Dear Parents,

Balance and Motion is the new unit we are studying in science. We will be studying the motion of objects, including vibrations and sound. We will be observing, and comparing how objects balance, spin, and roll, and communicating orally and in writing the things we discover. The processes of observing, communicating, and comparing are important thinking processes that your child will be using during our investigation of motion.

We will start by learning metric linear measurement. We’ll explore the need for standard units, and work with the metric units and tools used by scientists worldwide. Our goal is that the metric concepts will have their own frame of reference in your child’s mind, and that in time he or she will think metric. For example, the meter is about the distance from the floor to a typical doorknob. A pinkie finger on a small person is about 1 cm wide.

Your child may be interested in trying some things at home. You might want to tie a string between two chairs and see how many paper cups, craft sticks, and other objects you can balance (use clothespins for counterweights). You could make a big mobile by suspending a broomstick and hanging things from it, or make spinning tops out of shafts and disks. Or make a zoomer as described on the Home/School Connection I’ll be sending home in a few weeks. Check your local toy store for tops and other spinners. The possibilities are endless, and your child can be your guide.

We’re looking forward to our new unit on balance and motion to provide lots of learning and lots of fun!

Sincerely,
Dear Parents,

This activity deals with the need for standard units of measure. Work with your child to make a list of five objects to measure. Then both parent and child measure each object using some part of a hand. One example, you might use a thumb-to-pinkie unit to measure the length of a table.

Have your child fill in the chart below, then answer the question at the bottom of the page. Be sure names are written in the column headings.

<table>
<thead>
<tr>
<th>OBJECT</th>
<th>UNIT</th>
<th>(STUDENT)</th>
<th>(HOME PARTNER)</th>
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Look at the chart above. Do you think it’s a good idea to use parts of your hand as a measuring unit? Why or why not?
HOME/SCHOOL CONNECTION

INVESTIGATION 2: BALANCE

Dear Parents,

In class, we have been exploring balance. We’ve learned how to balance all kinds of shapes by adding clothespins, which act as counterweights. Here are some fun movements to explore together and some questions to ask your child that might lead to interesting discussions about balance, weight, and counterbalance.

Try this!

• Compare standing on one foot with your eyes closed and with your eyes open.
  Which is easier? Why do you think that might be?

• Compare standing on one foot, standing on two feet, and sitting on the floor.
  Which do you think is the most stable—easiest to maintain balance without falling over? Why do you think that might be so?

• Stand with your heels against a wall. Now bend over to pick up an object on the floor.
  What happens? Why do you think it happens?

• Try to get up from a chair without moving your hands or leaning.
  What happens? What do you need to do to get up?
ZOOMERS: Traditional zoomers are made from a button and a piece of string. The string is strung through the button holes and tied to make a loop. When you twirl it around to put a twist in the string and pull it tight to unwind, the button will spin.

TOP: Cut a 13- or 15-cm (5- or 6-inch) circle from a piece of cardboard. Poke a hole in the center big enough for a pencil or felt-tipped pen.

Some things to try
• Add more cardboard disks to the top.
• Compare zoomers made with a big and a little button.
• Add a spinning design to a top or zoomer.
  (The best way to see the spinning design on a zoomer is to reorient the zoomer by bringing one hand in front of your face and moving the other hand away from you. Make the zoomer go fast or slow and watch the design change.)
• Make tops from different materials.
• Try anything you can think of—be curious!

What did you make?
What did you try?
What happened?
Look for things that roll or spin in your home or neighborhood. Rollers and spinners might be found in any room of the house, in a tool box, in a toy box, or outside. Two examples are given to start off your hunt.

Rollers

- car wheels

Spinners

- water going down the drain
HOME/SCHOOL CONNECTION

INVESTIGATION 5: BACK AND FORTH

Make good vibrations. Put together a tinker’s band with family and friends. Make as many different kinds of sounds and as many pitches as you can with everyday objects around the house. Try to make a diatonic scale.

\textit{do, re, mi, fa, sol, la ti, do.}

Things to try out for the band might include

- Bottles, with and without water.
- Bowls, glasses, and pitchers.
- Tin cans.
- Cook pots and fry pans.
- Lids for cook pots and fry pans.
- Bolts or pieces of pipe hanging from strings.
- Pieces of wood.
- Strings, wires, or ropes pulled tight.

Make a list of the items you used to make each sound.

Play some tunes, either solo or in a combo with friends and family. Turn on the radio or some recorded music and play along. Make a sound recording of your own musical efforts. Bring the recording to class and have other students analyze the different sounds they hear and record them on a chart.
Dear Parents,

Our class is beginning a scientific study of insects and plants. We will be caring for and investigating several different insects, and growing a plant from seed, to discover secrets of their lives. Some of the insects that will be visiting our class undergo complete metamorphosis, as in the classic case of the butterfly—egg to caterpillar to chrysalis to butterfly. Other insects reach maturity by growing through a less dramatic sequence of stages in a process known as simple metamorphosis. The plant we will grow will go through its full life cycle—seed to plant to flower to seed, in just one month. Your child may demonstrate a heightened interest in insects and plants over the next several weeks.

One goal of our work with insects is to help the children develop a deeper appreciation for the diversity of life and to cultivate a sense of respect for all living things. If your child wants to catch an insect in a jar, please invite your child’s insect friend into your home for a short time, and encourage him or her to return the insect to the wild after a short captivity. If you are interested in seeing what we have going on, as usual you are invited to visit and take part in the excitement. We’re looking forward to lots of fun and lots of learning as we explore a world full of insects!
NEWS FLASH!
Today we received a new insect. It is a ________________
Here are three facts about it.

