



State of Texas Assessments of Academic Readiness

GRADE 5

Science

Practice Assessment

SCIENCE

DIRECTIONS

Read each question carefully. Choose the best answer to each question. For open-response questions, determine the best answer to the question.

1 How many planets in the solar system are farther from the sun than Jupiter is?

- (A) One
- (B) Two
- (C) Three
- (D) Four

2 Food chains show feeding relationships between organisms living within an ecosystem. Which food chain correctly shows the flow of energy that might be found in a grassland ecosystem?

- (A) Foxes → beetles → grasses → songbirds
- (B) Grasses → beetles → songbirds → foxes
- (C) Foxes → songbirds → beetles → grasses
- (D) Grasses → foxes → songbirds → beetles

- 3** A student washes dishes using hot water. This causes fog to form on the student's eyeglasses.

Which process caused the fog to form on the eyeglasses?

- Ⓐ Water vapor melted on the student's eyeglasses.
 - Ⓑ Water vapor evaporated off the student's eyeglasses.
 - Ⓒ Water vapor condensed on the student's eyeglasses.
 - Ⓓ Water vapor froze on the student's eyeglasses.
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- 4** A student went outside one evening and saw a full moon. About how many days later can the student expect to see the next third quarter moon?

- Ⓐ 7 days
- Ⓑ 15 days
- Ⓒ 22 days
- Ⓓ 30 days

- 5 A picture of trees, clouds, and a pond is shown.



Image by lldd11 from Pixabay

Which process did light undergo on the pond's surface to produce the image of the trees and clouds?

- (A) Refraction
- (B) Absorption
- (C) Reflection
- (D) Transmission

- 6 An old-growth forest has many tall trees. It also has many smaller shrubs and plants that grow much closer to the ground under the tall trees.

Which factor is **MOST LIKELY** responsible for limiting the growth of these smaller shrubs and plants in the forest?

- (A) Limited access to sunlight
 - (B) Limited access to water
 - (C) Limited access to nutrients
 - (D) Limited access to oxygen
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- 7 This question has two parts. First, answer Part A. Then, answer Part B.

Part A

A cold front moved through Austin, Texas. Which statement **BEST** describes the changes in Austin's weather after the cold front moved through?

- (A) The weather became cooler and rainy.
- (B) The weather became cooler and clear.
- (C) The weather became warmer and rainy.
- (D) The weather became warmer and clear.

Part B

Which statement **BEST** explains the answer to Part A?

- (A) A cold front moves cool, dry air from north to south.
- (B) A cold front moves warm, dry air from north to south.
- (C) A cold front moves cool, moist air from south to north.
- (D) A cold front moves warm, moist air from south to north.

- 8** A student conducting an investigation dissolves salt in water and then adds the salt solution to a beaker containing sand. The student now wants to separate the salt and the sand from the mixture.

Which steps should the student perform to separate the salt and the sand from the mixture?



- Ⓐ 1. Use a magnet to remove the particles that are magnetic.
2. Pour the remaining mixture through filter paper.
- Ⓑ 1. Pour the new mixture through filter paper.
2. Use a magnet to remove the particles that are magnetic.
- Ⓒ 1. Boil the mixture.
2. Pour the new dry mixture through filter paper.
- Ⓓ 1. Pour the mixture through filter paper.
2. Boil the water that passes through the filter paper.

- 9 A student watches a toy car speed up as it rolls down a ramp. After the car gets to the bottom of the ramp, the car slows to a stop as it rolls across the classroom floor.

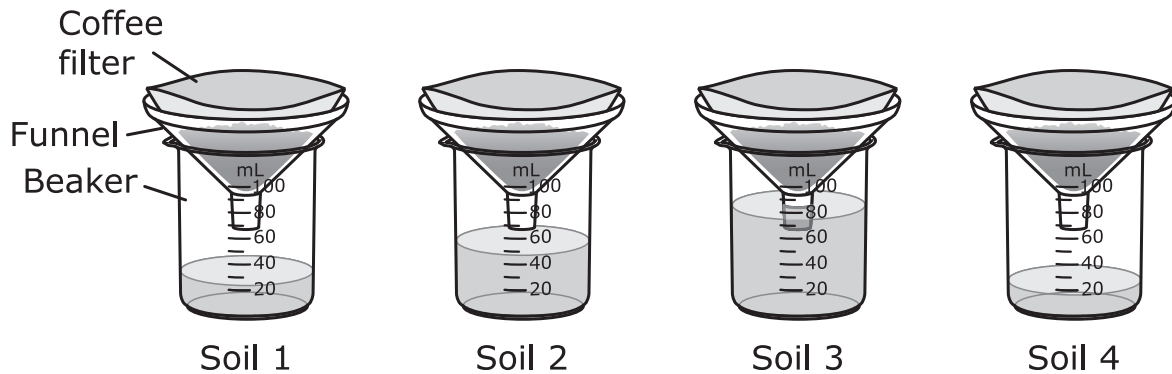
Which force caused the car to speed up when rolling down the ramp, and which force caused it to slow down when rolling across the floor?

