Activity 9

# Observe Like a Scientist

## Energy, Work, and Force

You already know that in order for motion to start or stop, force must be applied to an object. Now, you will explore the relationships between force, **energy**, and **work**. **Read** the text to find out how these three terms are connected. Then, **answer** the questions that follow.

To make a vehicle start or stop moving requires a force—either a push or a pull. Applying this force to the vehicle requires **energy**. Imagine you had to push a car along a flat road. Moving a car needs a lot of force. Soon you would be sweating hard as your body used up its energy reserves working to get the car moving.

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Force and energy are different, but they are related to one another. Force is something that changes energy in such a way that it can do **work**. In the case of your pushing the car, the force your body exerts on the car is changing the energy in your body to energy in the moving car. When you move the car, you are doing work. To put it another way, a force transfers energy from one object to another. Work is the energy transferred by a force that is used to move the object.

**Talk Together** Now, talk together about the nature of force, work, and energy. What examples have you encountered during class?

**Life Skills** **I can respect others.**

Activity 10

# Record Evidence Like a Scientist

## Truck versus Airplane

Now that you have learned about the role of balanced and unbalanced forces in starting and stopping motion, **review** the text, Truck versus Airplane again. You first saw this in Wonder.

How can you describe forces now?

How is your explanation different from before?

**Look** at the Can You Explain? question. You first read this question at the beginning of the lesson.

### Can You Explain?

How do forces act on a starting and stopping object?

Now, you will use your new ideas about forces to answer this question.
To plan your scientific explanation, first **write** your claim.

Choose a question. you can choose a question “can you explain?” any question you have .

you can choose a question you wrote down in the begining of the lesson

**My question**

To plan your scientific explanation, first write you claim

My claim:

Next, **review** your notes and answers from throughout the concept.
**Identify** two pieces of evidence that support your claim:

**Evidence 1**

**Evidence 2**

Now, **write** your scientific explanation.

The forces acting on a truck with jet engines cause it to start and stop because...



**Life Skills** **I can apply an idea in a new way.**