

Work and Machines

Name _____ Date _____

Reading Comprehension

HOW TO READ DIAGRAMS

A **diagram** is a picture with labels. It can show how something works. It can also show how the parts of something fit together. You can read more about diagrams on page 10 of *Work and Machines*.

Look at this diagram about the three classes of levers. Then write the answer to each question.

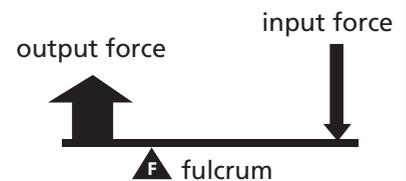
1. What does the diagram show?

2. What do the arrows in the diagram show?

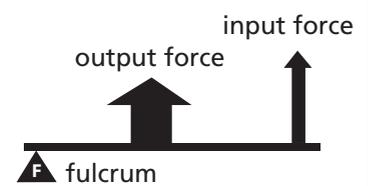
3. Which class of lever has an input force that is larger than the output force?

4. Where is the fulcrum in a first-class lever? How is this different from where the fulcrum is in a second- or third-class lever?

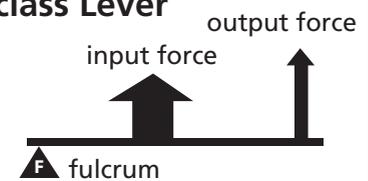
First-class Lever



Second-class Lever



Third-class Lever



Grammar

TYPES OF SENTENCES

You can combine **simple sentences** using a conjunction to form a **compound sentence**. You should usually put a comma before the conjunction. Use *and* to join similar ideas. Use *but* to join contrasting ideas. Use *or* for a choice between ideas.

Combine each pair of sentences to make a compound sentence. Use *and*, *or*, or *but*.

- 1.** Scissor blades are wedges. Scissor arms are first-class levers.

- 2.** A pair of scissors is a small compound machine. Many compound machines are huge.

- 3.** You could do work by yourself. You could do the same work more easily with a machine.

- 4.** A simple machine can change the size of the input force. It can change the distance of the input force.

- 5.** The gears and the rear wheel of a bicycle are simple machines. The entire bicycle is a compound machine.

- 6.** I could make this compound machine out of a lever and a pulley. I could make it out of an inclined plane and a pulley.

Writing

Reread page 8 of *Work and Machines*. Think about two machines with very few parts that you have used or know about. How do you think each machine changes force to do work? Fill in the outline on this page to help you organize your ideas.

I. Machine #1: _____

A. What is the input force you put into this machine?

B. What does the machine do when you put in the input force?

C. How do you think the machine changes your input force? Explain.

II. Machine #2: _____

A. What is the input force you put into this machine?

B. What does the machine do when you put in the input force?

C. How do you think the machine changes your input force? Explain.

Now write a paragraph about how you think one of the machines changes force to do work. Use your outline to help you write.

Vocabulary

Some words have more than one meaning. First read each sentence and fill in the blank with the correct word. Then draw lines between the columns to show which sentences have the same multiple-meaning word.

class	fixed	inclined	kind	plane	work
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1. A _____ person tries to help people.
2. For _____ to be done, a force must move an object over a distance.
3. The bags are being put on a _____ to Dallas, Texas.
4. She usually tells the truth, so I am _____ to believe her story.
5. Wheelbarrows and nutcrackers are second _____ levers.
6. The farmer lifted bales of hay with a _____ pulley.
7. The workers rolled the piano up the _____ plane.
8. The students learned a lot in _____ today.
9. The tractor's broken axle needed to be _____.
10. A screw is one _____ of simple machine.
11. The movers used an inclined _____ to take boxes off the truck.
12. My uncle goes to _____ every day at a construction site.

★ **Light, left, feet, and rest are some other examples of multiple-meaning words. Write two sentences that use one of these words. Each sentence should use a different meaning of the word.**