- (A) Gravity caused the car to speed up when rolling down the ramp and slow down when rolling across the floor.
- (B) Friction caused the car to speed up when rolling down the ramp and slow down when rolling across the floor.
- (C) Gravity caused the car to speed up when rolling down the ramp, and friction caused the car to slow down when rolling across the floor.
- (D) Friction caused the car to speed up when rolling down the ramp, and gravity caused the car to slow down when rolling across the floor.

10 A picture and a description of a striped skunk and a giant panda are shown in the chart.

Striped Skunk	Giant Panda
	
<ul style="list-style-type: none"> • It lives in forests, grasslands, and areas close to humans across North America, including parks and yards. • Its food sources include a variety of plants and animals, such as berries, roots, insects, mice, and lizards. • To escape a predator, it can spray a fluid that releases a strong odor and stings the predator's eyes. • It usually produces 5 offspring each year. Offspring stay with their mother up to 1 year. • There are millions of individuals in the wild, meaning the striped skunk is not likely to become extinct. 	<ul style="list-style-type: none"> • It lives in the cool, wet high-mountain forests of Asia away from humans. It used to live in forests at lower elevations before the forests were cleared for human use. • About 99% of the panda diet is bamboo, a type of woody plant. • It has large molar teeth for crushing bamboo. • Adults do not have natural predators. • It usually produces 1 offspring every 2 years. Offspring stay with their mother up to 3 years. • Some estimates show that there are less than 2,000 individuals left in the wild, meaning the panda is vulnerable to becoming extinct.

- 11** A student compares the water flow through four different soils. The setup and results of the investigation are shown in the diagram.



The student used this procedure to perform the investigation:

1. Place 100 grams of each type of soil into one of the funnels with a coffee filter.
2. Slowly pour 100 milliliters of water onto the soil in each funnel.
3. Allow the water in each funnel to drain for 30 minutes.
4. Record the amount of water in each beaker.
5. Subtract the amount of water in each beaker from 100 mL and record this number as the amount remaining in the funnel.

Soil Investigation Results

Soil	Volume of Water (mL)		
	Added to Soil	Collected in Beaker	Remaining in Funnel
1	100	23	77
2	100	48	52
3	100	75	25
4	100	18	82

Based on the data in the table, which soil is **MOST LIKELY** made of the smallest particles?

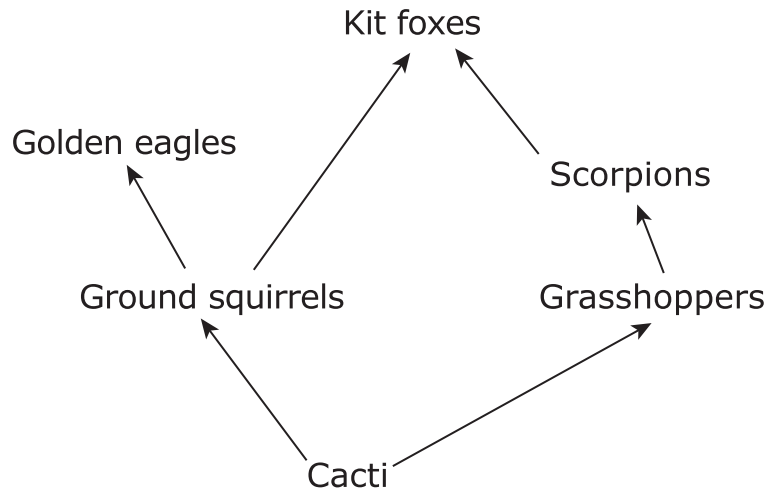
- (A) Soil 1
 - (B) Soil 2
 - (C) Soil 3
 - (D) Soil 4
-

12 Both falcons and bats hunt for their food. Falcons use mainly their eyes and bats use mainly their ears to locate prey.

