

Tennessee Comprehensive Assessment Program

TCAP

TNReady—Science Grade 6 Item Release





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Metadata Interpretation Guide – Science

Item Information

Item Code: TNS10220	Passage Title:
Standard Code: 0307.1.1	Passage Code:
Standard Text: Identify specific parts of a plant and describe their function.	
Reporting Category: Cells, Flow of Matter & Energy, Heredity	
Correct Answer: B	DOK Level: 2

Item Code: Unique letter/number code used to identify the item.	Passage Title: (if listed): Title of the passage(s) associated with this item.
Standard Code: Primary educational standard assessed.	Passage Code: (if listed): Unique letter/number code used to identify the passage(s) that go with this item.
Standard Text: Text of the educational standard assessed.	
Reporting Category: Text of the Reporting Category the standard assesses.	
Correct Answer: Correct answer. This may be blank for constructed response items where students write or type their responses.	DOK Level (if listed): Depth of Knowledge (cognitive complexity) is measured on a four-point scale. 1= Recall; 2= Skill/Concepts; 3= Strategic Thinking; 3-4 = Strategic/Extended Thinking

Science Grade 6

Item Information

Item Code: TNS10632

Passage Title:

Standard Code: 0607.10.1

Passage Code:

Standard Text: Distinguish among gravitational potential energy, elastic potential energy, and chemical potential energy.

Reporting Category: Energy, Forces in Nature

Correct Answer: D

DOK Level: 2

Which best describes the change in energy that takes place as a log of wood burns?

- A The mechanical potential energy of the log of wood increases.
- B The gravitational potential energy in the log of wood increases.
- C The elastic potential energy of the log of wood decreases.
- D The chemical potential energy in the log of wood decreases.

Item Information

Item Code: TNS10719

Passage Title:

Standard Code: 0607.10.3

Passage Code:

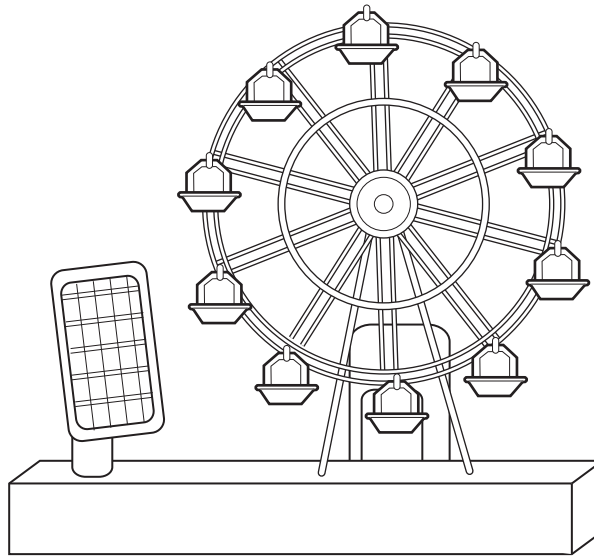
Standard Text: Recognize that energy can be transformed from one type to another.

Reporting Category: Energy, Forces in Nature

Correct Answer: A

DOK Level: 3-4

A student has a toy Ferris wheel that moves when placed in sunlight.



Which best describes the energy transformation that moves the Ferris wheel?

- A** Solar → Electrical → Mechanical
- B** Mechanical → Electrical → Potential
- C** Solar → Mechanical → Chemical
- D** Potential → Electrical → Chemical

Item Information

Item Code: TNS21204
Standard Code: 0607.10.3
Standard Text: Recognize that energy can be transformed from one type to another.
Reporting Category: Energy, Forces in Nature
Correct Answer: D

