

Critical Thinking Skills

Force

Skills For Critical Thinking		Reading Comprehension							Hands-on Activities
		Section 1	Section 2	Section 3	Section 4	Section 5	Section 6	Section 7	
LEVEL 1 Knowledge	<ul style="list-style-type: none"> List Details/Facts Recall Information Match Vocabulary to Definitions Define Vocabulary Label Diagrams Recognize Validity (T/F) 	✓	✓	✓	✓	✓	✓	✓	✓
LEVEL 2 Comprehension	<ul style="list-style-type: none"> Demonstrate Understanding Explain Scientific Causation Rephrasing Vocabulary Meaning Describe Classify into Scientific Groups 	✓	✓	✓	✓	✓	✓	✓	✓
LEVEL 3 Application	<ul style="list-style-type: none"> Application to Own Life Model Scientific Process Organize and Classify Facts Utilize Alternative Research Tools 	✓	✓	✓	✓	✓	✓	✓	✓
LEVEL 4 Analysis	<ul style="list-style-type: none"> Distinguish Roles/Meanings Make Inferences Draw Conclusions Based on Facts Provided Classify Based on Facts Researched 	✓	✓	✓	✓	✓	✓	✓	✓
LEVEL 5 Synthesis	<ul style="list-style-type: none"> Compile Research Information Design and Application Create and Construct Imagine Self in Scientific Role 	✓	✓				✓		✓
LEVEL 6 Evaluation	<ul style="list-style-type: none"> State and Defend an Opinion 								✓

Based on Bloom's Taxonomy



What Is Force?



1. **Circle** the word True if the statement is true. **Circle** the word False if it is false.

a) Force is the same as energy.

True **False**

b) Forces can either push or pull.

True **False**

c) Gravity pushes us toward the Earth.

True **False**

d) When something is sliding down a hill, friction makes it slide faster.

True **False**

e) Friction and gravity are both forces.

True **False**

2. Write each word beside its meaning.

force

friction

gravity

pull

push

_____ a) the force of the Earth pulling things toward its surface

_____ b) a force that moves things closer

_____ c) a push or a pull

_____ d) the force that moves things farther apart

_____ e) the force between things sliding past each other



What Is Force?



A **force** is a push or a pull. When you push on your pencil, you are **exerting** a force. When you pull a carrot out of the ground, you are exerting a force.



Forces act on you every day from all directions. You exert forces on many things every day. You must exert force to ride a bicycle. Your foot exerts a pushing force on the pedal. When the pedals move, they pull on the chain. The chain makes the back wheel turn. The wheel pushes on the ground, and you and the bicycle move forward.

When you use the bike's brakes, the bike stops because of another force called **friction**. Why does the bike stay on the ground instead of floating off into the sky? This isn't as silly as it sounds. The bike is held down by another force called **gravity**. We will learn about friction, gravity, and other forces later.



Why don't things on Earth's surface float off into space?

Some things *sound* forceful that are not forces. Power, work, speed, mass, and energy are *not* kinds of force. Each of these is measured in a different way than force.

To tell about a force, we must tell both the amount of the force, and the direction in which it is acting. We can show both with an arrow. The arrow points in the direction the force is acting, and the length of the arrow shows the amount of force. The picture shows some of the forces acting when a person rides a bicycle.

NAME: _____



What Is Force?



1. Put a check mark (✓) next to the answer that is most correct.

a) Which of these is a force?

- A energy
- B gravity
- C power
- D work

b) Which of these tells what force is?

- A being able to do work
- B any kind of push or pull
- C anything that has energy
- D something that is moving

c) What do we call the force that makes a car come to a stop when the driver puts on the brakes?

- A friction
- B gravity
- C mass
- D speed

2. a) **Circle** the words that are kinds of force.

energy friction gravity mass power
pull push speed work

b) ~~Circle~~ **Cross out** the words that are *not* kinds of force.

energy friction gravity mass power
pull push speed work