Which form of energy does each predator mainly use for locating their prey?

- (A) Bat: light
Falcon: thermal
- (B) Bat: sound
Falcon: light
- (C) Bat: solar
Falcon: sound
- (D) Bat: thermal
Falcon: electrical

13 A partial desert ecosystem food web is shown.



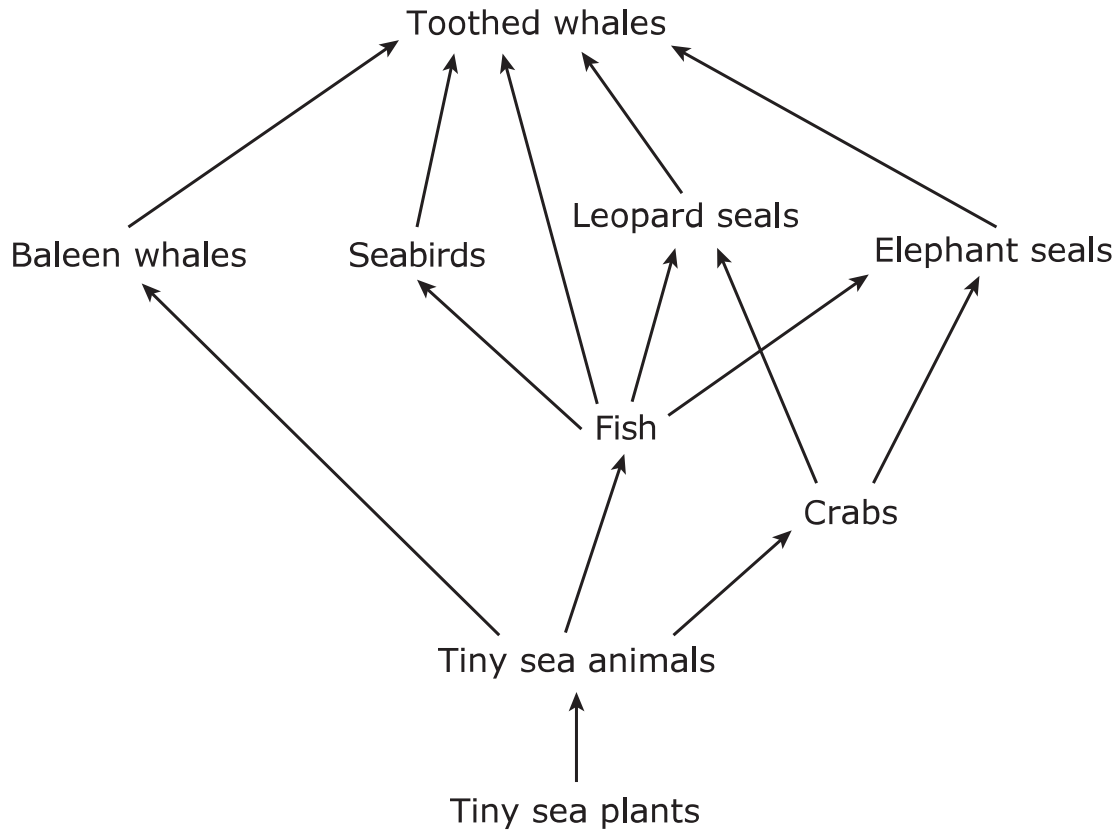
Which organisms receive energy from a herbivore and a carnivore?

- (A) Ground squirrels
 - (B) Golden eagles
 - (C) Scorpions
 - (D) Kit foxes
-

14 Which type of landform is caused by ice erosion?

- (A) Delta
- (B) Sand dune
- (C) U-shaped valley
- (D) V-shaped valley

15 An ocean food web is shown.



Which food chain is correct based on the information in this food web?

- (A) Leopard seals → Fish → Tiny sea animals → Tiny sea plants
- (B) Tiny sea plants → Tiny sea animals → Baleen whales → Toothed whales
- (C) Elephant seals → Leopard seals → Seabirds → Baleen whales
- (D) Crabs → Fish → Elephant seals → Toothed whales

16 Which activities require for light to be refracted before reaching the eyes of the student?

Select **TWO** correct answers.

