

LETTER TO PARENTS



Cut here to paste onto school letterhead before making copies.

Dear Parents,

We are starting a new science unit on matter and energy. We will be developing the idea that matter is the stuff from which all common and familiar objects and materials are made. Energy is usually defined as the ability to do work. In this unit we will come to know energy as the causal agent behind every action or activity. We will explore sources of energy, such as the Sun, batteries, fuels, and food and identify forms of energy, such as electricity, heat, light, sound, and moving masses.

The two attributes that we will use to define matter are mass and volume. In order to communicate mass and volume effectively, we will learn to quantify mass and volume in grams and liters, the standard units in the metric system. In order to quantify heat energy effectively, we will learn to measure temperature in degrees Celsius, the standard unit in the metric system.

Our study of matter will extend to phase change, including melting, the change from solid to liquid, and evaporation, the change from liquid to gas. Your child is probably familiar with phase changes in water (ice to water to water vapor), but may appreciate for the first time that these processes apply to thousands of materials, ranging from oxygen to rock.

You can help your child by asking him or her to share the ideas we are working on so you can extend the ideas to matter and energy in your home. I will be sending home some simple assignments that should prove interesting for the whole family. These might stimulate some interesting conversation and possibly an investigation of your own that relates to the science work we are doing in class.

Sincerely,

MATH EXTENSION—PROBLEM OF THE WEEK

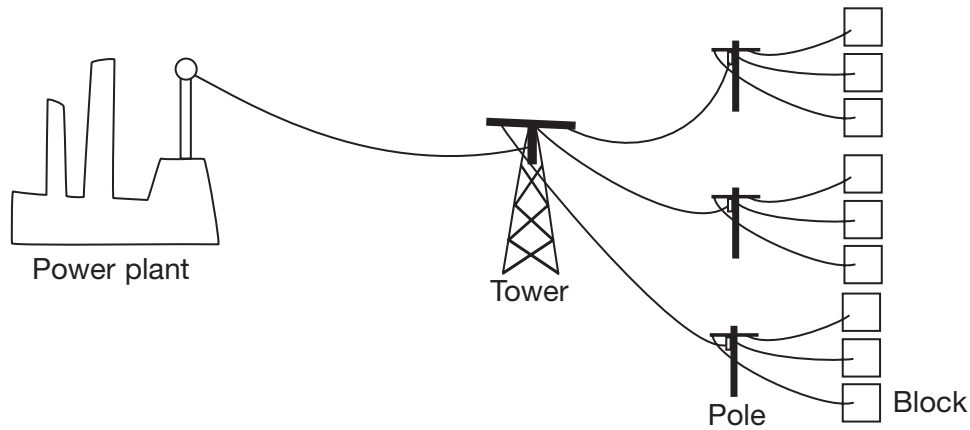
INVESTIGATION 1: ENERGY

Power plants generate electricity used by people in the city.

Electricity travels on wires from the power plant to towers.

One tower can supply electricity to three poles.

One pole can supply electricity to three blocks of houses.

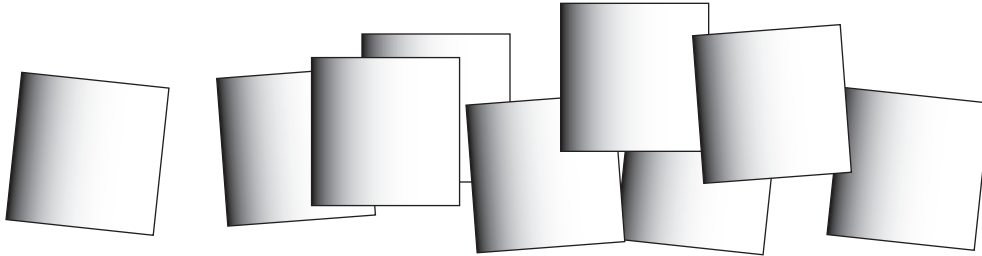


1. A power plant supplies electricity to 5 towers.
 - How many poles can receive power?
 - How many blocks of houses can be served?

2. The city wants to put in 27 new blocks of houses. How many poles will they need?
How many towers will they need?

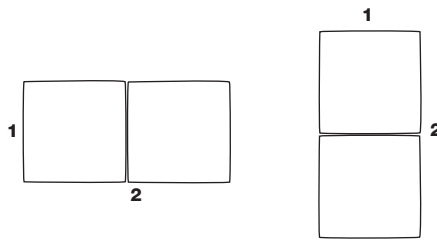
MATH EXTENSION—PROBLEM OF THE WEEK**INVESTIGATION 2: LIGHT**

Gabriela has nine **square** mirrors.



How many different sizes of rectangles can she make using her mirrors? She can use any number of the nine mirrors to make a rectangle. (You can use square tiles to help you solve this problem.)

