

TIMSS 2019 – Restricted Use Items – Science

Benchmark 1

Life Science

Knowing

Which animal has a backbone?



octopus



spider



butterfly



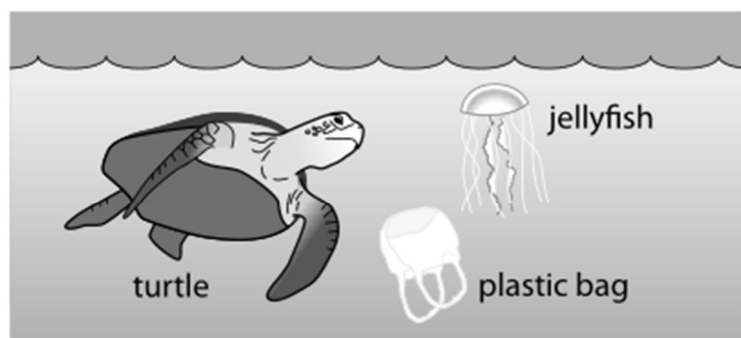
frog

Benchmark 2

Life Science

Knowing

The picture shows a turtle and jellyfish swimming in the ocean. A plastic bag is floating nearby.



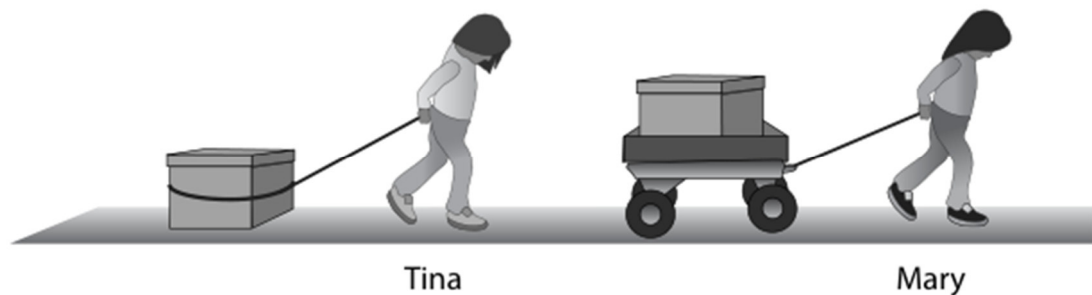
Write down one reason why plastic objects in the ocean are dangerous for animals such as turtles.

Benchmark 2

Physical Science

Applying

Tina and Mary need to move identical heavy boxes. Tina has to pull harder on her box to move it than Mary does.



Why is it easier for Mary to move her box?

- Ⓐ Gravity acting on Tina's box is much stronger.
- Ⓑ Air resistance acting on Tina's box is much greater.
- Ⓒ The cart increases the magnetic force acting on Mary's box.
- Ⓓ The cart's wheels decrease the force needed to move Mary's box.

Benchmark 3

Life Science

Knowing

The picture below shows a desert.



What are two **living things** shown in the picture?

1. _____

2. _____

What are two **non-living things** shown in the picture?

1. _____

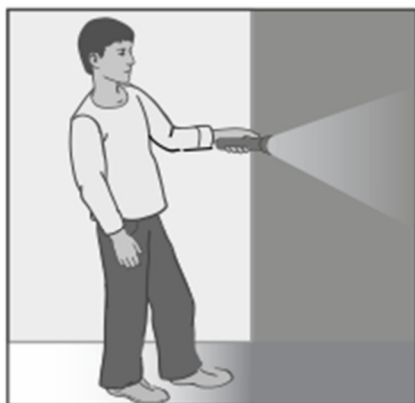
2. _____

Benchmark 3

Physical Science

Knowing

Jake switches on a flashlight.



One kind of energy changes into another kind of energy in the flashlight.

Which statement describes this change?

- Ⓐ Electrical energy changes into light energy.
- Ⓑ Motion energy changes into light energy.
- Ⓒ Light energy changes into electrical energy.
- Ⓓ Light energy changes into motion energy.