Passage Title:
Passage Code:
DOK Level: 2

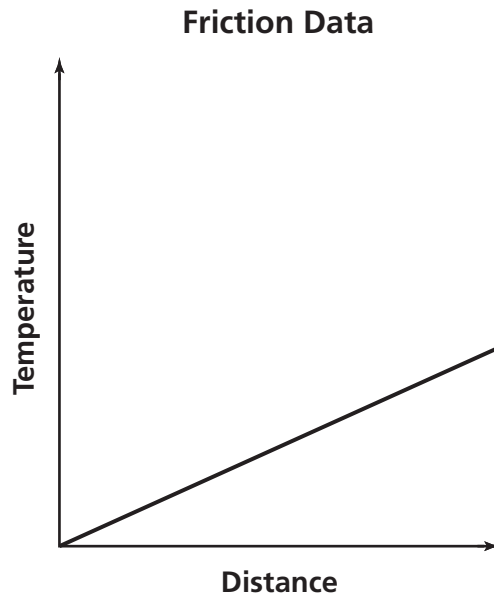
A raccoon eats berries for energy. What type of energy do the berries provide to the raccoon?

- A** solar energy
- B** electrical energy
- C** nuclear energy
- D** chemical energy

Item Information

Item Code: TNS21311	Passage Title:
Standard Code: 0607.10.4	Passage Code:
Standard Text: Explain the Law of Conservation of Energy using data from a variety of energy transformations.	
Reporting Category: Energy, Forces in Nature	
Correct Answer: C	DOK Level: 3-4

The graph shows data from a brick being pushed along a concrete surface.



What happened to the kinetic energy of the moving brick?

- A Some of the energy was destroyed.
- B The energy was used up so it no longer exists.
- C The energy transformed into thermal energy.
- D The brick had no energy once the force had been removed.

Item Information

Item Code: TNS21313

Passage Title:

Standard Code: 0607.12.1

Passage Code:

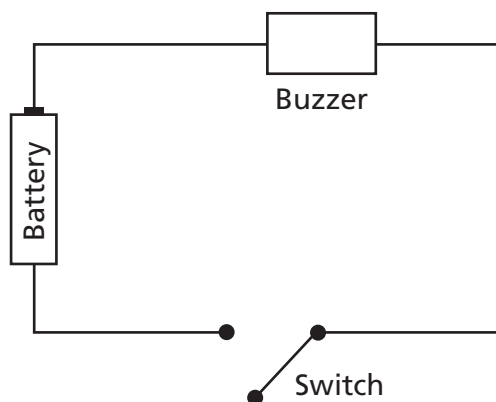
Standard Text: Identify how simple circuits are associated with the transfer of electrical energy when heat, light, sound, and chemical changes are produced.

Reporting Category: Energy, Forces in Nature

Correct Answer: D

DOK Level: 2

When the switch is closed in the circuit below, the buzzer makes a sound.



What causes the buzzer to produce sound?

- A the movement of air through the wires
- B the transfer of chemicals through the wires
- C the vibration of molecules in the wires
- D the motion of electrons in the wires

Item Information

Item Code: TNS21314	Passage Title:
Standard Code: 0607.12.2	Passage Code:
Standard Text: Identify materials that can conduct electricity.	
Reporting Category: Energy, Forces in Nature	
Correct Answer: B	DOK Level: 1

Which material best conducts an electric current?

- A glass
- B silver
- C rubber
- D cork

Item Information

Item Code: TNS10622

Passage Title:

Standard Code: 0607.2.1

Passage Code:

Standard Text: Classify organisms as producers, consumers, scavengers, or decomposers according to their role in a food chain or food web.

Reporting Category: Interdependence

Correct Answer: D

DOK Level: 2

Mushrooms are considered decomposers because they obtain nutrients from

- A** water.
- B** oxygen.
- C** living animals.
- D** decaying plants.

Item Information

Item Code: TNS02034

Passage Title:

Standard Code: 0607.2.1

Passage Code:

Standard Text: Classify organisms as producers, consumers, scavengers, or decomposers according to their role in a food chain or food web.