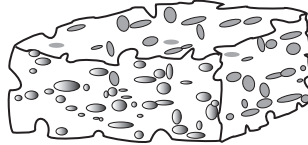
Note: These two rectangles have the same dimensions, so they count as one rectangle.



Record your rectangles and label the length and width.

MATH EXTENSION—PROBLEM OF THE WEEK**INVESTIGATION 3: MATTER**

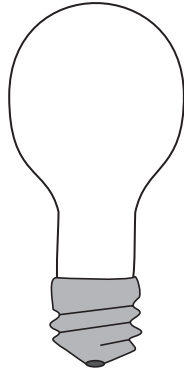
A 1-gram sponge can soak up 5 g of water.



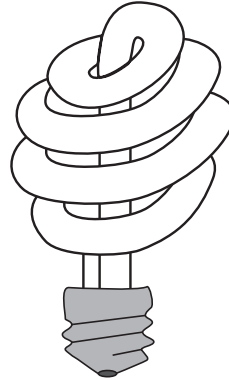
1. How many grams of water can a 40-g sponge soak up?
2. What is the mass of a sponge that can soak up 150 g of water?
3. How many grams of water can a 25-g sponge soak up?
4. If you have a 40-g sponge, how many soaks will it take to soak up a liter of water?

HOME/SCHOOL CONNECTION**INVESTIGATION 1: ENERGY**

Lightbulbs are rated by the amount of energy they use. The unit of electric power is the watt.



Older style



Newer style

Record the watt rating for each bulb you can easily check. You may be surprised by the low wattage of the newer kind of bulbs that look like rope. Add up the total watts used by the lights you are able to check.

Safety Note. Only check bulbs that are turned off and not hot.

Lightbulb location	Style	Watts
Total watts		

HOME/SCHOOL CONNECTION

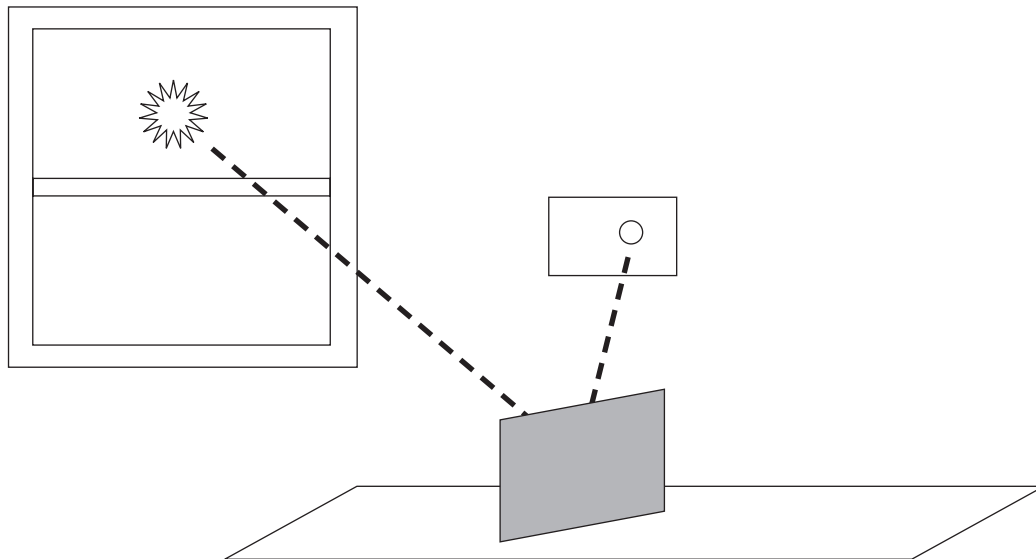
INVESTIGATION 2: LIGHT

Observe Earth Turning

The Sun seems to move across the sky because Earth is turning on its axis. You can use a mirror to observe the movement. Here's how.

Find a window where light from the Sun shines in. Position a mirror to reflect sunlight onto a wall. Tape a piece of paper there. Mark the center of the reflection of the Sun. Wait 10 minutes and mark the center of the reflection again. Did the reflection move? Why?

Safety Note. Never look directly at the Sun or reflect sunlight in a person's eyes. Both can damage eyes.



Name _____

Date _____

HOME/SCHOOL CONNECTION

INVESTIGATION 3: MATTER

Estimate Mass and Volume of Home Products

Find five packages of solid food, such as rice or cereal. Also find five liquid containers, such as fruit juice or dishwashing detergent. Estimate the mass of the solid products in grams and the volume of the liquid products in milliliters. Then check the labels to see how accurate your estimates are.

Solid products	Mass estimate	Mass from label
Liquid products	Volume estimate	Volume from label