CEDS	CE
5	4	MS	A, D	4.LS2.2	INFO	EM
6	4	MC	B	4.PS3.1	CEDS	-
7	4	MS	A, B, E	4.LS2.3	MOD	SC
8	4	MC	C	4.PS4.3	CEDS	SF
9	4	MC	B	4.ESS1.1	DATA	SC
10	4	MC	B	4.PS3.3	CEDS	EM

Metadata Definitions

Grade	Grade level or Course.
Item Type	Indicates the type of item. MC= Multiple Choice; MS= Multiple Select
Key	Correct answer.
TN Standards	Primary educational standard assessed.
SEP	SEP Science and Engineering Practices: These are the essential practices of scientists and engineers which help students figure out explanations for phenomena or solutions for design problems.
CCC	CCC Cross Cutting Concepts: These are concepts that permeate all science disciplines and provide a lens through which students can apply their science ideas to phenomena or design problems.

00. Members of a family are deciding between using coal or wind as the energy source for their home. The family wants to use an energy source that is renewable.

Which source should they choose?

A. coal, because coal can be burned to produce electricity

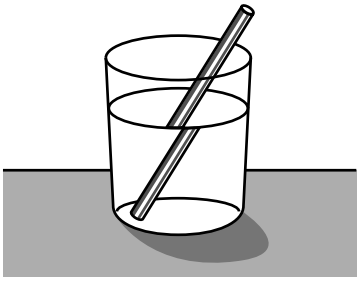
B. coal, because coal is available in large amounts

C. wind, because wind has an unlimited supply

D. wind, because wind is a natural material

00. The figure shows how a plastic straw appears when placed in a glass of water.

Plastic Straw in a Glass of Water



Which **three** statements **best** explain how light interacts with the straw, water, and glass to make the straw appear broken?

A. The straw reflects light toward the observer's eyes.

B. Most of the light that strikes the glass passes through the glass.

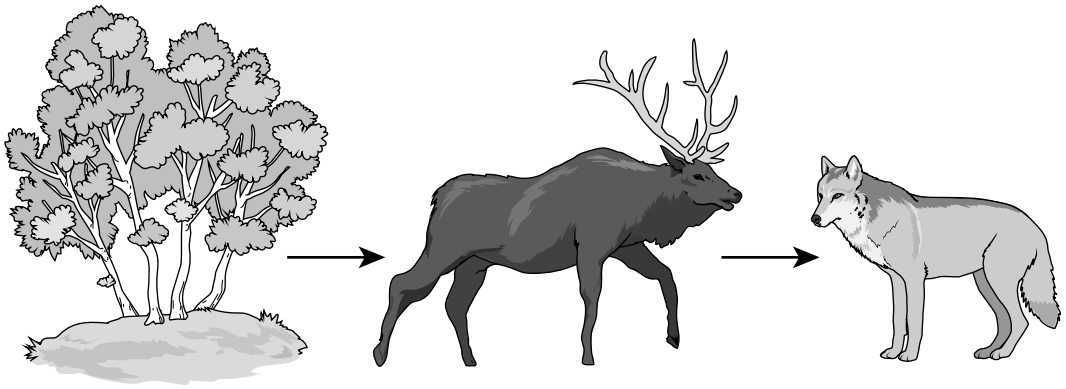
C. The observer's eyes reflect light toward the water.

D. Most of the light that strikes the water is absorbed by the water.

E. Light bends as it leaves the water and enters the glass.

00. The figure shows a food chain found in Yellowstone National Park.

A Yellowstone National Park Food Chain



In the past, people hunted so many wolves that the wolves disappeared from the park.

What **most likely** happened to the numbers of willow trees and elk after the wolves were removed from the park?

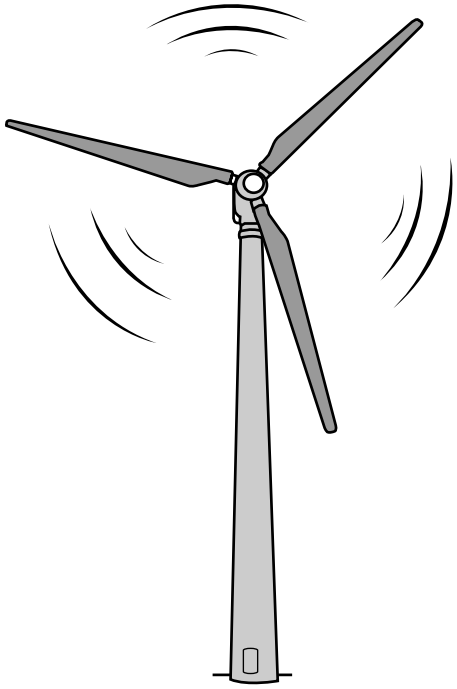
A. Willow trees and elk both increased.