Reporting Category: Interdependence

Correct Answer: B

DOK Level: 2

Gazelles living in the grasslands of Africa eat grass and tree leaves. Gazelles are eaten by lions.

Which of these terms describes the role of gazelles in this ecosystem?

- A producer
- B herbivore
- C carnivore
- D decomposer

Item Information

Item Code: TNS21297

Passage Title:

Standard Code: 0607.2.2

Passage Code:

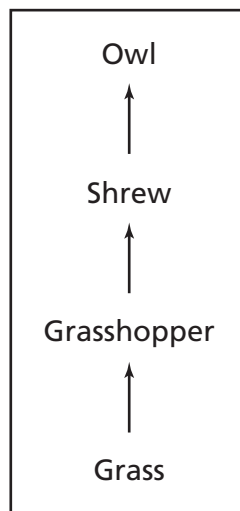
Standard Text: Interpret how materials and energy are transferred through an ecosystem.

Reporting Category: Interdependence

Correct Answer: A

DOK Level: 1

The food chain below shows one part of a complex food chain.



How is energy transferred in this food chain?

- A Organisms consume other organisms.
- B Chemicals are absorbed through the skin.
- C Organisms breathe in carbon dioxide.
- D Producers consume other producers.

Item Information

Item Code: TNS00412

Passage Title:

Standard Code: 0607.2.3

Passage Code:

Standard Text: Identify the biotic and abiotic elements of the major biomes.

Reporting Category: Interdependence

Correct Answer: D

DOK Level: 2

Which of these best describes a coniferous forest in the winter?

- A** a few small trees separated by mosses and lichens
- B** a few trees without leaves separated by tall grasses
- C** many trees covered by vines with large green leaves
- D** many trees with green needles and few other plants

Item Information

Item Code: TNS21300

Passage Title:

Standard Code: 0607.2.4

Passage Code:

Standard Text: Identify the environmental conditions and interdependencies among organisms found in the major biomes.

Reporting Category: Interdependence

Correct Answer: A

DOK Level: 2

An organism lives in a region that has long winters with cool summer temperatures and high precipitation amounts. In which biome does this organism most likely live?

- A** coniferous forest
- B** temperate grassland
- C** tropical rain forest
- D** coastal desert

Item Information

Item Code: TNS21207

Passage Title:

Standard Code: 0607.2.4

Passage Code:

Standard Text: Identify the environmental conditions and interdependencies among organisms found in the major biomes.

Reporting Category: Interdependence

Correct Answer: A

DOK Level: 2

A grassland biome contains herbivores, carnivores, grasses, trees, and decomposers. The carnivores obtain energy directly from

- A herbivores.
- B decomposers.
- C grasses.
- D trees.

Item Information

Item Code: TNS20991
Standard Code: 0607.6.1
Standard Text: Use data to draw conclusions about the major components of the universe.
Reporting Category: The Universe
Correct Answer: C

Passage Title:
Passage Code:
DOK Level: 2

A table listing parts of the universe is shown below.

Major Parts of the Universe

Part	Description
K	Less than 1 km in diameter
L	Gigantic and contains trillions of stars
M	Larger than asteroids and comets

According to the data, which part is described by letter K?

- A constellation
- B galaxy
- C meteoroid
- D planet

Item Information

Item Code: TNS10443

Passage Title:

Standard Code: 0607.6.3

Passage Code:

Standard Text: Distinguish among a day, lunar cycle, and year based on the movements of the earth, sun, and moon.

Reporting Category: The Universe

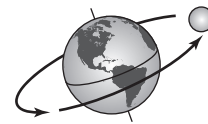
Correct Answer: B

DOK Level: 2

The diagram shows the position of the sun, Earth, and the moon.



Sun



Earth

As Earth rotates, the moon revolves around Earth. This revolving of the moon is also known as a

- A year.
- B lunar cycle.
- C day.
- D solar cycle.

