Instruction For Copying

Answers are printed in non-reproducible blue. Copy pages on a light setting in order to make multiple copies for classroom use.

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Dear Parent or Guardian,

Today our science class talked about how to work safely when doing laboratory experiments. It is important that you be informed regarding the school’s effort to promote a safe environment for students participating in laboratory activities. Please review the safety rules and this entire Safety Contract with your child. This contract must be signed by both you and your child in order for your child to participate in laboratory activities.

**Safety Rules:**

1. Listen carefully and follow directions.
2. If you are not sure about doing something, ask your teacher.
3. Never run or throw anything unless instructed differently by the activity.
4. Never taste anything when doing a science activity.
5. Always wash your hands before and after an activity.
6. Cooperate with others when working in a group.
7. Always clean up when you have finished.

Date: __________

I have read and reviewed the science safety rules with my child. I consent to my child’s participation in science laboratory activities in a classroom environment where these rules are enforced.

Parent/Guardian signature: ______________________________

I know that it is important to work safely in science class. I understand the rules and will follow them.

Student signature: ______________________________
Estimados padres o tutor:

Hoy hemos hablado en nuestra clase de Ciencias sobre cómo mantener la seguridad al realizar experimentos científicos. Es importante que ustedes estén informados del propósito de la escuela de promover un entorno seguro para los estudiantes que participan en las prácticas de laboratorio. Por favor, examinen cuidadosamente con su niño o niña las reglas siguientes y el Acuerdo de Seguridad. El acuerdo debe ser firmado tanto por uno de ustedes como por su niño o niña para que él o ella pueda participar en las actividades de laboratorio.

**Reglas de Seguridad:**

1. Escucha con atención y sigue las indicaciones.
2. Si no estás seguro de algo pregúntale a tu maestro o maestra.
3. No corras ni arrojes ningún objeto a menos que sea parte de una actividad.
4. No te lleves nada a la boca ni lo pruebes cuando estés realizando una actividad de ciencias.
5. Lávate siempre las manos antes y después de una actividad.
6. Coopera con tus compañeros cuando estés trabajando en grupo.
7. No te olvides de limpiar cuando hayas terminado una actividad.

Fecha: __________

He leído y examinado las reglas de seguridad de ciencias con mi niño o niña. Doy mi consentimiento para su participación en las actividades del laboratorio de ciencias en un entorno donde se hagan cumplir estas reglas.

Firma de uno de los padres o tutor: _________________________

Sé la importancia que tiene trabajar con seguridad en la clase de Ciencias. Comprendo las reglas y me comprometo a seguirlas.

Firma del estudiante: _________________________
How can a frog float on a lily pad?

What to Do

1 Predict. Where should you place the frog on the lily pad so that the frog stays dry?

2 Make a Model. Color a paper plate green with a crayon. This will be the lily pad.

3 ▲ Be Careful. Use scissors to poke a small hole near the edge of the lily pad. Tie a six-inch piece of string through the hole.

4 Place the lily pad in a pan of water with the string below it.
5 **Record Data.** Draw and write down where you placed the frog.

________________________________________________________________________

________________________________________________________________________

________________________________________________________________________
What can carry clay on water?

In this activity, you will find something that will float while carrying a small ball of clay.

What to Do

1. **Predict.** What do you think you can use to carry a ball of clay on top of the water?

2. Look around the classroom and find an object that you think will float in a pan of water.

3. Put the object you chose into a pan of water, and place a ball of clay on top of it. Does the object float or sink?

What Did You Find Out?

4. Why do you think your object was or was not able to float?
How does a frog move?

What to Do

1 **Observe.** Look at the pictures on this page. Think about how the frogs are moving.

2 **Record Data.** Make a list of the different ways you see the frogs moving.

----------------------------------------

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3 **Draw Conclusions.** Add to your list. Write the body part the frogs use to move in each way.

<table>
<thead>
<tr>
<th>Body Part</th>
<th>Movement</th>
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4 **Communicate.** How do frogs move?

<table>
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<th>Movement</th>
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</table>
What lives in or near a pond?

In this activity, you will find out what lives in or near ponds.

What to Do

1. **Observe.** Look carefully at a picture of a pond.

2. **Record Data.** Write down what you observe about what lives in or near ponds.

3. **Communicate.** Discuss with a partner what you observed and the conclusions you drew about what lives in or near a pond.