B. Willow trees and elk both decreased.

C. Willow trees increased and elk decreased.

D. Willow trees decreased and elk increased.

00. The figure shows a wind turbine. Wind turbines change wind energy into other types of energy as their blades spin.



Where should a wind turbine be built so that the turbine produces the greatest amount of energy?

A. Build the wind turbine in an area with fast winds so that there is more friction on the blades.

B. Build the wind turbine in an area with fast winds so that the blades spin faster.

C. Build the wind turbine in an area with slow winds so that there is less friction on the blades.

D. Build the wind turbine in an area with slow winds so that the blades spin slower.

00. Turkey vultures are large scavenger birds found in the Americas that feed on carrion, which are the remains of organisms that are no longer living. Turkey vultures do not hunt living prey and are sometimes preyed on by other birds.

The table describes four types of roles commonly found in ecosystems.

Roles of Organisms in Ecosystems

Role	Description
Decomposers	Break apart nonliving organisms to recycle nutrients into the ecosystem
Producers	Take energy from the sun and turn it into energy for the ecosystem
Consumers	Eat producers or other consumers to get their energy
Top predators	Prey on consumers and are not preyed upon by other predators

Based on the information provided, which **two** statements **best** describe the roles of turkey vultures in an ecosystem?

A. Turkey vultures support decomposers because they break down nonliving organisms that decomposers break down further.

B. Turkey vultures are decomposers that obtain energy directly from hunting other predatory birds.

C. Turkey vultures are producers that add energy to an ecosystem by turning sunlight into food for consumers.

D. Turkey vultures are consumers that obtain energy from an ecosystem by eating other consumers.

E. Turkey vultures are top predators that do not have predators in an ecosystem.

00. A bus passes through parts of town that have different speed limits. The table shows the speed limit in four zones.

Speed Limits

Zone	Speed Limit (miles per hour)
1	40
2	50
3	20
4	30

The bus has the greatest amount of motion energy when driving through which zone?

A. Zone 1, because the bus is traveling at the lowest speed

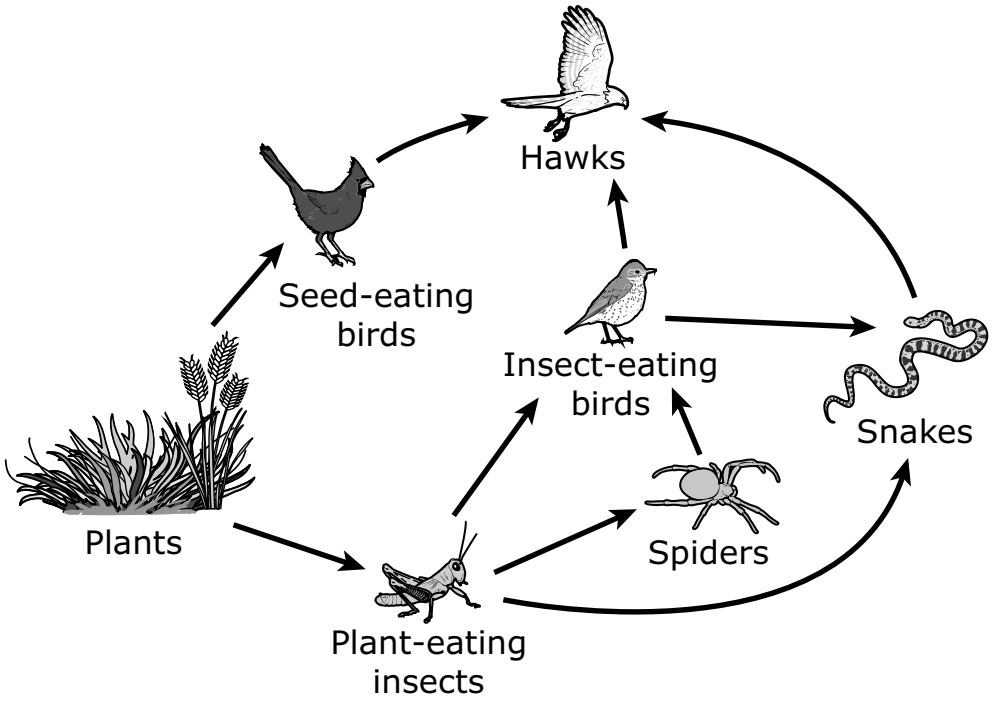
B. Zone 2, because the bus is traveling at the highest speed

C. Zone 3, because the bus is traveling at the lowest speed

D. Zone 4, because the bus is traveling at the highest speed

00. The figure shows a grassland food web.

Grassland Food Web



Which **three** changes to the grassland ecosystem would **most likely** cause a decrease in the spider population?