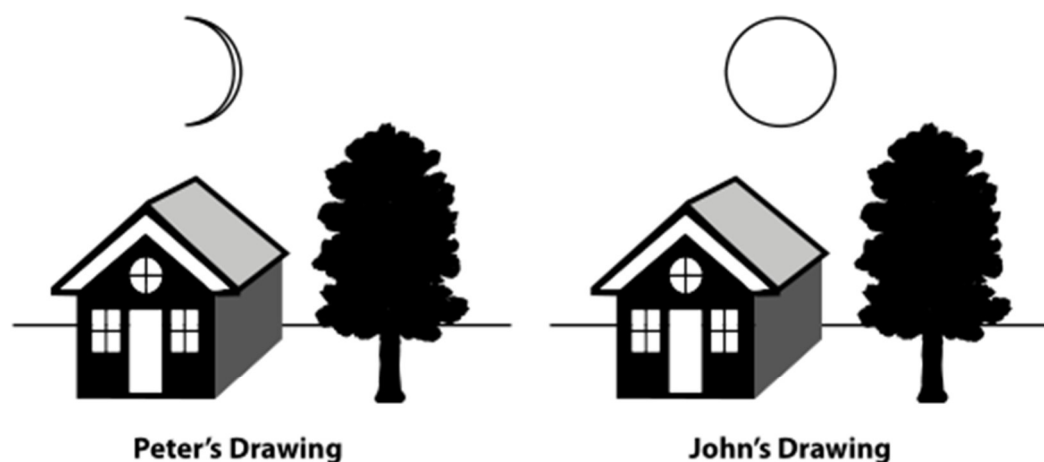
Benchmark 3

Earth Science

Applying

One evening Peter went outside and made a drawing of a house, a tree, and the Moon. About 2 weeks later, Peter's brother, John, went outside and made a drawing of the same house, the same tree, and the Moon.

When they compared their drawings, they saw that they drew the Moon differently.



Whose drawing of the moon is correct?

(Check one box.)

- ☐ Only Peter's drawing of the moon can be correct.
- ☐ Only John's drawing of the moon can be correct.
- ☐ Both drawings of the moon can be correct.

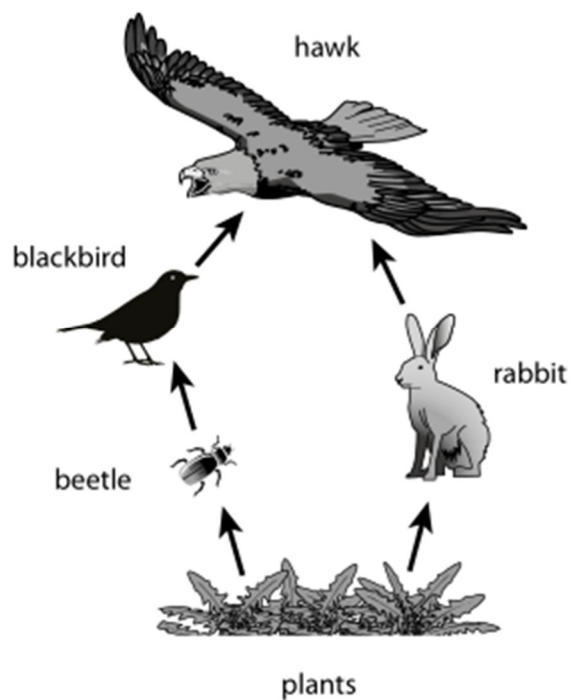
Explain your answer.

Benchmark 4

Life Science

Applying

The picture below shows a food web in a forest ecosystem.



B. Based on what you see in the food web above, which two animals compete with each other for food?

1.

2.

Benchmark 4

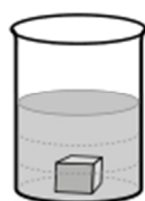
Physical Science

Reasoning (For both, A and B)

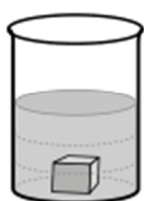
Karl is investigating ways to make the same amount of sugar dissolve quickly in water. He sets up three tests.

