




## Week 1~Science Schedule

Date:	Monday	Tuesday	Wednesday	Thursday	Friday
<b>Force/Gravity</b>					
<b>Eyewitness: Force and Motion</b>		p. 6-7 "The World in Motion" p. 24-25 "Galileo's Science of Motion" p. 32-33 "Gravity: the Long-range Force"			
<b>Straightforward Science: Forces and Movement</b>		p. 4-5 "Pushing and Pulling" p. 6-7 "Gravity"			
<b>Hands-On Science: Force and Motion</b>				p. 10-11 "Gravity"	

### Explanations

**Comprehension Questions:** What is a force? **Force is a push or a pull.** What is the difference between the way Galileo described objects falling and Archimedes described objects falling? **Archimedes said that an object that weighs more will fall faster than a lighter object. Galileo said they would fall at the same rate.** How did Isaac Newton explain why objects fall to the ground? **He said there is a force called gravity that pulls objects to the ground and also keeps the planets in orbit around the sun.** What does the word exert mean? **Exert means to do something that makes an object move. You exert force when you turn a page.** What is energy? **Energy is the fuel that makes things move. Your muscles get energy from the food you eat. Engines get energy from gasoline or electricity.**

**Easy Links:** For an interactive website on Isaac Newton's gravity experiment on the Leaning Tower of Pisa, click on the physics schedule link on the Easy Links page.

**Science Summary:** For students in second grade and above, the science summary should be completed, using the Institutes for Excellence in Writing's program. Each week you will see this icon  and "summary" on the schedule. If you are using our main schedules you will be instructed to do a "key word outline" from the Institutes for Excellence in Writing course. Choose a paragraph from the science reading. Write the "key word outline" from IEW and then rewrite or retell (depending on the age of the child) the paragraph from the outline. If you are already familiar with the "key word outline" add dress-ups to your paragraph. This helps teach writing skills as well as allow for better retention of the science facts.

**Science Fair:** Starting in third grade children are eligible to enter regional/state science fairs and the national science fair. As you go through the year you will have a variety of science experiments to complete. With each science experiment reiterate the scientific method. This will make doing a science fair project seem more doable. Most regional science fairs are held in February or March. Start thinking early about a question you want to answer. Go to our website and click on **Easy Links** on the homepage, click on the physics schedule and under week 1 and click on "Science Fair Ideas" for more information about science fair projects. There will be prompts throughout the year to encourage you to start your science fair project. Look on the next page for a chart that explains the Scientific Method.

