

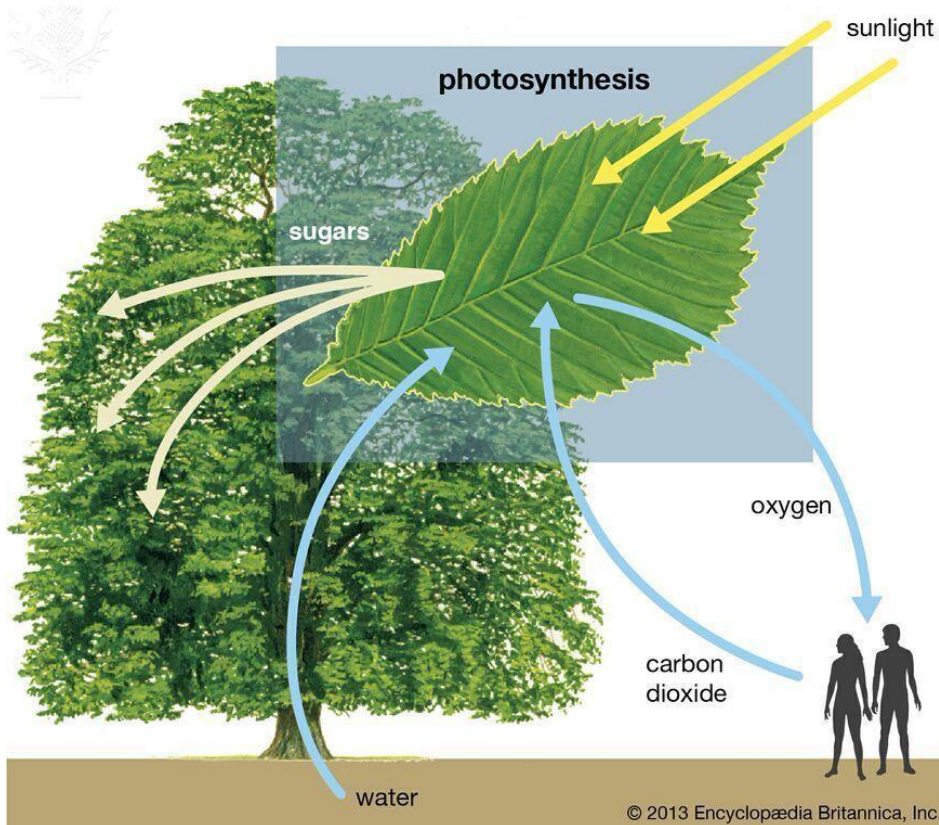
Grade 4: Science

Chandra's class is continuing their unit on plants. They have learned about the parts of a plant, and how flowers help plants reproduce.



What do you remember about what the class has learned so far?

The class learned that leaves use sunlight to make food. They want to know how it works. Their teacher showed them this diagram, which explains how plants make their own food.



- What do you see **going into** the plant?
- What is **coming out** of the plant?

Write your thoughts below:

Sunlight, carbon dioxide, and water are going into the plant.

Sugars and oxygen are coming out. The oxygen goes to the humans.

Plants make their own food through a process called **photosynthesis**. Plants absorb **sunlight**, **water**, and **carbon dioxide**. **Carbon dioxide** is what humans and other animals breathe out. They also use the green color in their leaves, which is called **chlorophyll**. During photosynthesis, plants combine chlorophyll, sunlight, water, and carbon dioxide. When they combine, it makes **sugar** and **oxygen**.

Use the word bank to fill in the blanks below:

Word Bank:

carbon dioxide

sugar

sunlight

oxygen

water

Chlorophyll **+** Carbon dioxide

+ sunlight

+ water

= sugar

+ oxygen

Last week, Chandra did an experiment about **force** and **mass**. When she did the experiment, she saw that the 3kg bowling ball went the longest distance, and the 7kg ball went the shortest distance. She drew the conclusion that objects with more mass need more force to move.

Chandra wants to learn more about **forces**. She remembers that **you need a force to make something start moving, stop moving, or change direction**. She's curious about what she can do to create a really big stopping force, so she is going to do an experiment.

She has the following **materials** from her house:

		
A Toy Car	Sandpaper	Aluminum Foil
		
Fabric	A piece of wood	A meter stick

Image Source: Britannica ImageQuest [Red toy car](#), [Sandpaper close-up](#), [Aluminum Foil](#), [Pair of blue jeans laid out](#), [Plank of wood showing tongue and groove on edge](#)

Chandra is going to push the toy car over each material. She's going to measure how far the car goes on each material.



What is her independent variable? What is her dependent variable?

Chandra is changing the **materials that the car is rolling over**. This is her **independent variable**. She's going to measure **how far the car goes on each material**. This is her **dependent variable**.

Chandra needs help writing a **hypothesis**. A **hypothesis** is a prediction about what will happen in an experiment.



What do you think will happen in this experiment? Fill in the sentence below to write a **hypothesis**. Use the words under the blanks to help you.

If the toy car rolls over _____, it will go for a _____ distance.
(material) (short, long)

Answers will vary. All answers should be accepted as long as the material is in the correct place and the sentence makes sense to them. Students are making a prediction based on their current knowledge. Examples included below:

If the toy car rolls over **the fabric**, it will go for a **long** distance.

If the toy car rolls over **the aluminum foil**, it will go for a **short** distance.

If the toy car rolls over **the aluminum foil**, it will go for a **long** distance.