What Did You Find Out?

4. How did recording what you saw in the pictures help you communicate your conclusions?
What do leaves need?

What to Do

1. Put the plants in a sunny place. Choose one plant and cover its leaves with foil. Keep the soil moist in both pots.

2. Predict. What will happen to each plant in a week?

You need

- two potted plants
- foil
3 Record Data  Write down what you observe for a week.

4 Were your predictions correct? What do leaves need?

_________________________________________________________________

_________________________________________________________________

_________________________________________________________________

Explore More

5 Predict. What will happen if the foil is removed? Observe the plant for a week. Was your prediction correct?

_________________________________________________________________

_________________________________________________________________

_________________________________________________________________
How do leaves help a plant get light?

In this activity, you will observe how the shape of leaves helps a plant get sunlight.

What to Do

1. **Compare.** Look at the pictures and compare the leaves of the plants. How are they alike? How are they different?

2. Hold out your hand in a sunny spot. Open and close your hand. Turn it from side to side. How do you need to hold your hand to get the most light?

3. **Compare** the shape of a leaf to the shape of your hand when you hold it out flat. How do the shapes of leaves help plants get sunlight?
Quick Lab

Compare Animal Traits

What to Do

1. Look at some pictures of dogs.

2. Compare. How are all the dogs alike?
   What characteristics do they share?

3. Compare. In what ways are the dogs different from one another?

4. How are other animals alike and different?
   Choose another kind of animal, such as birds, cats, or insects. Compare the characteristics the animals share. Look for ways the animals differ.

You need

- photos of different kinds of dogs

Chapter 1 • What Living Things Need
Activity Lab Book

Use with Lesson 1
A Look at Living Things
Observe

Learn It

To observe, you use your senses to learn about something. You use senses to see, hear, taste, smell, and touch.

Learn It

You can use some of your senses to learn about plants. You can make a chart to write down what you observe.

<table>
<thead>
<tr>
<th>Sense</th>
<th>Observation</th>
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<tbody>
<tr>
<td>see</td>
<td></td>
</tr>
<tr>
<td>feel</td>
<td>The leaves feel smooth.</td>
</tr>
<tr>
<td>hear</td>
<td></td>
</tr>
<tr>
<td>smell</td>
<td>The flowers smell sweet.</td>
</tr>
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</table>

jasmine
Try It

Find a plant to observe or look at the pictures below.

1. Does your plant have flowers? Which sense did you use to find out?

________________________________________________________________________

________________________________________________________________________

2. How do you think the leaves will feel to your touch?

________________________________________________________________________

3. Write About It. Find another plant and compare.

________________________________________________________________________

bougainvillea

yucca plant
Where do animals live?

What to Do

1 **Observe.** Look at the footprints below. What animal do you think made them?

2 **Infer.** How does the shape of its feet help this animal? Share your idea with a partner.

3 **Draw a picture of the animal and the place where it lives.**

You need

- paper
- crayons
Communicate. What other animals could live near this animal? What do they need to live? How do they get food and water? Make a chart.
How do animals get their needs where they live?

In this activity, you will observe and compare the ways in which animals get what they need in different habitats.

What to Do

1. Observe the animal picture your teacher gives you. Where does it live? What does it eat? What kind of home does it live in?

2. How does the animal take care of its needs in the habitat where it lives?

3. Compare. Show your animal to a partner and compare your ideas. Do animals that live in different habitats take care of their needs in the same way?
Describe a Habitat

What to Do

1. Look through a nature magazine to find a habitat that you would like to write about.

2. Use markers to draw the living things that you think would live in the habitat you chose.

3. Discuss your habitat with a partner. Do your habitats share any of the same living things?

You need

• nature magazines
• markers
Explore

Where do plants and animals live together?

What to Do

1 Observe. Look closely at a plant near your school. What animals can you find near, in, or on the plant?

2 Classify. In what kind of habitat are these living things found?

You need
• pencil
• paper
3 **Record Data.** Draw a picture of the habitat you observed. Label the plants and animals you found.

---

**Explore More**

4 **Communicate.** Read about a different habitat. How are the plants and animals there different from the living things you observed?
What do animals get from a tree?

In this activity, you will write names of animals that get what they need to live from trees.

What to Do

1 Communicate. Write what animals need to live.

2 Communicate. Think about animals that use a tree to live. What tree parts might be used? What might the parts be used for?