Item Information

Item Code: TNS10444

Passage Title:

Standard Code: 0607.6.4

Passage Code:

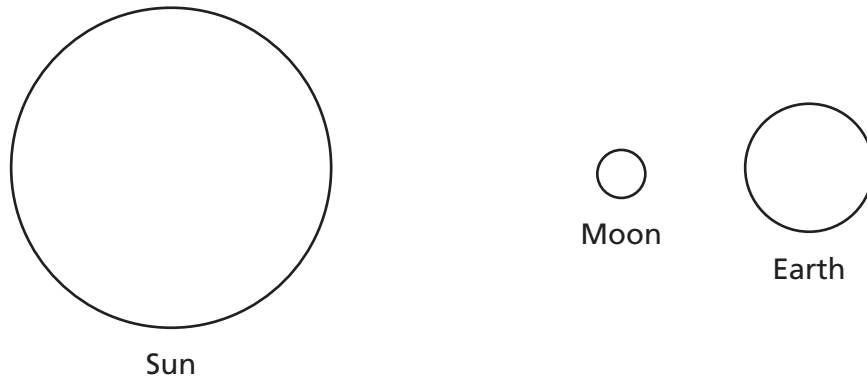
Standard Text: Explain the different phases of the moon using a model of the earth, moon, and sun.

Reporting Category: The Universe

Correct Answer: D

DOK Level: 2

A student arranges a model of the sun, the moon, and Earth as shown.



How would the moon appear to an observer on Earth?

- A
- B
- C
- D

Item Information

Item Code: TNS01533

Passage Title:

Standard Code: 0607.6.5

Passage Code:

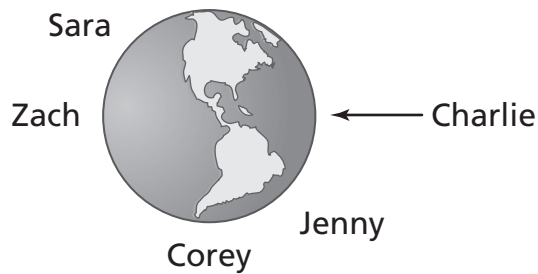
Standard Text: Predict the types of tides that occur when the earth and moon occupy various positions.

Reporting Category: The Universe

Correct Answer: D

DOK Level: 2

Look at this diagram.



Charlie observes a low tide at his location.

Which other person would also observe a low tide at the same time as Charlie?

- A Corey
- B Jenny
- C Sara
- D Zach

Item Information

Item Code: TNS10448

Passage Title:

Standard Code: 0607.6.6

Passage Code:

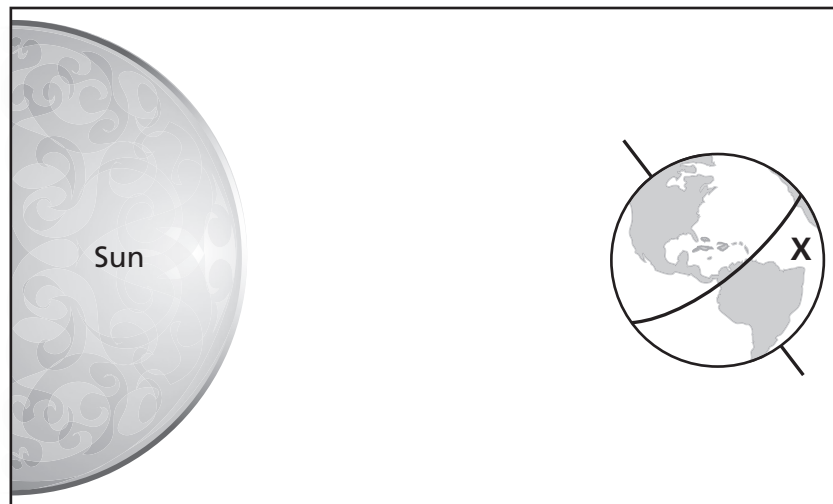
Standard Text: Use a diagram that shows the positions of the earth and sun to explain the four seasons.