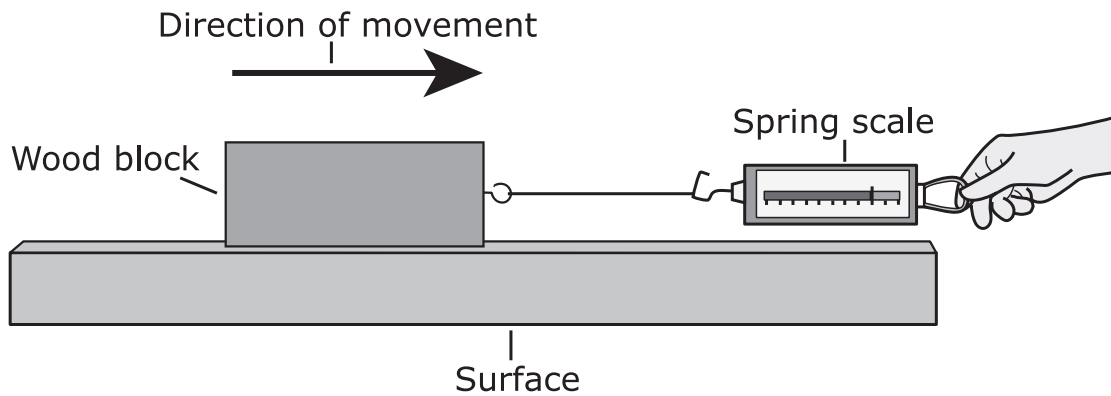
- Students see themselves in a mirror.
 - A student views an insect through a hand lens.
 - A student looks at a piece of paper.
 - A student sees an image on the surface of a puddle.
 - Students look at a rainbow after it rains.
-

17 Black walnut trees produce and release a chemical from their roots that prevents nearby plants of different species from growing.

Which statement describes the **MOST LIKELY** advantage for the black walnut trees of releasing this chemical?

- (A) Less sunlight is needed to produce food.
- (B) Walnuts are protected from animal predators.
- (C) Competition for space and nutrients is decreased.
- (D) The amount of air available to the tree increases.

- 18** Students are conducting an experiment to determine how the amount of force needed to drag a wood block across a surface is affected by the type of surface. A diagram of the experimental setup is shown.



Which procedure should the students follow when conducting their experiment?

- (A) Measure the force required to drag four different blocks over the same surface. Conduct three trials for each block.
- (B) Measure the force required to drag the same block over four different surfaces. Conduct three trials for each surface.
- (C) Measure the force required to drag the same block over the same surface using four different scales. Conduct three trials for each scale.
- (D) Measure the force required to drag the same block over the same surface by four different students. Conduct three trials for each student.

19 This question has two parts. First, answer Part A. Then, answer Part B.

A student has three blocks. Each block is made of iron, lead, or copper. All three blocks have equal masses and are the same color.

Part A

How could the student determine whether any of the blocks are made of iron?

- (A) Place a magnet close to each of the blocks.
- (B) Record whether the blocks float or sink in water.
- (C) Try to dissolve the blocks in a beaker of water.
- (D) Drop the blocks from a certain height and record any cracks.

Part B

Which explanation supports the answer to Part A?

- (A) Iron is denser than water and will therefore float.
- (B) Iron can break more easily than copper or lead.
- (C) Iron is magnetic and will be attracted to the magnet.
- (D) Iron dissolves in water but copper and lead do not.

20 Sharks are top predators that live in ocean ecosystems. People sometimes fish for sharks, catching them for food and sport. If many sharks are removed from ocean ecosystems, it can affect ecosystem communities.

