

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.

After we study matter and energy concretely, I will introduce the atom as the small particles of matter from which all objects are made. We will incorporate the atomic theory into our explanations for the phenomena we see. We'll learn that there are more than 100 kinds of atoms, some created in laboratories and the rest occurring naturally, each representing an element in the periodic table of the elements.

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,

Name _____

Date _____

HOME/SCHOOL CONNECTION

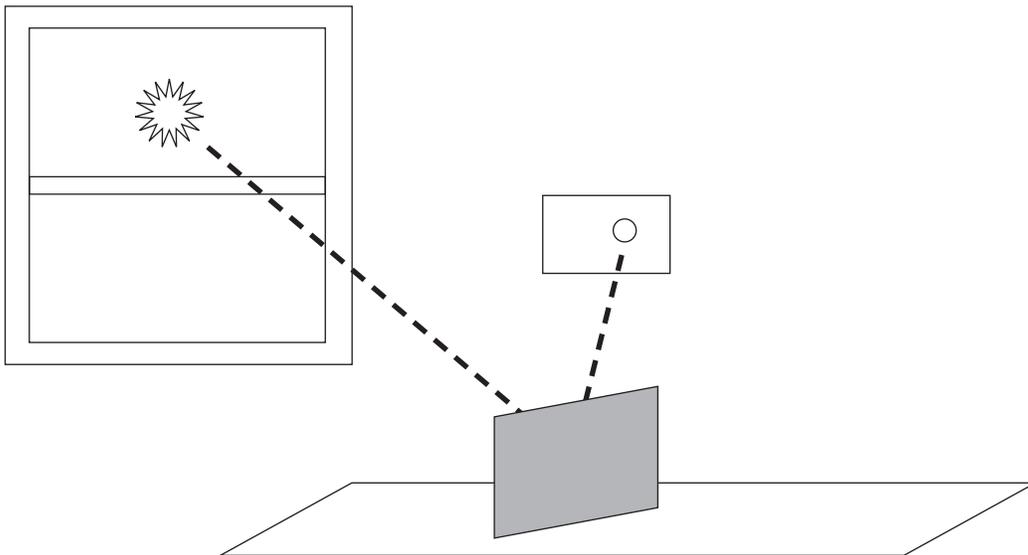
INVESTIGATION 2: LIGHT

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, and 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

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Science News

Dear Parents,

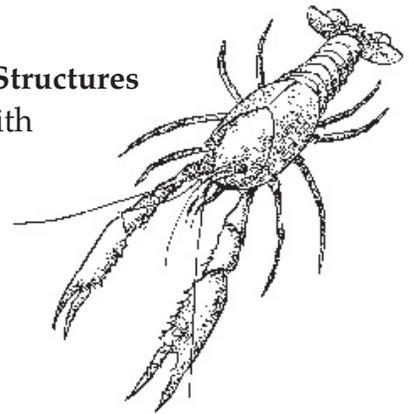
Our class is beginning a new science unit using the **FOSS Structures of Life Module**. We will be sharing space in our classroom with plants, crayfish, and land snails. It looks as if we have an interesting and exciting couple of months ahead.

In this module, children investigate the structures and behaviors of living things. You can increase your child's understanding and interest by asking about the investigations at school and by providing experiences at home. You might search for and count the seeds found in various fruits and vegetables as you prepare dinner (children will learn that all plant parts that hold seeds are technically fruits). You could grow plants from seeds, grow and eat edible sprouts, and look for the fruits and seeds of plants in your neighborhood.

Later we will be taking care of crayfish and land snails. Anything could happen, from eggs appearing to shells molting as crayfish grow. If you happen to see other animals when you are out and about with your child, you might take a moment to watch what they do, or take note of some interesting features of an animal's body. How might that behavior or body structure help the animal survive? Together, you become scientists searching for clues!

Watch for Home/School Connections. Your child may bring home one or more of these homework sheets, providing an opportunity for the whole family to look more closely at the structures of life around you.

Our classroom will be even livelier than usual in the next several weeks. If you have any questions or comments, call or come in and visit our class.



