Tennessee Comprehensive Assessment Program

TCAP

Science
Grade 3 Test Practice

TN Department of Education

Metadata—Science

Items

Page Number	Grade	Item Type	Key	TN Standards	SEP	CCC
1	3	MC	C	3.PS3.1	ARGS	EM
2	3	MS	A, C	3.LS4.1	INFO	SC
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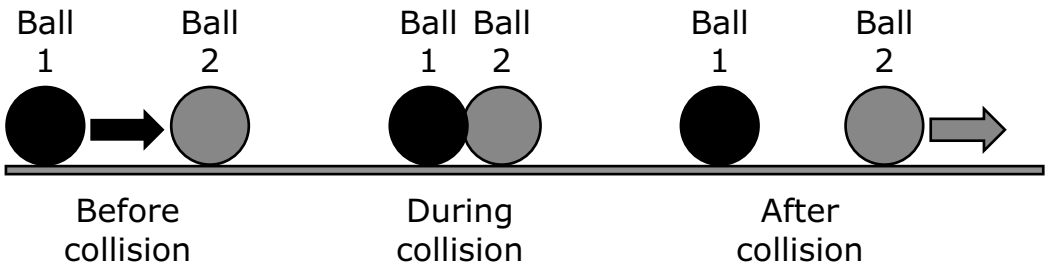
4	3	MC	C	3.ESS1.1	DATA	PAT
5	3	MS	A, B, D	3.LS1.2	CEDS	SF
7	3	MC	A	3.ESS2.4	-	PAT
8	3	MS	B, C	3.PS2.1	-	EM
9	3	MC	D	3.LS2.1	CEDS	-
10	3	MS	A, D	3.ESS2.3	DATA	PAT
11	3	MC	C	3.LS4.2	INFO	CE

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 A student investigated the energy transfer that happens when two objects crash into each other during a collision. The student labeled two identical balls as Ball 1 and Ball 2. The student rolled Ball 1 toward Ball 2 on the floor. The figure shows the student's investigation.

Student's Investigation



The student claims that Ball 1 transferred energy to Ball 2 because after the collision, Ball 2 began to move.

What additional evidence would **best** support the student's claim?

Ⓐ The speed of Ball 1 increased after the collision.

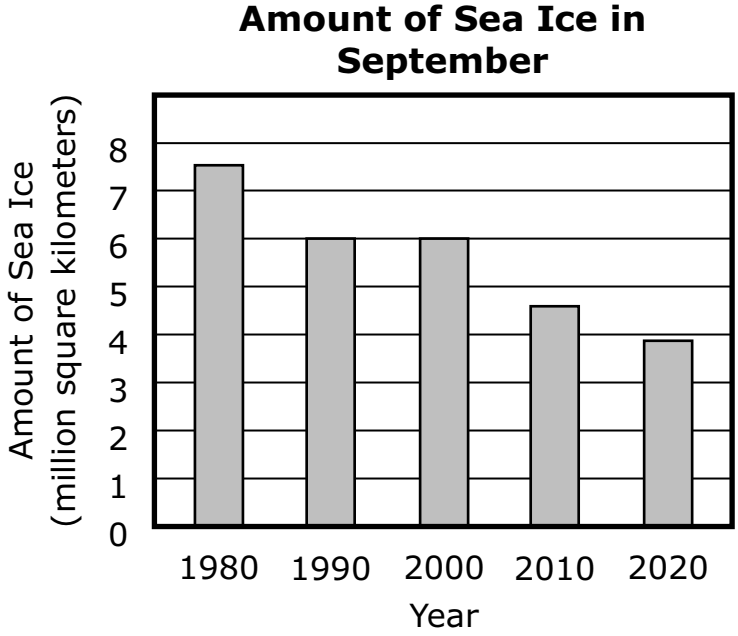
Ⓑ The volume of Ball 1 increased after the collision.

Ⓒ The temperature of Ball 2 increased after the collision.

Ⓓ The mass of Ball 2 increased after the collision.

00 When Arctic sea ice melts in the spring, nutrients enter the water. Tiny plantlike organisms use the nutrients to grow and reproduce. Animals called krill eat the plantlike organisms.

Scientists measure the amount of sea ice covering the Arctic sea each September. The graph shows how the amount of Arctic sea ice has changed over time.



Source: NSIDC/NASA

What are **two** ways in which the amount of nutrients, plantlike organisms, and krill will **most likely** change in the spring of 2030?

Ⓐ Less nutrients will enter the water.

Ⓑ More nutrients will enter the water.