Reporting Category: The Universe

Correct Answer: C

DOK Level: 2

A diagram of the sun and Earth is shown.



What season is occurring at point X?

- A fall
- B spring
- C winter
- D summer

Item Information

Item Code: TNS20997

Passage Title:

Standard Code: 0607.6.7

Passage Code:

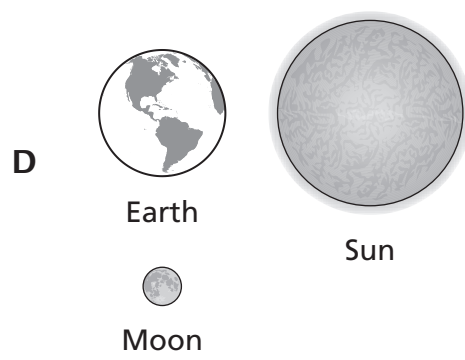
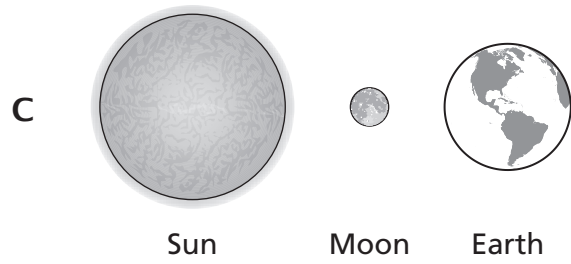
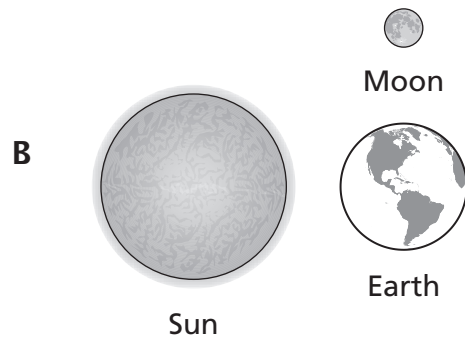
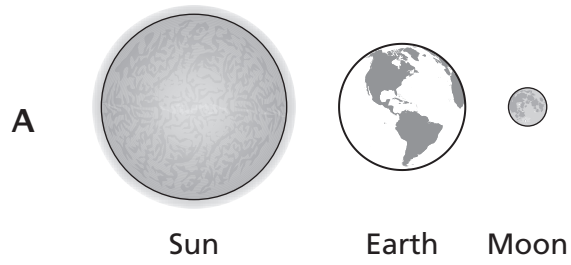
Standard Text: Explain the difference between a solar and a lunar eclipse.

Reporting Category: The Universe

Correct Answer: C

DOK Level: 2

Which diagram shows the positions of the sun, Earth, and the moon during a solar eclipse?



Item Information

Item Code: TNS10662

Passage Title:

Standard Code: 0607.8.1

Passage Code:

Standard Text: Analyze data to identify events associated with heat convection in the atmosphere.