Sincerely,

HOME/SCHOOL CONNECTION

INVESTIGATION 1: ORIGIN OF SEEDS

Where there are plants, there are seeds. Take a family walk around the block or to a park. Look for seeds. Weeds are famous for producing lots of seeds—that’s one reason they are so successful.

Make a seed collection. Stick a few seeds in the spaces on this sheet with a drop of glue or a bit of tape. If you know the name of the plant the seed came from, write it in the space above the seed.

Look at each seed and try to figure out how it might move from the parent plant to a new location to grow.

Look for seeds in fruits that you eat. Stick a food seed on the sheet, too.

SEED COLLECTION

SAFETY NOTE: Although most plants are harmless, some can cause allergic reactions. Use care to select your seeds. Don’t eat anything you collect, and wash your hands after handling the seeds or plants.

HOME/SCHOOL CONNECTION

INVESTIGATION 2: GROWING FURTHER

Do you have houseplants in your home? Can you figure out why they are called houseplants? How do houseplants get the things they need to live, like water and nutrients?

Take a neighborhood field trip. Look for a plant that has all of the parts listed below. Put a check in the appropriate squares to describe the plant. If you find a weed that is OK to dig or pull up, look at the roots, too.

The plant: is the plant tall or short?

Stems: are the stems long or short?

Seeds: does the plant have many or few seeds?

Flowers: does the plant have big or small flowers?

Roots: does the plant have one main root or many?

Leaves: are the leaves big or small?

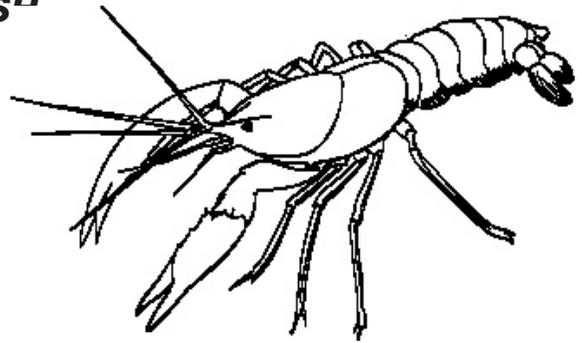
Others: is the plant by itself or with others of its kind?

Is there anything else interesting about the plant? Draw a picture on the back of this sheet.

SAFETY NOTE: Although most plants are harmless, some can cause allergic reactions. Examine your samples with care. Don't eat anything you collect, and wash your hands after handling the plants.

HOME/SCHOOL CONNECTION

INVESTIGATION 3: MEET THE CRAYFIS



The kingdom of animals is subdivided into a handful of groups called phyla. All the animals in a phylum share fundamental similarities. For instance, humans are in the same phylum (Chordata) with the other mammals, birds, and snakes because all have backbones.

Crayfish are in the phylum Arthropoda. The name means jointed legs. Arthropods include crayfish, crabs, shrimps, scorpions, spiders, centipedes, and insects. The most common arthropods on Earth are insects. You should be able to find one (or several) insects to compare to the crayfish we have been studying in class. You may need a hand lens to look closely.

Safety note: While most insects and insect relatives are harmless, some can sting (bees, wasps, ants), and some can bite (spiders, centipedes). Observe closely without touching.

- A large, live insect is best if you can corral one for a while in a jar. You might be able to catch a cricket, roach, or grasshopper.
- Look on window sills or in light fixtures for dead insects.
- Find a small insect (or their kin) under a rock or in some other hiding place: an ant, spider, isopod, beetle, or other live critter.
- Remember to return the live insects to their habitat after you observe them.

	CRAYFISH	INSECT
How many legs?		
How many antennae?		
How many eyes?		
What kind of tail?		
How many wings?		
What kind of mouth?		
How many leg joints?		

Discuss with your family how these structures help the crayfish and insect survive.

