

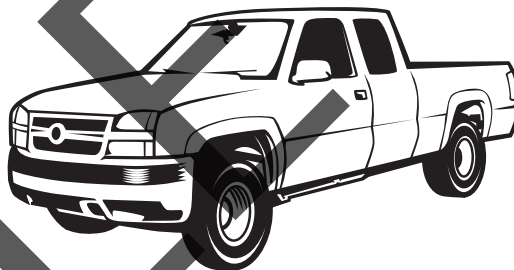
Name _____ Date _____

Take Home Challenge: *Forces and Motion*

Choose one of the following 4 take home challenge ideas.

1. Find every item you can around your house and around your neighborhood that has wheels.

Make a note of how rough the tread pattern is on the different wheels. Now try to figure out why the different wheels may need rougher or smoother tread.



Never go behind or under a parked vehicle because it's unsafe!

Create a chart to record your findings. Here is an example of how your chart might look:

Item with Wheels	Smooth Tread	Medium Tread	Rough Tread	Reason for Tread
Truck			X	To increase friction so the truck doesn't slip on rough roads
Skateboard	X			To reduce friction so the skateboard will go faster

Consider the data you have collected in your chart. Think—how is tire tread important to NASCAR drivers? Use the library or internet to learn what a pit crew accomplishes during a pit stop. Make a list of the crew's duties and how their actions relate to the force of friction.

2. You learned from your Delta Science Content Reader that weight is a measurement of the force of gravity on an object. You also learned that the force of gravity is weaker on the moon. You would weigh about 1/6 your Earth weight if you were on the Moon.

Choose some items around the house to weigh. Now calculate what each object would weigh on the moon. Create a chart to record the Earth weight and the Moon weight of each object. Record your weights in pounds.

Now for your big challenge! Go online to:

<http://www.extremescience.com/metricalc.htm>

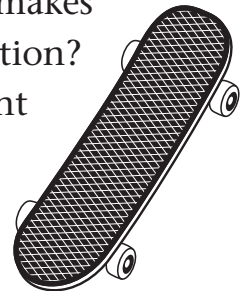
and use the conversion calculator to convert the weights to kilograms.

Use the conversion calculator to convert the weight to kilograms. Round your answers to the nearest hundredth. Here is an example of what your chart might look like:

Object Weighed	Weight on Earth		Weight on the Moon	
	Pounds	Kilograms	Pounds	Kilograms
Me!	65	29.51	10.83	4.92
Full backpack	4.5	2.04	.75	.34

3. Extreme sports are very popular today. You may have even watched ESPN's X Games. Choose an extreme sport like BMX racing, snowboarding, rock climbing, skateboarding or another sport you would like to learn about. What makes these sports extreme? Do the athletes work against the forces of motion? Or use the forces of motion to their advantage? Use an extreme stunt as an example to explain your answers.

There are several free online game websites featuring extreme sports. Check out a few sites and recommend your favorite to the class.



4. Think about how inertia impacts ice skating. Then visit this interesting website:

<http://demonstrations.wolfram.com/SpinningIceSkater/>

This site demonstrates how a skater starts to spin with arms outstretched (a large moment of inertia), and then as the skater brings her arms in (decreasing the moment of inertia), she rotates faster. Remember Newton's first law is also called the law of inertia. Learn more about famous ice skaters such as Kristi Yamaguchi, Tara Lipinski or Michelle Kwan, who are skilled at elegant spins and jumps. Share what you learn by writing a short biography about an ice skater.