Reporting Category: The Atmosphere

Correct Answer: C

DOK Level: 3-4

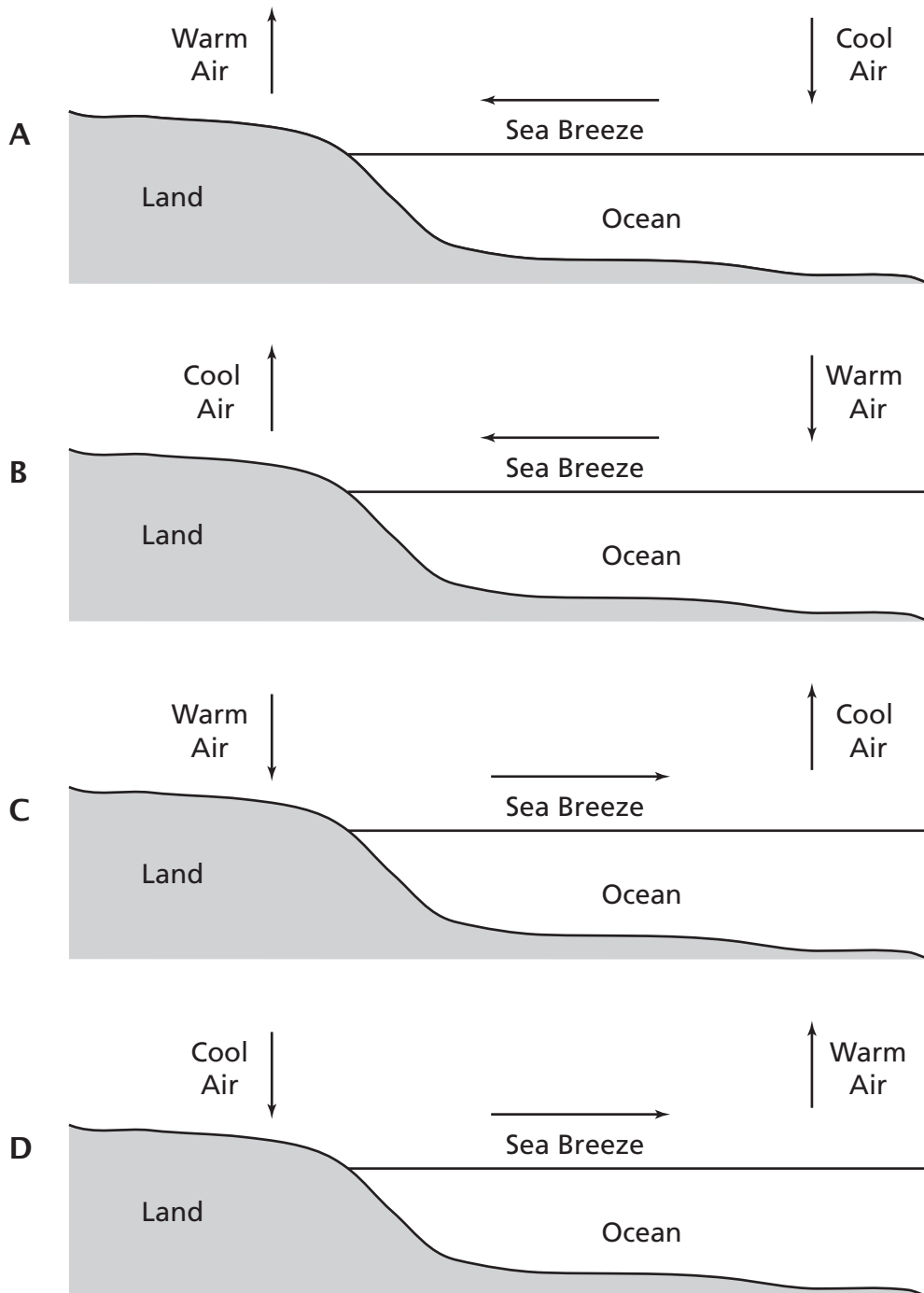
Which could be caused by convection in the atmosphere?

- A land absorbing solar energy
- B rising of ocean tides
- C formation of a hurricane
- D clouds reflecting sunlight

Item Information

Item Code: TNS20986	Passage Title:
Standard Code: 0607.8.2	Passage Code:
Standard Text: Recognize the connection between the sun's energy and the wind.	
Reporting Category: The Atmosphere	
Correct Answer: A	DOK Level: 2

The diagrams show the land, ocean, and heat from the sun interacting during the daytime. Which diagram correctly shows how air currents are created during daylight hours?



Item Information

Item Code: TNS10666
Standard Code: 0607.8.4
Standard Text: Interpret meteorological data to make predictions about the weather.
Reporting Category: The Atmosphere
Correct Answer: C

Passage Title:
Passage Code:
DOK Level: 2

A student recorded a barometer reading for four days.