1. ______________________________________________________________________
   ______________________________________________________________________
   ______________________________________________________________________

2. ______________________________________________________________________
   ______________________________________________________________________
   ______________________________________________________________________

3. ______________________________________________________________________
   ______________________________________________________________________
   ______________________________________________________________________

(drawing)
Dear Parents,

In class, we are observing special fast-growing brassica plants. The family of brassica plants includes many plants that we enjoy at our table and see in the market.

Next time you go shopping with your child, please take this checklist and a pencil with you. Ask your child to check off any of the following brassica plants that he or she can find.

- mustard
- brussels sprouts
- kohlrabi
- bok choy
- turnips
- broccoli
- white cabbage
- red cabbage
- collard greens
- kale
- cauliflower
- chard
Insects are everywhere! Look outside on the ground, under water, and in the air. Here are some useful tools.

- a spoon for crawling insects
- a net for swimming or flying insects
- a jar to hold insects

**Insects need space.** Some insects will bother other kinds of insects. Keep them in separate jars.

**Insects need food.** Most insects eat plants, and only a few kinds of plants. Most likely, the plant you found the insect on is the kind of plant it eats. Include a leaf or two from the plants that are closest to the insect.

**Insects need air.** Cover the jar with cheesecloth or part of an old nylon stocking, or use a nail to make holes in the lid of the jar with an adult’s help.

**Insects need water.** Some insects get water from sucking the juice from seeds or plants. Some get it from the dew. Spray the inside of your jar with water, or add a slice of apple or orange.

Insects are fascinating to watch. However, they will not live for long in a jar. Plan to release them after a few hours or a day. If possible, put them back on the same plant you found them on, so they'll have the right food to eat.
Insects (and their relatives, like spiders) sometimes leave evidence that they have been at work around your home and neighborhood. Take a field trip to look for evidence, such as holes in leaves, cocoons, webs, and the like. Make a list of your discoveries.

<table>
<thead>
<tr>
<th>Evidence of Insects</th>
<th>Evidence of other animals</th>
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HOME/SCHOOL CONNECTION
INVESTIGATION 5: BUTTERFLIES

Round up a collection of craft materials, such as sticks, wire, paper cups, rubber bands, foam packing material, and foam rubber if you have some. Use the craft materials to make a model insect. You can choose to make a real insect or make up an insect of your own.

Remember to include all the parts that make an insect an insect. Will your insect fly or just crawl around?
Dear Parents,

Our class is beginning an earth science unit. We will be studying rock, one of the most important earth materials. Our investigations will center on the properties and uses of rock in many of its particle sizes—pebbles, gravel, sand, silt, and clay. The children will be working extensively with materials, observing, comparing, and communicating what they learn through their firsthand experiences with earth materials. We will also be investigating different kinds of soil and comparing soils we gather from our local community. At the end of the unit students will be introduced to what fossils are and what they tell us about the earth long ago.

Your child may ask for help finding a rock or two to contribute to our class rock collection. A rock from your yard or neighborhood is fine. As our study continues, your child will be learning more and more about rocks. Try to find opportunities to talk with your child about sand, gravel, and soil, and ways people use these materials in construction (asphalt, concrete, bricks, mortar, etc.) and landscaping. This is an engaging theme for a family outing.

We’re looking forward to lots of discoveries and new experiences as we explore the earth materials that can be found all around us. If you have any questions or comments, or have expertise you would like to share with the class, please write me a note.

Sincerely,
Invent a game that uses different kinds of rocks. It should use the properties of the rocks you have.

Here are some examples. The goal of the game could be to put together similar-looking rocks, like rummy. Or the goal could be finding one rock among many. Or the goal could be to find ways that rocks are the same, like the game of dominos or crazy eights. It could also be a brand new game that you invent.

Have a family member help you write the directions for the game so you can share it in class.
Play the I spy game. Gather five to ten objects that share a property and place them on a table. A set might be composed of pencils, pens, flatware, straws, and chopsticks because they are all long and narrow. A set of books and catalogs might constitute a second set, a collection of stuffed toys a third, and so on.

Two players play the game. First the two players organize the objects from smallest to largest. Then one player secretly chooses one object and compares it to the others: "I spy something that is bigger than _____ and smaller than ______." The second player guesses which object was chosen by player 1. If the guess is incorrect, player 1 provides a second "I spy" hint.

Swap roles and play again. Choose new sets of objects.
Rocks are used as building materials everywhere you look. We explored our school site for rocks in use. Where are rocks used in your neighborhood?

Go on a scientific field trip around your home. Let your child act as leader, pointing out where rocks can be found. Look for big rocks in walls and gardens, and tiny rocks, in the form of sand and gravel, in pavement, concrete, bricks, and lots of other places. List the rocks in use for your child to share with the rest of the class.
Our study of rock sizes led us to a study of soil. We now know that soil is mostly rock particles and some humus.

One important property of soil is its water content. Soil scientists often do tests to see how quickly water soaks into and passes through the soil. This is called permeability. Test and compare the permeability of soil in two or more places around your home.

Use a trowel or metal spoon to dig a shallow hole in the soil, maybe the size of a soda can, but not very deep. Pour in about a cup of water and time how long the water takes to completely soak into the soil. Compare flower beds, gardens, edges of lawns, paths, sandboxes, and so on. Keep track of the time needed to soak into different soils and collect a little sample of the soil.

Remember, in order to compare, the holes should be the same size, and the amount of water should always be the same.