LETTER TO PARENTS



Dear Parents,

We are about to begin a study of objects in the sky—the Sun, Moon, and stars. We'll start with the Sun and use a variety of tools to observe and record its position in the sky. To orient our observations, we'll use a compass. And to monitor the Sun, we will use our shadows. While we use the language that the Sun rises in the east and sets in the west, we know that it really isn't the Sun moving but the rotation of Earth on its axis that makes it appear that the stationary Sun is moving across the sky. We will be studying the predictable pattern of the Sun as it travels across the sky during the day and during different seasons.

Then we will study the Moon. We will start as a class by observing the Moon during the day and follow that up with night-sky observations. Since we aren't in school at night, this must be a homework assignment. As a bridge to what we have been studying in class, students will look for the Moon and other objects in the night sky when they are at home.

To make night-sky observations, take your child outside at about the same time each evening (when it's dark) and observe the sky. Take a few minutes to enjoy the night sky together. Talk about what you see. For example, if it's cloudy, you won't see anything but clouds. If it's clear, you will see stars (you might want to point out a constellation or two), planets (points of light that appear larger and brighter than stars), and sometimes the Moon. Discuss the changes in the night sky from night to night, especially the changing appearance of the Moon, and where you see it in the sky. (You can check your local newspaper to find out when it rises.)

Have your child record his or her observations on the Night-Sky Log (sample below) when I send it home, and bring it to school on the following Friday morning. To complete an entry, your child records the date and time. Have your child write a few sentences about what he or she observed and draw a picture to show what the Moon looks like.

Thanks for your help! And look for the Night-Sky Log coming home soon.



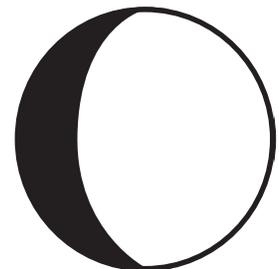
MONDAY Date February 28 Time 6:10 p.m.

Observations _____

The Moon was oval. It was high in the sky.

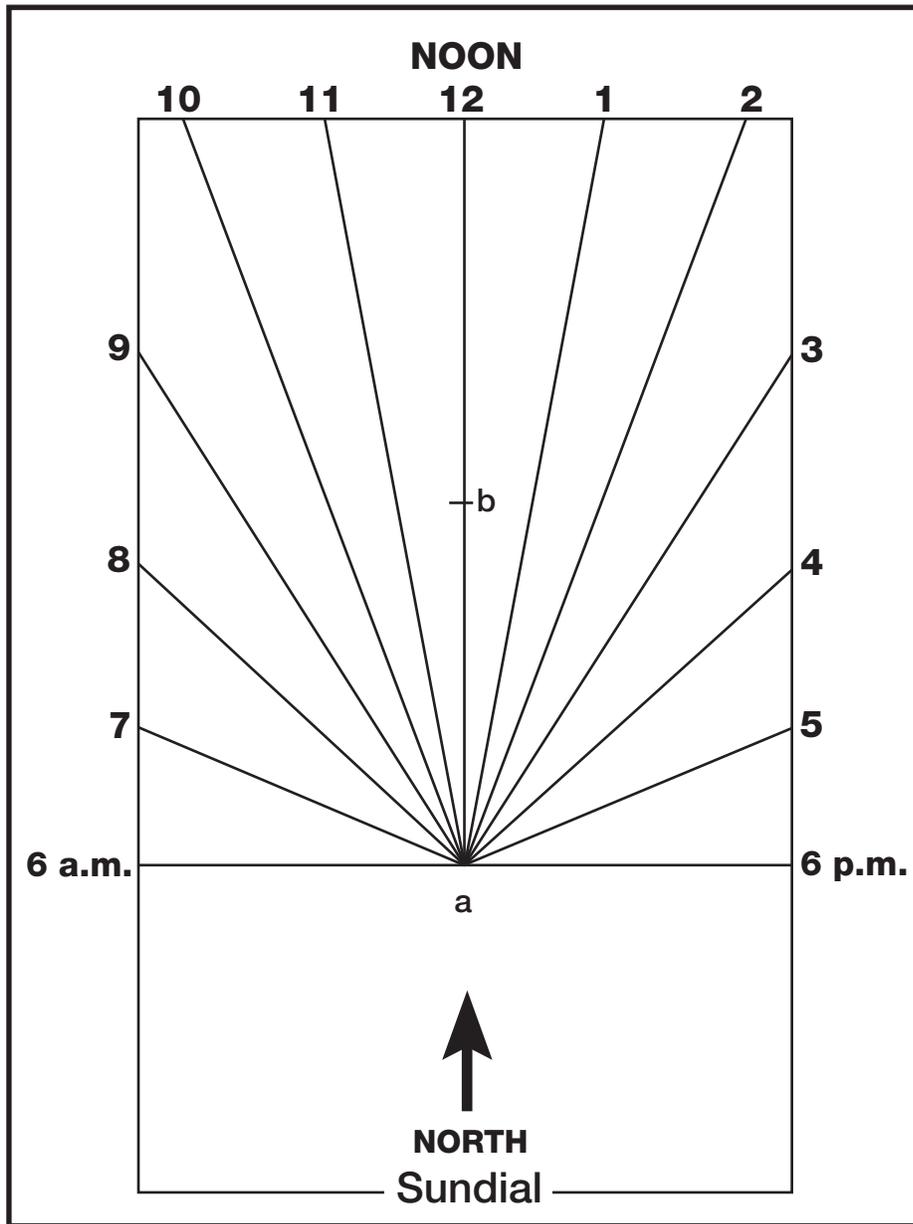
There were lots of stars.