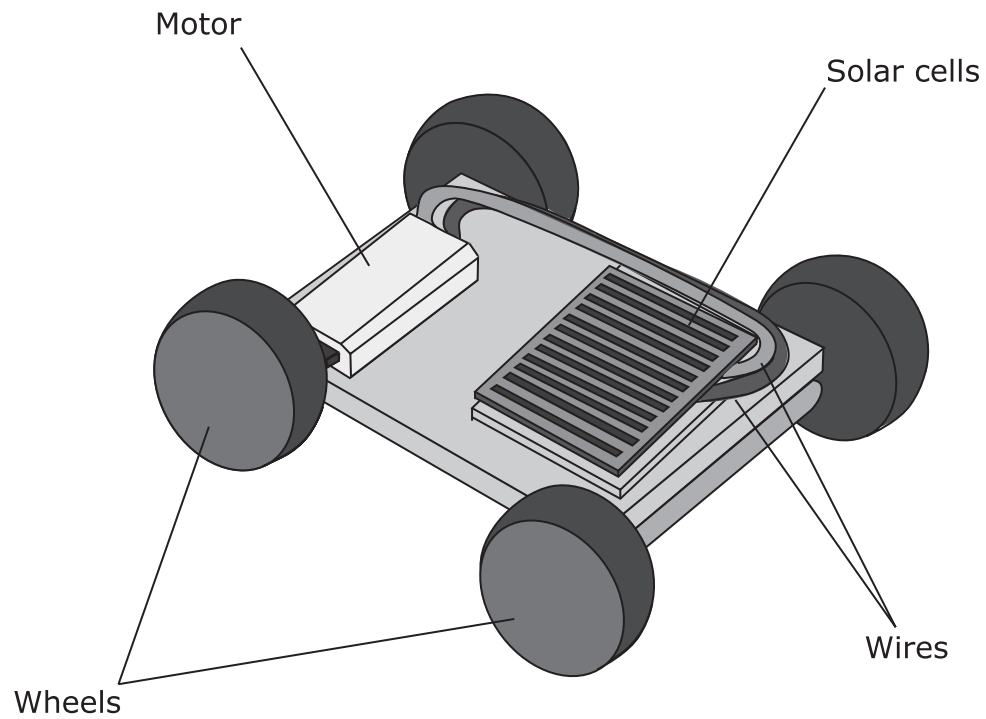
Which statement **BEST** predicts the effect of removing many sharks from ocean ecosystems?

- (A) The variety of different organisms throughout ocean ecosystems will increase.
 - (B) The number of producers within ocean ecosystems will increase.
 - (C) Organisms that compete with the sharks for food will decrease in numbers.
 - (D) Organisms that the sharks prey on will increase in numbers.
-

21 Which statement **BEST** describes the roles of weathering and erosion in the formation of sedimentary rock?

- (A) Weathering is the movement of sediment, and erosion breaks down rocks into sediment.
- (B) Erosion is the movement of sediment, and weathering breaks down rocks into sediment.
- (C) Weathering is the movement of sediment, and erosion is the dropping of sediment at new locations.
- (D) Erosion is the movement of sediment, and weathering is the dropping of sediment at new locations.

22 A toy car is shown.



Which types of energy are used to make this toy car move?

- Ⓐ Light, electrical, and mechanical
- Ⓑ Mechanical, thermal, and chemical
- Ⓒ Light, chemical, and sound
- Ⓓ Thermal, electrical, and sound

23 Characteristics of four unknown materials are shown in the table.

Unknown Materials

Material	Magnetic	Flexible	Insulator
W	Yes	Yes	No
X	No	No	No
Y	No	No	Yes
Z	No	Yes	Yes

Which material is **MOST LIKELY** rubber?