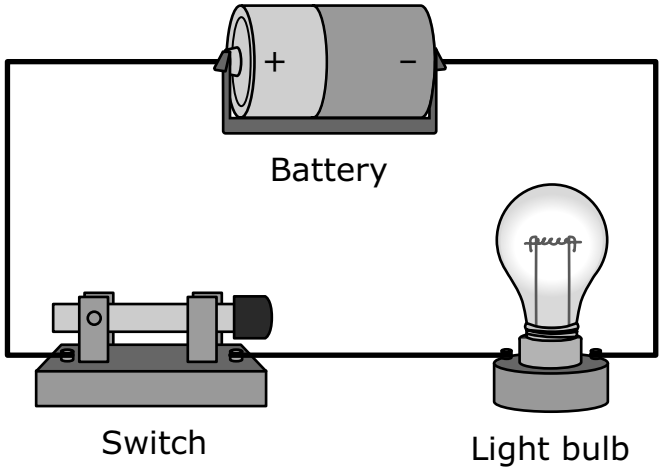
Ⓒ There will be fewer plantlike organisms and fewer krill.

Ⓓ There will be fewer plantlike organisms and more krill.

Ⓔ There will be more plantlike organisms and more krill.

00 A student uses a battery to cause a light bulb to produce light. The light bulb produces a dim light. The figure shows the student's setup.

Student Circuit



Another student claims that adding a second battery to the circuit would increase the brightness of the light bulb.

What reasoning **best** supports the student's claim?

Ⓐ The circuit is currently open, and adding a second battery would make it closed.

Ⓑ The circuit is currently closed, and adding a second battery would make it open.

Ⓒ A second battery would provide more energy that could be converted into light.

Ⓓ A second battery would provide less energy that could be converted into light.

00 The table shows some data about four planets in our solar system. Size is measured in kilometers(km).

Data for Four Planets

Planet	Size (km)	Rings (yes/no)	Number of Moons
W	4,879	No	0
X	6,792	No	2
Y	142,984	Yes	95
Z	12,104	No	0

Based on the information provided, which of the four planets **most likely** has the coldest surface temperature?

Ⓐ Planet W

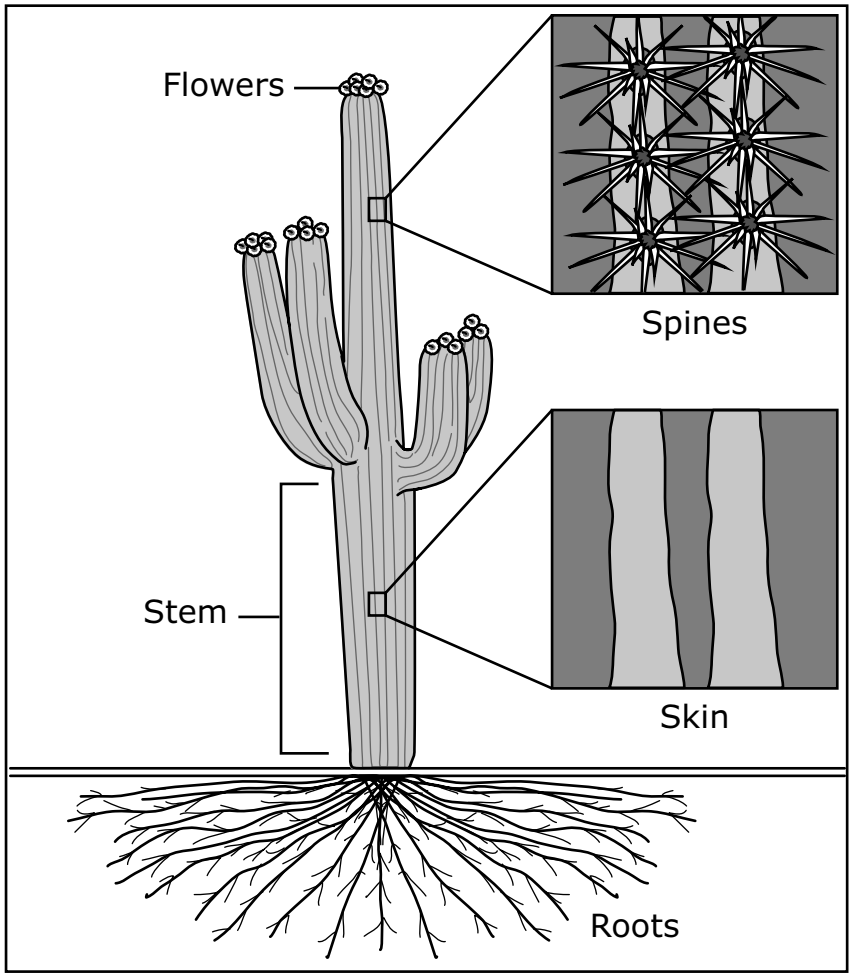
Ⓑ Planet X

Ⓒ Planet Y

Ⓓ Planet Z

00 The saguaro cactus lives in a very hot and dry desert environment. The figure shows a saguaro cactus.

Saguaro Cactus



The table describes some saguaro cactus structures.

