

Tennessee TCAP 2023
Grade 3 Science

Exam Materials
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Answer Key Materials
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Tennessee Comprehensive Assessment Program

TCAP

Science Grade 3 Item Release



The table shows data about planets.

Planet Data

Features	Inner Planets	Outer Planets
Surface	solid, rocky	gas
Size	Earth size or smaller	larger than Earth
Moons	0, 1, or 2	many
Rings	no	yes

Which of these describes an outer planet?

- Ⓐ has no moons or rings
- Ⓑ has rings and many moons
- Ⓒ has no moons and is smaller than Earth
- Ⓓ has two moons and is smaller than Earth

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Student 1 claims that Mars is an outer planet because it is farther away from the sun than Earth. Student 2 claims that Mars is an inner planet.

Which **two** pieces of evidence could Student 2 use to support the argument that Mars is an inner planet?

- Ⓐ Mars is red.
- Ⓑ Mars has a rocky surface.
- Ⓒ Mars does not have water.
- Ⓓ Mars does not have rings.
- Ⓔ Mars is much colder than Earth.

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The table shows climate data from four different locations. Each location has a different climate. Both measurements listed are averages for a year.

Climate Data

	Location 1	Location 2	Location 3	Location 4
Temperature (°F)	54	50	36	77
Precipitation (centimeters)	10	40	50	250

Based on the data in the table, which location **most** likely has a tropical climate?

- Ⓐ Location 1
- Ⓑ Location 2
- Ⓒ Location 3
- Ⓓ Location 4

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Students need a container to carry birdseed to a bird feeder. The students make a list of properties:

- must be easy to carry
- must not break easily
- must last all year

Which container **best** meets the students' needs?

- Ⓐ a large wooden box
- Ⓑ a plastic bucket with a handle
- Ⓒ a small paper bag
- Ⓓ a glass jar with a lid

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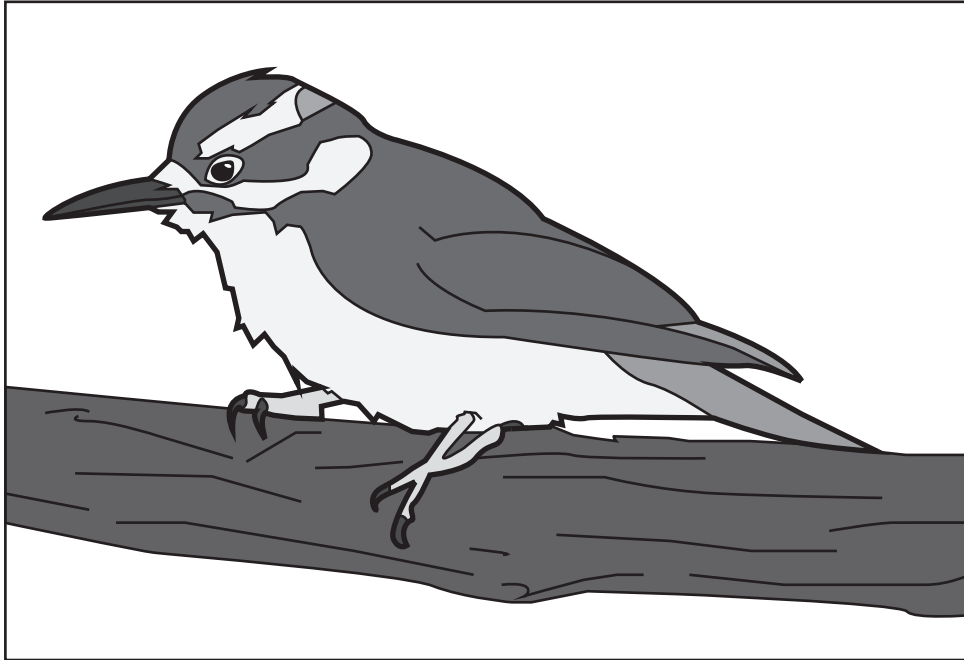
Astronauts use tools on the space station. When the astronauts are not using their tools, they need a way to keep the tools from floating around. Some students think this problem can be solved with magnets. The astronauts would glue a magnet to each of their tools. They would also glue magnets to the walls. The magnets would keep each tool on the wall until an astronaut needs to use it.

Which **two** of these need to be true for the magnet solution to work?

- Ⓐ Glue has to work the same in outer space as it does on Earth.
- Ⓑ There is no atmosphere in space.
- Ⓒ Two magnets can attract each other in outer space.
- Ⓓ The tools must be made of metal.
- Ⓔ Objects move faster in outer space than on Earth.

Hairy woodpeckers eat insects. The insects live under the tree bark.

Hairy Woodpecker



Which **two** body parts help the woodpecker get the insects from under the bark?

- Ⓐ strong, dark wings for flight
- Ⓑ long, sturdy tail feathers for support while climbing trees
- Ⓒ strong, pointed beak for hammering on trees
- Ⓓ small, oval-shaped head that protects the brain
- Ⓔ strong, long claws for gripping tree bark tightly

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A student makes the claim that lions benefit by living in groups.

Which **three** statements support the student's claim?

- Ⓐ The lions can share food.
- Ⓑ Male lions fight other males for mates.
- Ⓒ Hunting in groups makes it easier for the lions to catch prey.
- Ⓓ The group of lions can provide protection for the young.
- Ⓔ Other animals can see the group of lions easily.