3 Record Data. Write some animals that get what they need to live from trees.
Local Habitats

What to Do

1. Research a habitat in Tennessee. Find out what plants and animals live in that habitat.

2. Pick two or three animals and plants from that habitat. Research how they depend on each other.

3. Draw your chosen habitat and show how the living things you researched depend on each other.

4. Share your drawings with the class.

You need

- Research books
- Tennessee nature magazines
- Access to classroom Internet
- paper
- crayons or markers
Infer

You infer when you use what you know to figure something out.

Learn It

Lianna and Gene watched each other walk, then run. They made a chart of each other’s footprints. Lianna and Gene used what they knew to figure out what the footprints can tell about their steps.
Try It

What can you figure out about animals from their footprints?

1. Look at the photos of the animal prints above. Tell what you can learn about an animal from its footprints.

2. Share what you infer with a classmate.

3. Write About It. Describe how you can use what you know to figure things out.
What do animals eat?

What to Do

1. The Sun makes plants grow. Which animals eat plants? Which animals eat those animals?

2. Draw the Sun on the yellow strip. Draw some grass and trees on the green strip. Then draw a bird on the red strip and a grasshopper on the brown strip.

3. Put Things in Order. Make a chain of strips. Glue them in their order as food.

4. Communicate. Describe the order of your chain with a partner.
Explore More

5 Repeat the activity with three other animals. Communicate how you put the animals in order and draw them below.

________________________________________

________________________________________

________________________________________

________________________________________
What belongs in all food chains?

In this activity, you will work with a partner to explore the differences between food chains.

**What to Do**

1. Choose a food chain and describe it below.

2. Compare food chains with your partner. How are they alike? How are they different?

3. What do all food chains have in common?
Quick Lab

Create a Food Chain Flow Chart

What to Do

1. Choose to make a land food chain or a water food chain.

2. Think of a very small animal for your food chain. Write it here.

3. Think of another animal that eats this animal. Write it here.

4. Think of a larger animal that eats the animal above. Write it here.

5. Draw the animals from smallest to largest. Draw arrows between them to make your food chain flow chart.

You need

- crayons
- paper
What are the parts of a seed?

What to Do

1 Observe. What does the outside of a dry lima bean feel like? Use a hand lens. What do you see?

2 Predict. Draw what you think is inside the seed.

You need

- wet lima bean
- dry lima bean
- hand lens
3 Use your fingernail to open the wet seed. Use your hand lens to observe the wet seed. Draw what you see.

4 Communicate. Compare your two drawings. What was different? What was the same?

Explore More

5 Observe. Look at other wet and dry seeds to see how they compare.
What are the parts of seeds?
In this activity, you will label the parts of a seed.

What to Do

1. Look at the diagram of the inside and outside of a bean seed.

2. Label the seed coat.

3. Label the area of the seed where food is stored.

4. Label the part of the seed where a new plant will grow.
Observe Apple Seeds

What to Do

1. **Observe.** Where are the seeds found in the apple? Why do you think they are found there?

2. Watch your teacher cut an apple in half.

3. Use a hand lens to observe the seeds. Draw what you see.

4. Discuss with classmates what you know about seeds. Why are seeds important?

You need

- apple
- knife
- crayons
- paper
Put Things in Order

When you put things in order, you tell what happens first, next, and last.

Learn It

Think about how a plant grows. Then look at the pictures and put them in order. You can use a chart to help you tell the order.

I plant a seed.  

?  

?  

The plant gets bigger.  

A seedling grows.  

I plant a seed.
Try It

Look at the pictures below.

beaver dam and pond  beaver cutting trees  stream in the woods

1 What picture comes first? Next? Last?

________________________________________________________________________
________________________________________________________________________
________________________________________________________________________

2 Write About It. Write about what happens to the stream and the woods when beavers build a dam.

________________________________________________________________________
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Chapter 2 • How Living Things Grow
Activity Lab Book

Use with Lesson 1
Plants Make New Plants
How do frogs change as they grow?

What to Do

1. Look at the photos of the frog life cycle.

2. How does the frog look at each stage? Write down characteristics of the frog egg, tadpole without legs, tadpole with legs, and adult frog.
Explore

3 Compare. How did the frog change? Make a Venn diagram to compare the tadpole without legs and the adult frog.

Expanding Image

Step 3

Explore More

4 How are the life cycles of a frog and a butterfly alike?
How can you compare baby and adult animals?

In this activity you will observe and compare baby and adult animals.

