Name _____ Date _____

The Laws of Motion

How do forces change the motion of objects?

Before You Read

Before you read the chapter, think about what you know about forces and motion. Record your thoughts in the first column. Pair with a partner, and discuss his or her thoughts. Write those ideas in the second column. Then record what you both would like to share with the class in the third column.

Think	Pair	Share

Chapter Vocabulary

Lesson 1	Lesson 2	Lesson 3	Lesson 4
NEW force contact force noncontact force gravity mass weight friction **ACADEMIC** significant	**NEW** net force balanced forces unbalanced forces Newton's first law of motion inertia **REVIEW** reference direction	**NEW** Newton's second law of motion circular motion centripetal force	**NEW** Newton's third law of motion force pair momentum law of conservation of momentum

Lesson 1 Gravity and Friction

Scan *Lesson 1. Write three questions that you have about gravity and friction in your Science Journal. Try to answer your questions as you read.*

Main Idea

Types of Forces

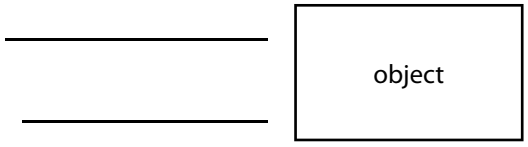
I found this on page _____.

I found this on page _____.

I found this on page _____.

Details

Model forces *on an object. Change the lines to arrows, and label them "push" or "pull."*



Contrast *types of* forces, *and give an example of each.*

Contact Forces	Noncontact Forces
Description:	Description:
Example:	Example:

Draw *arrows to represent the described* forces.

Description	Drawing
A slight downward force on the object	object
A greater upward force than the downward force illustrated above	object

Main Idea

What is gravity?

I found this on page _____.

I found this on page _____.

I found this on page _____.

Details

Distinguish mass *and* gravity.

Mass	Gravity

Cite *the law of universal gravitation.*

Illustrate *the relationship between gravitational* force *and* mass. *Draw arrows in the diagrams to indicate the size and direction of the attractive* force *of each object.*

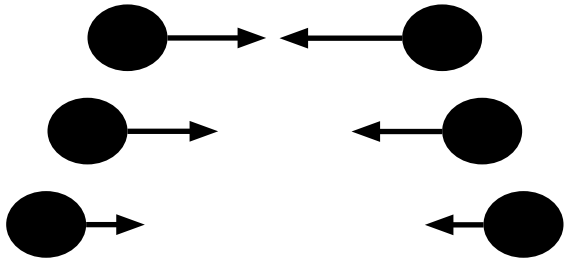
Description	Diagram
Objects with smaller masses	
Objects with larger masses	
Objects with different masses	

Main Idea

Details

I found this on page _____.

Describe *the relationship between gravitational* force *and distance as shown in the diagram.*



_____

_____

_____

Assess *the information about* gravity, mass, *and* weight. *Read each statement. If it is true, write T in the center column. If it is false, write F in the center column and replace the underlined words to make the statement true.*

Statement	T or F	Corrected Statement
Mass is a gravitational force exerted by an object.		
An object's weight is proportional to its mass.		
Mass is measured in newtons.		
If an object has twice the size of another object, it has half the weight.		
An object's mass decreases the farther it gets from Earth's surface.		

I found this on page _____.

I found this on page _____.

I found this on page _____.

I found this on page _____.

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Main Idea

Friction

I found this on page _____.

I found this on page _____.

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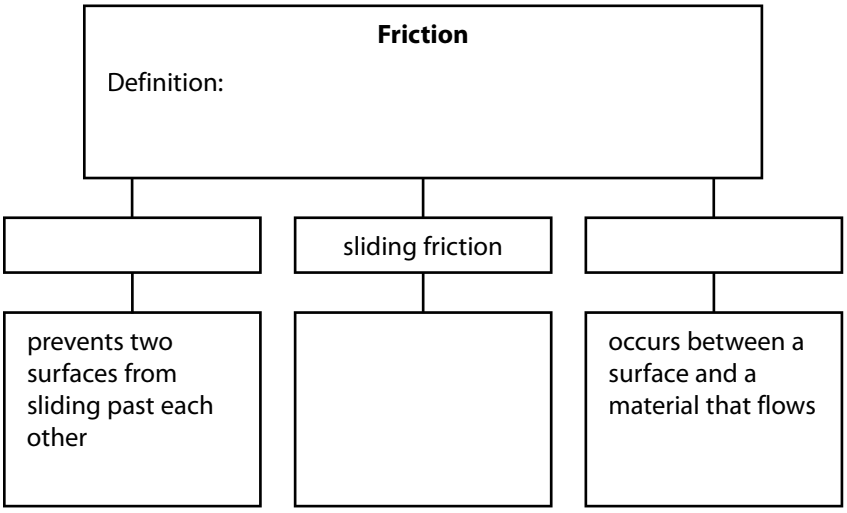
Details

Complete *the concept map about* friction.



Cite *two reasons* friction *occurs between surfaces.*

1. _____

_____

_____

2. _____

_____

_____

Explain *how lubricants reduce* friction.

_____

_____

Connect It Describe how the forces of gravity and friction affect the motion that occurs as you write on this page.

_____

_____

_____

_____

_____

_____