- (A) Material W
- (B) Material X
- (C) Material Y
- (D) Material Z

24 All of the statements describe learned behaviors of birds **EXCEPT**—

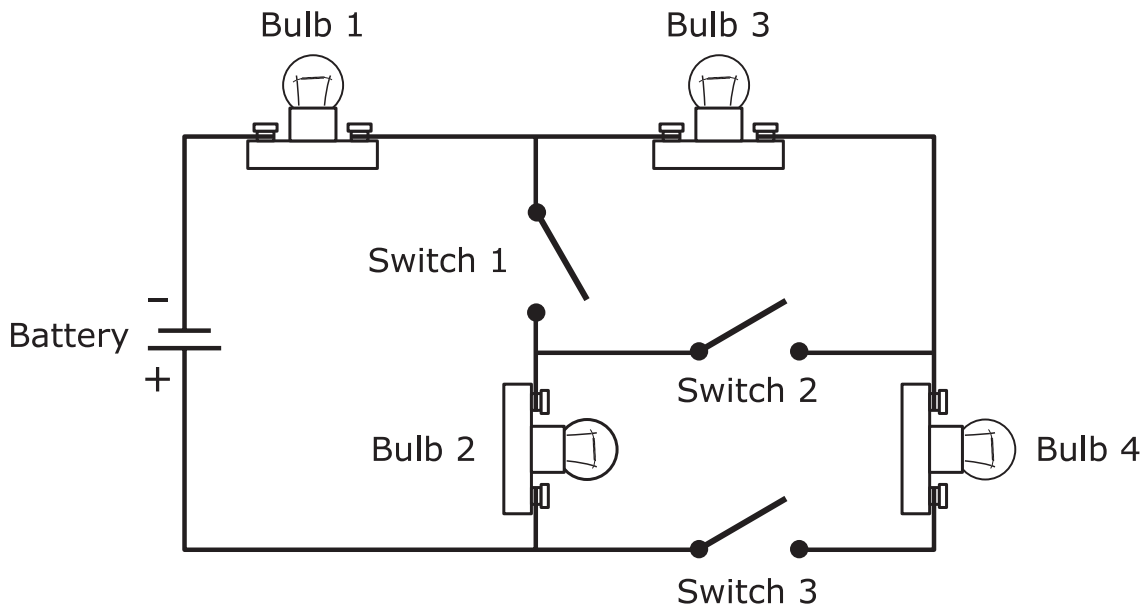
- (A) a crow tears a cap off of a bottle to drink milk
- (B) a goose produces eggs with hard shells
- (C) a pet parrot repeats the names of its human owners
- (D) a hummingbird returns to the same bird feeder each day

25 Which statement explains why the sun appears to move across the sky during the day?

- (A) Earth revolves around the sun.
- (B) Earth rotates on its axis.
- (C) The sun revolves around Earth.
- (D) The sun rotates on its axis.

26 The circuit has four lightbulbs and three switches. If Switch 1 is closed, which lightbulbs will glow?

Circle **TWO** correct answers.



27 A student is comparing Earth, the sun, and the moon.

Which statements about Earth, the sun, and the moon are correct?

Select **TWO** correct answers.

- The sun is larger than Earth and the moon.
 - The moon is made of gases, and Earth is a solid body.
 - Earth is smaller than the moon and larger than the sun.
 - The sun produces its own light, and the moon only reflects light.
 - The sun, the moon, and Earth each contain liquid water.
-

28 Which of these is a **MAIN** difference between the life cycle of a chicken and the life cycle of a dog?

- (A) A chicken has a fertilized-egg stage, but a dog does not.
- (B) A chicken hatches from an egg, and a dog is born through a live birth.
- (C) A chicken goes through a larval stage, while a dog goes through a pupal stage.
- (D) A chicken gets nutrients from milk in its first few weeks of life, but a dog does not.

29 In what order do these steps occur during the formation of sedimentary rock?

Select the correct answer for each box.