Saguaro Cactus Structures

Structure	Description
Roots	Have wide, shallow roots that spread out below the ground
Stem	Is filled with a spongelike material that holds water
Spines	Have sharp spines that cover the skin
Skin	Is covered with a thick, waxy coating
Flowers	Produce a sweet substance

Which **three** structures **best** help the saguaro cactus to survive in a very dry environment?

Ⓐ the roots, because they allow the cactus to collect water as soon as it rains

Ⓑ the stem, because it stores water for use during times when there is little rain

Ⓒ the spines, because they stop animals from eating the cactus

Ⓓ the skin, because it reduces the amount of water the cactus loses to the air

Ⓔ the flowers, because they attract animals that help spread the saguaro seeds across the desert

00 The table describes the usual weather for four locations.

Usual Weather for Four Locations

Location	Summer Day	Winter Day
W	Very warm and humid	Warm and humid
X	Very warm and humid	Very cold and dry
Y	Hot and dry	Cool and dry
Z	Cool and dry	Very cold and dry

Which location is **most likely** found in a tropical climate?

Ⓐ Location W

Ⓑ Location X

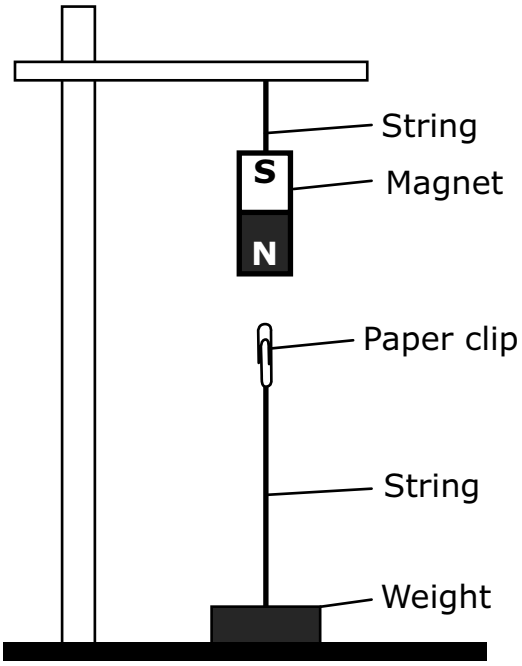
Ⓒ Location Y

Ⓓ Location Z

00 A group of students designed an investigation to study magnetic forces. The students followed this procedure:

- Use string to hang a bar magnet from a stand.
- Tie an iron paper clip to a second string.
- Attach the second string to a weight placed on the surface below the magnet.

The figure shows the students' investigation setup. The figure also shows the behavior of the paper clip.



In which **two** ways can the students change the investigation setup to increase the attraction between the magnet and the paper clip?

Ⓐ Increase the mass of the weight.

Ⓑ Replace the magnet with a stronger magnet.

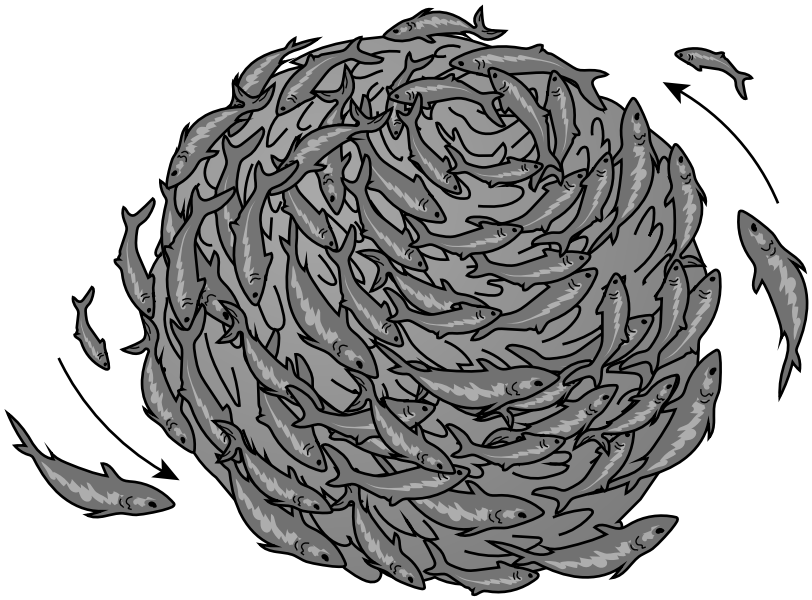
Ⓒ Make the string attached to the paper clip longer.