One star in the west was brighter than the rest.

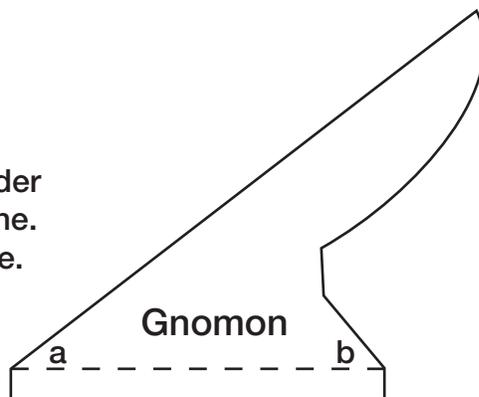


HOME/SCHOOL CONNECTION

INVESTIGATION 1: THE SUN



Fold tab under on dotted line. Tape to base.



Sundial Pattern

This sundial works best at 38° N latitude, the latitude of San Francisco Bay.

Materials

- Cardboard (tagboard or file folder)
- 1 Scissors or mat knife
- 1 Protractor
- Glue and transparent tape
- 1 Compass



Directions

1. Glue the pattern to a piece of cardboard.
2. Cut out the sundial and the gnomon.
3. Tape the gnomon tab to the sundial on the 12:00 line, matching points *a* and *b*.
4. Place the sundial on a level surface outside. Use a compass to help align the noon end of the sundial towards the North. You can fine-tune the sundial by comparing the time you see on the sundial to the time on a watch. If there is a difference, turn the sundial until the times most nearly match. When you get the sundial adjusted, you might want to mark the location with some chalk. When you place the sundial back in the same position, it should give you an accurate time.

HOME/SCHOOL CONNECTION

INVESTIGATION 2: THE MOON

The full Moon was a monthly beacon in the night sky for Native Americans and early pioneers. Over the years each full Moon acquired folk names that had seasonal or other significance. Some are obvious, like the Harvest Moon of September. Others are more mysterious. Read through the list of names and try to guess why each full Moon got that name. Most full Moons have two or more names.

Make up your own list of names for the full Moons. Bring your list to school to share.

Month	Folk Name
January	Moon after Yule, Old Moon
February	Snow Moon, Hunger Moon, Wolf Moon
March	Sap Moon, Crow Moon
April	Grass Moon, Egg Moon
May	Planting Moon, Milk Moon
June	Rose Moon, Strawberry Moon
July	Thunder Moon, Hay Moon
August	Green Corn Moon, Grain Moon
September	Fruit Moon, Harvest Moon
October	Hunter's Moon
November	Frosty Moon, Beaver Moon
December	Moon before Yule, Long Night Moon