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UNIT 8

FORCES



What must Joe do to prevent Sue from throwing him over?

What does Sue have to do to throw Joe over?

Let's Find Out:

- What is a force?
- What are the effects of forces?
- What are opposing forces?

A

What Is a Force?

A **force** is a push or a pull on an object.

When an object moves from one place to another, we call it **motion**. A force is needed to move objects.

When we push a box, the box moves away from us.



The box moves away when pushed.

When we pull a box, the box moves towards us.

More than one force can act on an object. Nothing starts moving until it is pushed or pulled.



The box moves closer when pulled.



LANGUAGE CONNECT

Find another word that has the same meaning as

(a) push;

(b) pull.

B

What Are the Effects of Forces?

Changing the shape of an object

A force can change the shape of an object.

Hold a sponge in your hands and squeeze it. What happens to the sponge?



Squeezing a sponge



The push forces make the sponge smaller.

Place a piece of modelling clay on the table and press on it. What happens to the clay?



Pressing a piece of modelling clay



The push forces make the modelling clay flatter.



EXPLORE

Get a lump of modelling clay. Use your hands to roll it, squeeze it, press it, pound on it and twist it. Mould it into an object that you like. Observe what forces can do to the modelling clay.



FLASHBACK

Recall from Unit 7: Some materials can return to their original size and shape after they are pressed, twisted, bent or pulled.

C

What Are Opposing Forces?

Forces always act in pairs.

When there is a force acting in one direction, there is an equal force acting in the opposite direction. This force is known as the **opposing force**.

When we push on an object, we can feel a force pushing back on us.

An opposing force is acting on the boy when he sits on the chair.



EXPLORE

What are some of the actions that you do to clean your room? Do you feel an opposing force acting against you when you do those actions? Discuss with your classmates.