Ⓓ Flip the magnet so the south pole is facing the paper clip.

Ⓔ Replace the paper clip with a heavier paper clip.

00 Some species of fish swim in large groups called schools. Fish in schools move together and swim in different patterns or shapes. The figure shows a school of mackerel forming a sphere.

School of Mackerel Forming a Sphere



Based on the figure, how does forming a sphere **most likely** help a school of mackerel?

Ⓐ It helps all the fish swim faster.

Ⓑ It makes the water colder for the fish to survive.

Ⓒ It helps all the fish hunt for food.

Ⓓ It makes it harder for predators to capture the fish.

00 The table shows the usual temperature and precipitation for four months in Nashville, Tennessee, from 1991 to 2020. Temperature is measured in degrees Fahrenheit (°F).

Usual Weather for Nashville, TN, 1991–2020

Month	Usual Temperature (°F)	Usual Precipitation (inches)
March	52	5
June	77	4
September	73	4
December	43	4

Based on the data in the table, which **two** statements **most likely** describe the temperature and precipitation in Nashville in July 2018?

Ⓐ The temperature was greater than 75°F.

Ⓑ The temperature was less than 70°F.

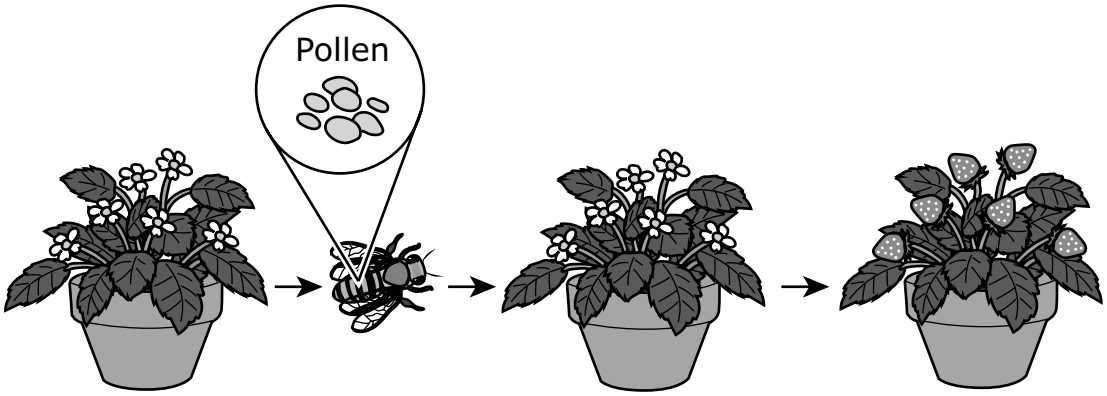
Ⓒ There was less than 3 inches of precipitation.

Ⓓ There was about 4 inches of precipitation.

Ⓔ There was more than 5 inches of precipitation.

00 Honeybees are pollinators. Pollinators move pollen from one flower to another. The model shows how a honeybee interacts with a plant.

Pollinators and Plants



Strawberry plant → Pollinator carrying pollen → Pollinated strawberry flowers → Strawberry plant with fruit

Honeybees live in groups called colonies. The table shows the number of honeybee colonies in the United States between 1970 and 2000.

Number of Honeybee Colonies in the U.S., 1970–2000

Year	Number of Honeybee Colonies (thousands)
1970	4,762
1980	4,141
1990	3,188
2000	2,634

Based on the information provided, how did the change in the honeybee population between 1970 and 2000 **most likely** affect human resources?

Ⓐ An increase in the honeybee population probably caused an increase in the number of fruits produced for eating.

Ⓑ An increase in the honeybee population probably caused a decrease in the amount of pollen produced for growing new plants.

Ⓒ A decrease in the honeybee population probably caused a decrease in the number of fruits produced for eating.

Ⓓ A decrease in the honeybee population probably caused an increase in the amount of pollen produced for growing new plants.

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