A. For each of the tests, fill in the circle under the set-up that will dissolve the sugar faster.

Test 1
different
temperature



(A)

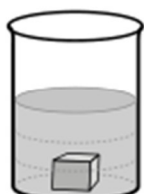


(B)

Test 2
one stirred

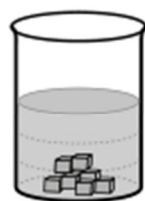


(A)

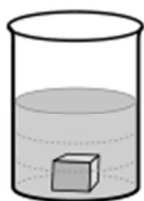


(B)

Test 3
different
cube sizes



(A)



(B)

B. Why is it important that the amount of water in each beaker is the same?

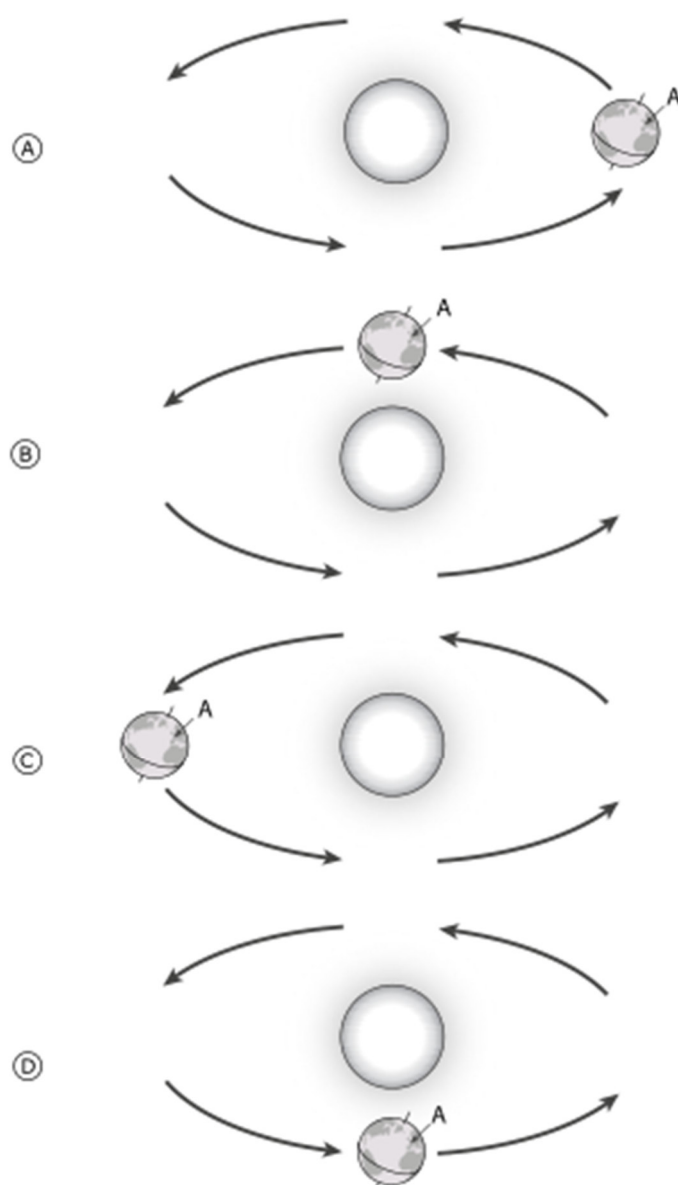
Benchmark 4

Earth Science

Applying

Earth's seasons are caused by the tilt of its axis.

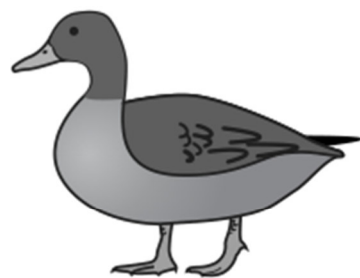
It is summer in City A. In what position is the Earth when it is summer in City A?



The pictures show a wind-up toy duck and a living duck.



toy duck



living duck

Do these characteristics describe **both** the toy duck and the living duck, or **only** the living duck?