A Erosion **B** Deposition **C** Compaction
D Weathering **E** Cementation

Step 1: A B C D E

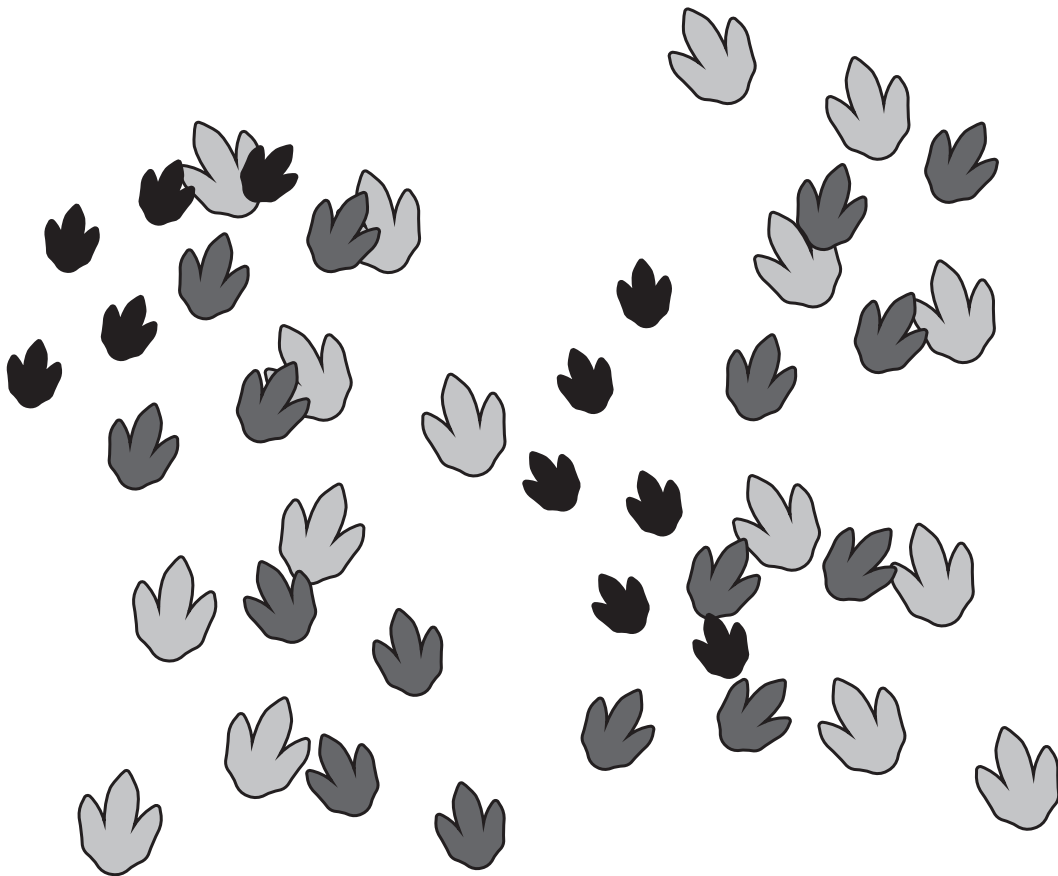
Step 2: A B C D E

Step 3: A B C D E

Step 4: A B C D E

Step 5: A B C D E

30 The drawing shows fossils of dinosaur tracks.



Scientists determined that the tracks formed at the same time. They also determined that the tracks were made by the same species of dinosaur.

Based on the drawing, which conclusion can be made about the behavior of this species of dinosaur?

- (A) It traveled in family groups.
- (B) It preferred to hunt alone for prey.
- (C) It ate both plants and insects.
- (D) It was most active during the day.

- 31** Before mixing sugar into hot tea, a student recorded the observations shown in the table.

Observations of Ingredients
Before Mixing

Ingredients	Observations
Hot tea (Tea and water)	<ul style="list-style-type: none">• Brown color• Liquid solution
Sugar	<ul style="list-style-type: none">• White color• Solid

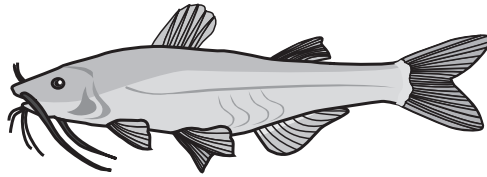
Which physical property of the sugar will stay the same after the sugar is mixed with the hot tea?

- (A) Color
- (B) Texture
- (C) Mass
- (D) Shape

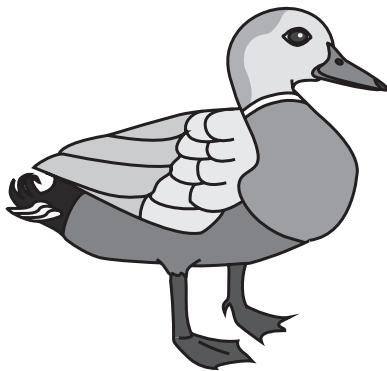
32 A group of animals is shown.



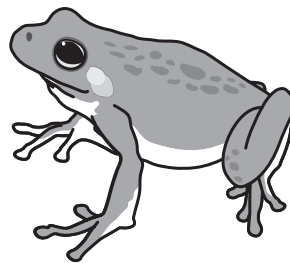
Mosquito



Catfish



Duck



Frog

Which habitat are these animals **BEST** suited for?

- (A) A part of the ocean that is permanently covered in ice
- (B) A tropical area of the ocean that contains rocks and living coral
- (C) A shallow body of freshwater that has plants growing around its edges
- (D) A fast-moving freshwater stream that flows deep underground

**STAAR
GRADE 5
Science
PRACTICE**

