

**Disclaimer: This packet is intended ONLY for the use of students enrolled in Leon County Schools.**

**Complete the assignments below.**

## **4<sup>th</sup> Grade**

### **Week 1:**

- Skills Scientists Use (SC.4.N.1.1; SC.4.N.1.6)
- Why Scientists Compare Results (SC.4.N.1.2; SC.4.N.1.5)
- Observations and Evidence (SC.4.N.1.3; SC.4.N.1.7)

### **Week 2:**

- The Sun, Earth, Moon, and Stars (SC.4.E.5.1; SC.4.E.5.2; SC.4.E.5.3)
- Rocks and Minerals (SC.4.E.6.1; SC.4.E.6.2)

### **Week 3:**

- Natural Resources (SC.4.E.6.3; SC.4.E. 6.6)
- Weathering and Erosion (SC.4.E.6.4)

### **Week 4:**

- Physical Properties of Matter (SC.4.P.8.1)
- Magnets (SC.4.P.8.4)

**Science**

**Week**

**4**



**SC.4.P.8.1** Measure and compare objects and materials based on their physical properties including: mass, shape, volume, color, hardness, texture, odor, taste, attraction to magnets.

## Physical Properties of Matter

**Matter** is anything that has mass and takes up space. Matter has physical properties that you can observe with your five senses: sight, hearing, taste, touch, and smell. A **physical property** is a characteristic of matter that you can observe or measure directly. You can describe matter by listing the physical properties you observe. For example, you can describe an apple as red, crunchy, sweet, and smooth using properties you observe with your senses.

### Using Your Senses

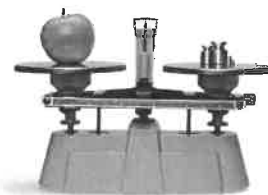
Shape, color, hardness, texture, odor, and taste are some of the physical properties you can observe using your senses. An object's color, taste, and odor can be observed using senses of sight, taste, and smell. Hardness is how easily an object's shape can be changed. Size is how big something is. Shape is the form an object has. Texture is the way the surface of an object feels to the touch. How would describe the texture, shape, and size of a kitten?



### Mass

You can also use tools to measure some physical properties of matter. For example, you can measure the mass of the apple. Mass is the amount of matter an object contains. Mass is most commonly measured in grams (g) or kilograms (kg).

You can measure the mass of an object using a tool called a pan balance. Place the object to be measured on one side of the balance. Add known masses to the other side. Keep adding masses until the pans are level. Then add the known masses together to find the mass of the object.



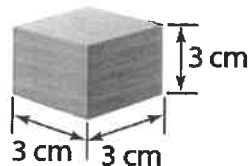
You can also find the mass of a liquid. First, find the mass of the container. Then add the liquid, and find the total mass of the liquid in its container. Then, subtract the mass of the container from the total mass—the difference is the mass of the liquid inside the container.

### Volume

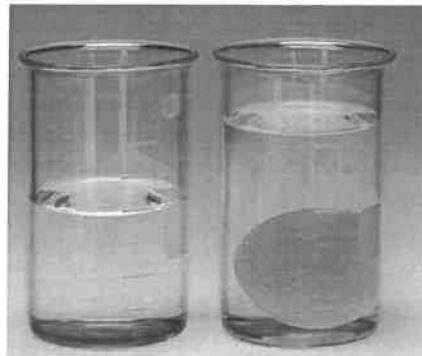
An object's **volume** is the amount of space it takes up. You can use a graduated cylinder to measure the volume of a liquid. The volume of a liquid is often measured in milliliters (mL) or liters (L).



To calculate the volume of a cube or a rectangular solid, measure its length, width, and height. Then multiply these three numbers. The volume of a solid is often expressed in cubic centimeters or cubic meters.

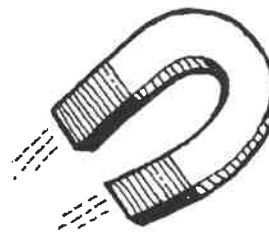


You can use a graduated cylinder or beaker to find the volume of an irregular solid, such as an egg. Read the level of the water in the graduated cylinder or beaker to find the volume of the water. Add the egg, and read the volume again. This is the total volume of the water and the egg. Subtract the volume of the water from the total volume. The difference is the volume of the egg. One milliliter equals 1 cubic centimeter, so change milliliters to cubic centimeters in your answer.



**Attraction to Magnets**

Some objects have unusual physical properties. For example, some metals are attracted to magnets. Objects that contain these metals are pulled toward a magnet. When you hold a magnet near a steel paperclip, which contains iron, the iron will be attracted, or pulled toward, the magnet.



**Student-Response Activity**

- 1 Dessie has a container of paperclips—some that are steel and some that are aluminum. She wants to sort them by material. What is one method for sorting the paperclips?

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2 This table shows data about two objects.

Object	Mass	Volume
A	50 g	36 cubic centimeters
B	55 g	56 cubic centimeters

Which object has the greater mass? Which object has the greater volume?

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3 Complete the chart with physical properties you can observe with each sense. Then give an example of what can be observed.

Sense	Properties	Example
Sight		
Hearing		
Smell		
Taste		
Touch		

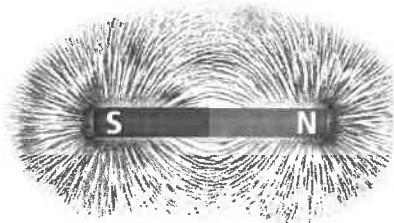
**SC.4.P.8.4** Investigate and describe that magnets can attract magnetic materials and attract and repel other magnets.

## Magnets

Magnetism is a physical property and a force that can act across a distance, without objects touching each other. A **magnet** is an object that attracts iron and a few other materials. When you hold a magnet near an object that contains iron, for example, the iron will be pulled toward the magnet.

### Magnetic Fields

A **magnetic field** is the space around the magnet in which the magnetic force acts. Iron filings near a magnet arrange themselves in the shape of the magnetic field, as shown in the illustration. The magnetic field is strongest at the ends, or poles, of the magnet. The magnetic field is weakest in the center of the magnet. The magnetic force gets weaker farther away from the magnet.



### Attract and Repel

Each magnet has two poles: a “south-seeking” pole, or S pole, and a “north-seeking” pole, or N pole. A **magnetic pole** is the part of the magnet where the force is the strongest. Unlike poles **attract** each other. If you bring unlike poles—one N pole and one S pole—of two magnets together, they will pull toward each other.



Like poles repel, or push away from, each other. The S pole of one magnet will repel another S pole. The N pole of one magnet will repel another N pole.





## Student-Response Activity: Magnets

- 1 Test 10 objects with a magnet. Which are attracted to the magnet? Which are not? List or draw your results in the table.

Attracted to a Magnet	Not Attracted to a Magnet

- 2 Look at the two pairs of magnets. Tell if they will attract or repel each other, and explain why.

Magnets	Attract or Repel? Why?
	
	

- 3 What is a magnetic field? Where is it strongest? Where is it weakest?

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