Fill in one circle for each characteristic.

	Toy duck and living duck	Only living duck
needs water -----	(A)	(B)
needs air -----	(A)	(B)
can grow -----	(A)	(B)
can move -----	(A)	(B)
can reproduce -----	(A)	(B)

Mark planted a flowering plant in a pot that contained soil with enough fertilizer.

Mark went on a trip and left the plant in a dark room. He knew the room would not get too hot or too cold. When he came back two weeks later, the plant was dying.

Write two reasons the plant was dying.

1.

2.

Physical Science

Knowing

At room temperature, in which state is each of the materials listed below?

Fill in one circle for each material. The first one has been done for you.

Material	Solid	Liquid	Gas
paper -----	<input checked="" type="radio"/>	<input type="radio"/> (B)	<input type="radio"/> (C)
oxygen-----	<input type="radio"/> (A)	<input type="radio"/> (B)	<input type="radio"/> (C)
oil -----	<input type="radio"/> (A)	<input type="radio"/> (B)	<input type="radio"/> (C)
table salt -----	<input type="radio"/> (A)	<input type="radio"/> (B)	<input type="radio"/> (C)

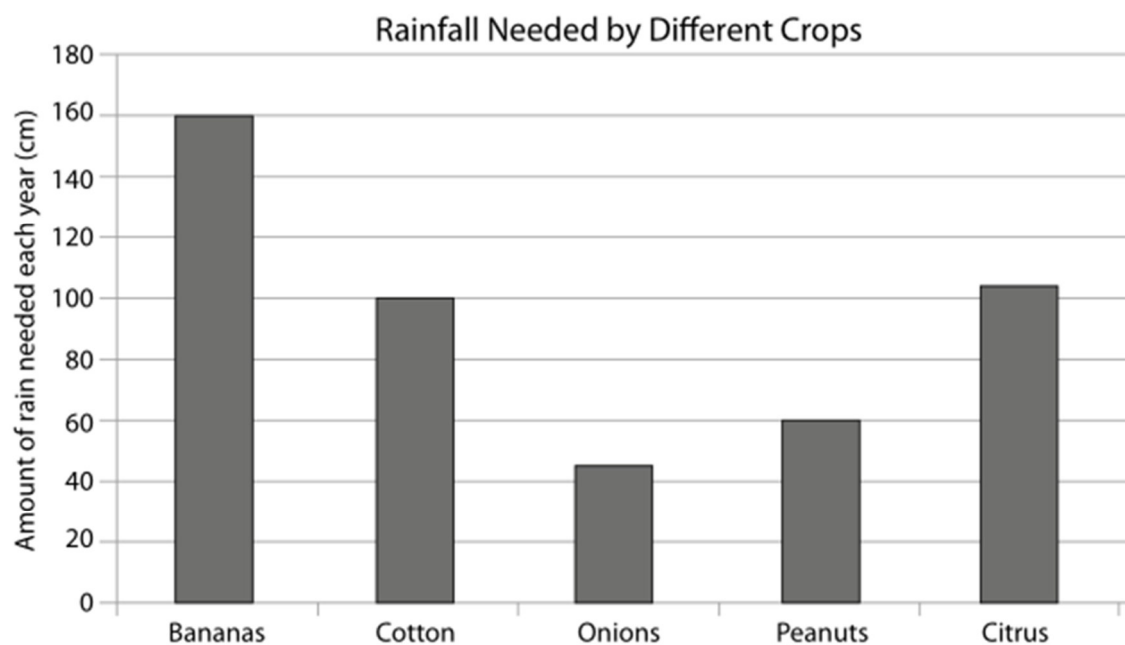
Physical Science

Applying

Tom has a bucket full of sand and small pebbles.

How can he quickly separate the sand from the pebbles?

The amount of rainfall needed by different crops is shown in the graph below.



A. A farmer wants to plant crops in an area that gets about 60 cm of rain each year. Which crops will probably grow best in this area?

- (A) onions only
- (B) onions and peanuts
- (C) cotton and citrus
- (D) bananas, citrus, and cotton