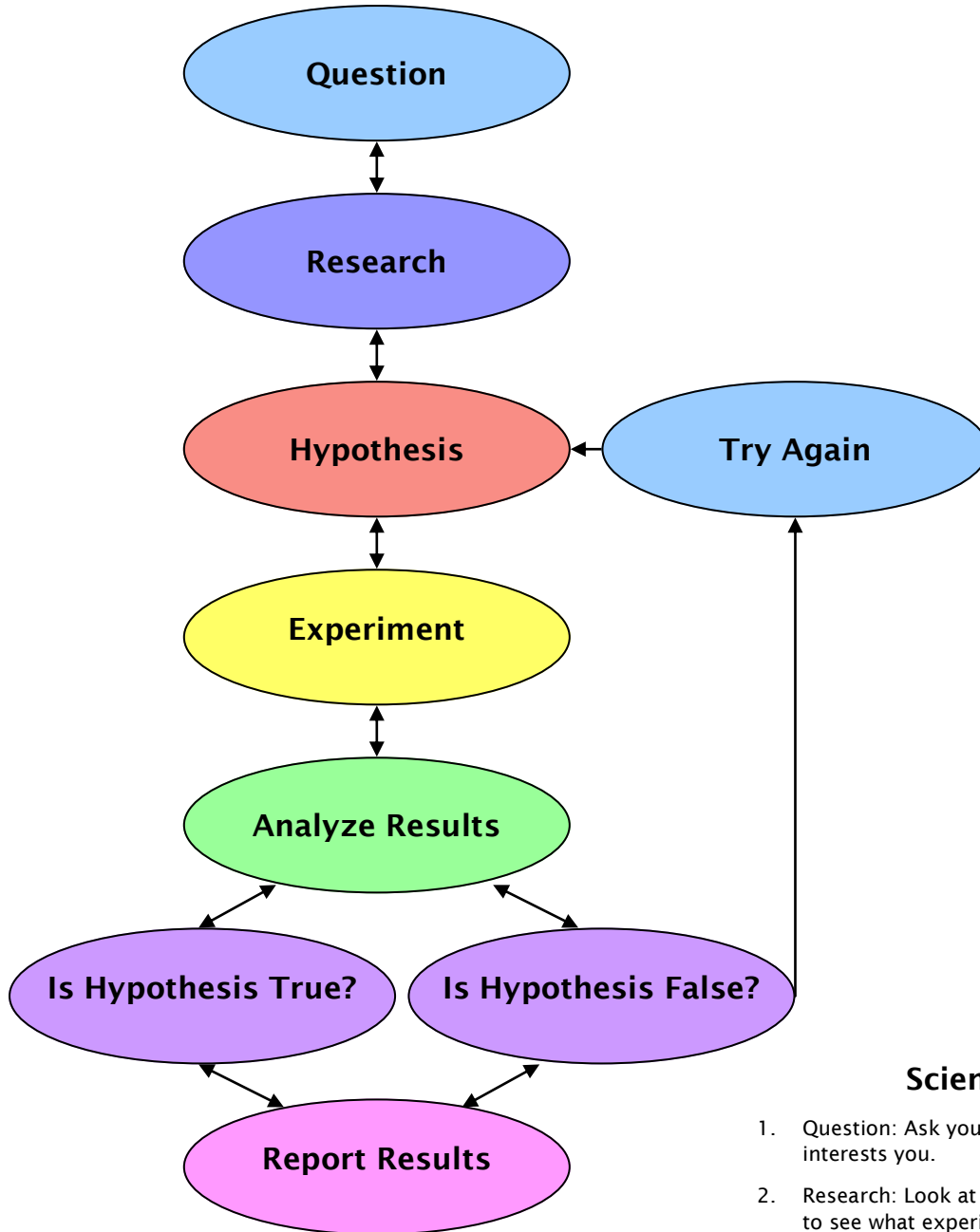
#### Shopping List

**This week:** Thick cardboard, thin cardboard, ruler, pairs of things that are the same size and shape, but different weights, two cake pans.

**Next week:** large yogurt tub, string, 2 big paper clips, long rubber band, paper, marker, ruler, several items to weigh, a skewer.

**Optional experiment-**Two deep empty cake pans (one smaller than the other), large spring from an old mattress or chair, or a large sponge, 5-lb bag of sugar, washable marker.

# Scientific Method





## Scientific Method

1. Question: Ask yourself a question about a topic that interests you.
2. Research: Look at information on your topic. Search to see what experiments have already been done on your topic.
3. Hypothesis: Form a hypothesis. This is a big word, but it means to make a guess about what you think will happen.
4. Experiment: Design an experiment that will test your hypothesis. This is the fun part. Set up your experiment so you can record and observe measurable data.
5. Analyze Results: Look at your data and determine what you have learned from the experiment.
6. Hypothesis True? or False?: Decide whether you have proved or disproved your hypothesis.
7. Report Results: Write a report explaining your results.



## Week 2~Science Schedule

Date:	Monday	Tuesday	Wednesday	Thursday	Friday
<b>Weight/Measuring Force</b>					
<b>Eyewitness: Force and Motion</b>		p. 34-35 "Weight and Mass"			
<b>Straightforward Science: Force and Movement</b>		p. 8-9 "Weight" p. 10-11 "Measuring Force"			
<b>Hands-on Science: Force and Motion</b>				p. 6-7 "Measuring Forces"	

### Explanations

**Comprehension Questions:** What are you and everything around you made of? **Everything is made of matter.** What is weight? **Weight is the measurement of the force of gravity pulling you down.** The weight of something depends on its mass. The more mass an object has the more it will weigh. Why would you weigh less on the moon than on earth? You would weigh less on the moon than on the earth because the mass of the moon is much less than the mass of the earth. So the gravitational pull that the moon exerts on you is less than the gravitational pull of the earth. The weight of an object is determined by the gravitational pull on the object. What do we use to measure the force of gravity? **A scale measures the force of gravity.** Most scales are spring scales. How does a spring scale work? **A spring scale measures the force exerted downward by the object sitting on top of it.** The larger the mass the more gravitational force will be exerted downward and the more the spring will be compressed.



**Hands-on Science:** You have two weight experiments to choose from this week. Decide if you want to do one or the other, or both.

**Easy Links:** Look at the **Easy Links** page on our website to see the inside of a bathroom scale, and find out how it works.





## Week 3~Science Schedule

Date:	Monday	Tuesday	Wednesday	Thursday	Friday
<b>Balancing Forces/Center of Gravity</b>					
<b>Eyewitness Science: Force and Motion</b>		p. 35 "Toppling Over" and "Balancing Act"			
<b>Straightforward Science: Force and Movement</b>		p. 12-13 "Balancing Forces" p. 14-15 "Center of Gravity"			
<b>Hands-on Science: Force and Motion</b>				p. 12-13 "Balancing"	

### Explanations

**Comprehension Questions:** What is the center of gravity? The center of gravity is the average location of the weight of an object. If the object is symmetrical and it is sitting on a flat surface, the center of gravity will be in the center of the object. If gravity is so strong, why don't we sink into the earth? Gravity is not the only force that is acting on us. The earth's surface, is pushing back on us. Gravity, pulling us down, keeps us from flying off into space, and the force of the earth, pushing upward, keeps us from sinking into the earth. What are balanced forces? The forces on an object are balanced when an object does not move. When one force is stronger than the other, the object begins to move. How is a suspension bridge held up? A suspension bridge is held up by balanced forces. The force of the supports, push upward; The force of the cables pull upward along the cables; While gravity pulls downward.

**Easy Links:** There is a neat explanation of how bridges use balanced forces linked to the Easy Links page of our website.

**Hands-on Science: Force and Motion:** On the next page you will find a copy of the parrot. Cut it out and follow the directions on p. 12 of Hands-on Science: Force and Motion.

**Reminder:** Are you using the scientific method to do your experiments? Are you thinking about a potential science fair project you can complete?



## Center of Gravity Parrot

Cut out this parrot. Follow the directions on page 12 of Hands-on Science: Force