Day of Week	Barometric Pressure (in. Hg)
Monday	31.13
Tuesday	30.25
Wednesday	29.91
Thursday	30.05

Based on the barometric pressure, which day had the highest chance of rain?

- A Monday
- B Tuesday
- C Wednesday
- D Thursday

Item Information

Item Code: TNS10529
Standard Code: 0607.8.4
Standard Text: Interpret meteorological data to make predictions about the weather.
Reporting Category: The Atmosphere
Correct Answer: A

Passage Title:
Passage Code:
DOK Level: 2

Students in Franklin, Tennessee, recorded some weather conditions.

Weather Conditions

Clouds	Increasing
Wind Direction	From the south
Barometric Pressure	29.95 in. Hg and falling quickly
Humidity	75% and increasing
Temperature	30°C

Based on the data, which type of weather will be expected?

- A It will rain.
- B It will become warmer.
- C The skies will clear.
- D There will be light snowfall.

Item Information

Item Code: TNS20968

Passage Title:

Standard Code: 0607.Inq.1

Passage Code:

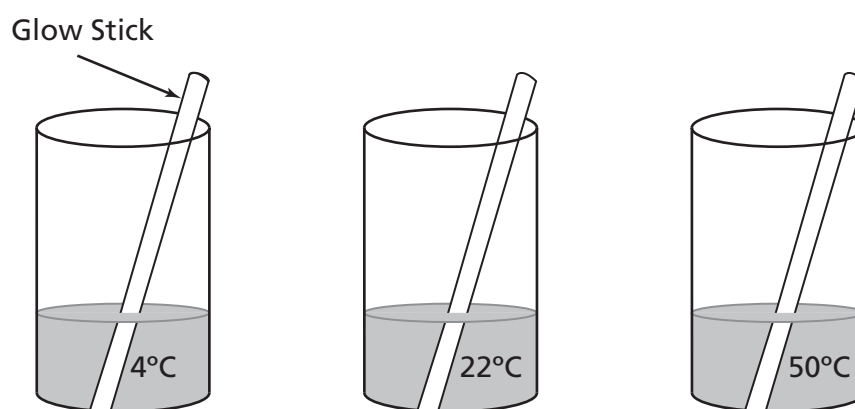
Standard Text: Design a simple experimental procedure with an identified control and appropriate variables.

Reporting Category: Inquiry and Technology & Engineering

Correct Answer: B

DOK Level: 2

A student conducts an investigation using the same kind of green glow sticks as shown in the setup below.



The student then records the light intensity of each stick and how long each stick glows.

Which is the independent variable in this investigation?

- A color of the glow sticks
- B temperature of the water
- C length of time each stick glowed
- D intensity of light from each glow stick

Item Information

Item Code: TNS20645

Passage Title:

Standard Code: 0607.Inq.2

Passage Code:

Standard Text: Select tools and procedures needed to conduct a moderately complex experiment.

Reporting Category: Inquiry and Technology & Engineering

Correct Answer: D

DOK Level: 2

Students were asked to record and compare the wind speeds observed every 10 minutes over a one-hour period. Which tool will best help conduct this investigation?

- A telescope
- B thermometer
- C binoculars
- D anemometer

Item Information

Item Code: TNS00400

Passage Title:

Standard Code: 0607.TE.2

Passage Code:

Standard Text: Evaluate a protocol to determine if the engineering design process was successfully applied.

Reporting Category: Inquiry and Technology & Engineering

Correct Answer: C

DOK Level: 2

For a science project, a group of students want to create a representation of how organisms depend on one another in a freshwater biome.

Which procedure most likely needs to occur first in their project?

- A** build a model of the biome
- B** use a computer program to create the representation
- C** look for information that already exists about the biome
- D** introduce new species of animals into the biome and observe what happens

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