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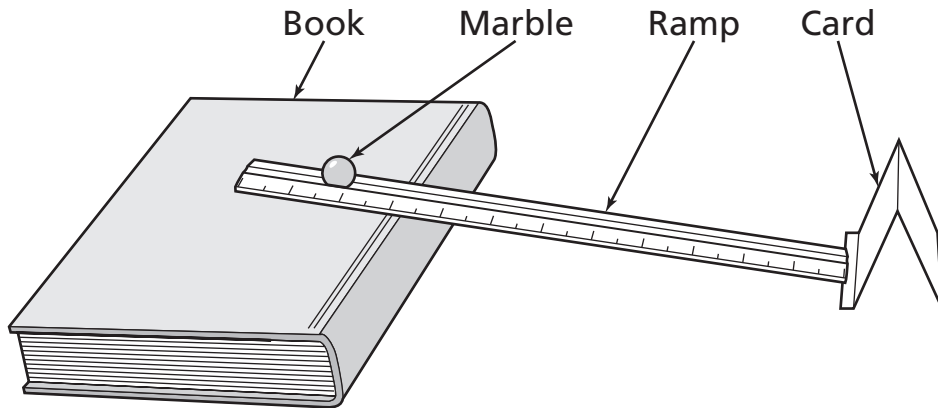
A student stands at the bottom of a small, grassy hill and kicks a ball. The ball rolls up the hill and stops at the top of the hill.

How does the ball get the energy to roll up the hill?

- Ⓐ Energy is transferred from the student to the ball.
- Ⓑ Energy is released from inside the ball.
- Ⓒ Energy is transferred from the grass on the hill to the ball.
- Ⓓ Energy is released from gravity acting on the ball.

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A student used a ramp to test the energy of a moving marble. The student measured how far the marble moved the card after traveling down the ramp.



The student added books to change the height of the ramp. The table shows how far the marble moved the card each time another book was added.

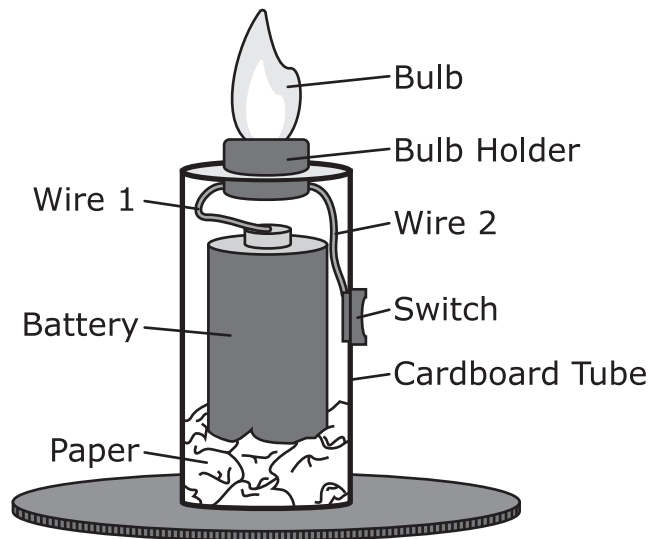
Marble Roll Experiment

Ramp Height	Distance Card Moved (centimeters)
1 book	5
2 books	10
3 books	13
4 books	23

At which ramp height did the marble have the **most** energy?

- Ⓐ 1 book
- Ⓑ 2 books
- Ⓒ 3 books
- Ⓓ 4 books

Students are asked to make an electric candle that lights up. The picture shows one design.



Which change should the students make so the bulb will successfully light up?

- Ⓐ Add a second battery.
- Ⓑ Put the switch on the bottom of the candle.
- Ⓒ Use a larger bulb.
- Ⓓ Use another wire to connect the switch to the bottom of the battery.

Metadata – Grade 3

Items

Page Number	UIN	Grade	Item Type	Key	DOK	TN Standards	SEP	CCC
1	TS02S1930	3	MC	B	2	3.ESS1.1	DATA	
2	TS03M5871	3	MS	B,D	2	3.ESS1.1	ARGS	
3	TS02S1931	3	MC	D	3	3.ESS2.4	DATA	PAT
4	TS02S1923	3	MC	B	2	3.ETS1.1	CEDS	SF
5	TS02M2021	3	MS	A,C	3	3.ETS1.2	CEDS	
6	TS03M4803	3	MS	C,E	2	3.LS1.1	CEDS	SF
7	TS02M2288	3	MS	A,C,D	3	3.LS2.1	ARGS	
8	TS02S3755	3	MC	A	2	3.PS3.1		EM
9	TS02S2860	3	MC	D	2	3.PS3.1	DATA	EM
10	TS03M4815	3	MC	D	3	3.PS3.2	CEDS	SF

Metadata Definitions:

UIN	Unique letter/number code used to identify the item.
Grade	Grade level or Course.
Item Type	Indicates the type of item. MC=Multiple Choice; MS=Multiselect
Key	Correct answer.
DOK	Depth of Knowledge (cognitive complexity) is measured on a three-point scale. 1 = Recall or simple reproduction of information; 2 = Skills and concepts: comprehension and processing of text; 3 = Strategic thinking, prediction, elaboration.
TN Standards	Primary educational standard assessed. This includes the science ideas that students need to understand at each grade level.
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	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.