A. a decrease in the hawk population

B. a decrease in the plant population

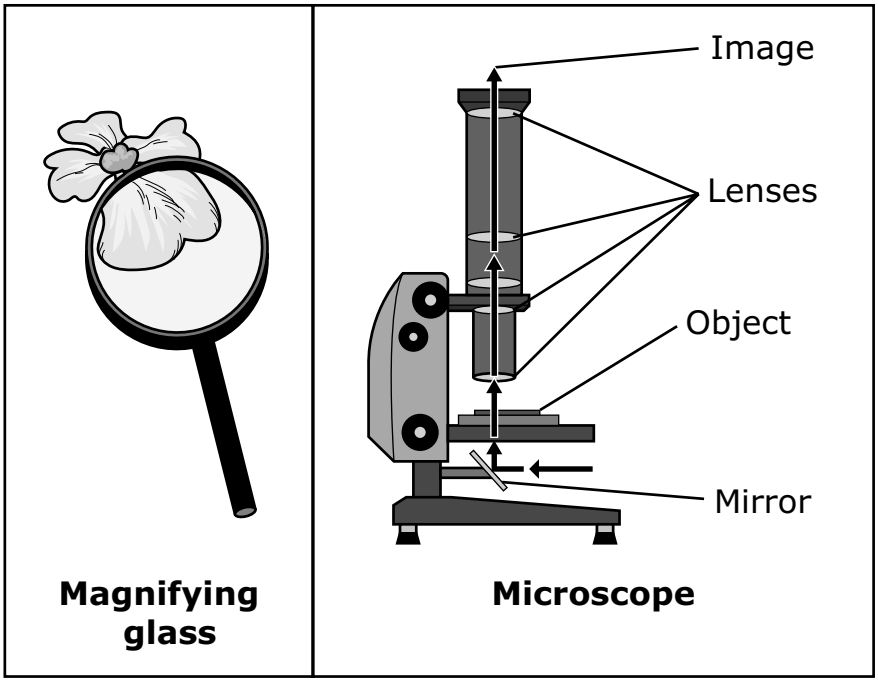
C. a decrease in the seed-eating bird population

D. a decrease in the insect-eating bird population

E. a decrease in the plant-eating insect population

00. The figure shows a magnifying glass, or hand lens, and a microscope.

Two Scientific Tools



Why can a microscope be used to observe objects that cannot be seen using a magnifying glass?

A. A microscope uses a mirror, so the color of light can be changed.

B. A microscope uses a mirror, so the direction light travels can be changed.

C. A microscope has more lenses than a magnifying glass, so objects appear larger using a microscope.

D. A microscope has more lenses than a magnifying glass, so objects appear smaller using a microscope.

00. The table shows the height and width of a cave over three years.

Cave Data

Year	Height (feet)	Width (feet)
1	20.0	30.1
2	20.4	30.5
3	20.9	31.0

Based on the data, what **most likely** caused the cave to change size?

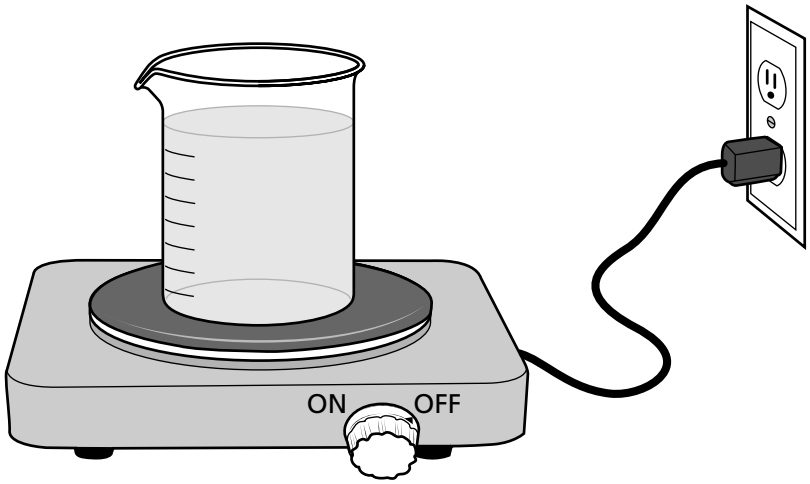
A. Birds filled the cave with rocks and made the cave smaller.

B. Water eroded the rock and made the cave larger.

C. Mineral deposits grew larger and made the cave smaller.

D. Hot temperatures melted the rock and made the cave larger.

00. The figure shows a beaker of water on a hot plate.



How does a hot plate convert energy for a practical use?

A. The hot plate releases heat as stored energy, which can be used to cool water.

B. The hot plate releases stored energy as heat, which can be used to boil water.

C. The hot plate captures heat and transforms it into stored energy, which can be used for boiling water later.

D. The hot plate captures stored energy and transforms it into heat, which can be used for cooling water later.

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