What to Do

1. **Classify.** Sort your pictures into two groups. You should have an adult group and a baby group.

2. **Observe.** Work with a partner to carefully observe what the baby animals look like and what they are doing in the pictures.

3. **Observe.** Look carefully at the pictures of the adult animals and observe what they look like and what they are doing in the pictures.

What Did You Find Out?

4. How are some baby animals and adult animals the same? How are they different?

__________________________________________________________________________

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Act Out an Animal Life Cycle

What to Do

1. Work with your group to decide which animal’s life cycle you want to act out. Look in Chapter 2, Lesson 2 of your book for ideas if you are unsure of how the life cycle works.

2. Communicate. Study the animal you want to act out so that you can communicate and act out the life cycle to others.

3. The first step in a chicken’s life cycle is an egg. How can you act like an egg? Try it out!

4. How are the life cycles of animals the same and different?

You need

- various materials for children to use for skits
How does a mealworm grow?

Find out how a mealworm grows and changes.

What to Do

1. Put some oatmeal in the container. Poke holes in the lid.

2. Observe. What does a mealworm look like? Use your hand lens to observe the mealworm. Place a mealworm and an apple slice in the container.

You need

- oatmeal
- container with lid
- hand lens
- mealworm larva
- slice of apple
- ruler
3 Record Data. Measure your mealworm every two days. Be gentle with the mealworm. Write about how it changed. Be careful. Remember to wash your hands.

4 Predict. How long do you think your mealworm will grow? How do you think it will change?

Investigate More

Compare. Observe another mealworm. How are the two worms alike and different?
How are children and their parents alike?

What to Do

1. Cut out pictures of at least three families from magazines.

2. Observe. Look at the adults in all the pictures. How do they look alike?

3. Compare. How do the children from different families look alike? How do they look like the other children in their family?
4 Draw conclusions. Which characteristics do most children share? Which characteristics do most adults share?

Explore More

5 Infer. Do some offspring share characteristics with their parents? Create a graphic organizer to illustrate that children and parents can have shared characteristics.

[Diagram of Venn diagram showing Child and parent circles intersecting]
Attached or Not Attached?

In this activity, you will find out about the earlobes of family members.

What to Do

1. **Record Data.** Write the names of your family members in the table below. Don’t forget yourself.

2. **Record Data.** Which family members have earlobes that are attached? Which do not? Make an X to show.

<table>
<thead>
<tr>
<th>Name</th>
<th>Attached</th>
<th>Not Attached</th>
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3. **Use Numbers.** Do more family members have earlobes that are attached or not attached?

4. **Use Numbers.** How do your results compare with others in your class?
Quick Lab

Compare How You Have Changed as You Have Grown

1. Look at your baby picture. Compare it to the way you look today. What has changed?

   ____________________________________________

   ____________________________________________

   ____________________________________________

   ____________________________________________

2. Compare the pictures of the child at different ages from baby to seven-year-old. How has the child changed?

   ____________________________________________

   ____________________________________________

   ____________________________________________

   ____________________________________________

You need
• pencil
• paper
• baby pictures
• pictures of other children at various stages: baby, toddler, five-year-old, seven-year-old
Explore

How do living things survive in a forest?

What to Do

1. **Make a model** of a forest. Place soil, a plant, and rocks in a bottle.

2. Water the soil. Add a pill bug. Cover the bottle with plastic wrap. Poke holes in it. Place near a window.

3. **Observe** your model. Record on a chart how it changes.

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<th>My Model Forest</th>
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<tr>
<td><strong>Day</strong></td>
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<td>3</td>
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<td>4</td>
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<td>5</td>
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You need
- soil
- plant
- plastic wrap
- rocks
- plastic spoon
- pill bug
Explore More

Make a model of the forest in winter. Draw a picture to show how it would change.
How do animals live in a forest?

In this activity, you will draw and write about how animals live in forests.

What to Do

1. Draw a picture of a forest.

2. What are three animals that live in the forest?

What Did You Find Out?

3. How do the animals in the forest get the things they need to live?
Earthworms

What to Do

1. Carefully place a worm onto a tray. Use a hand lens to observe the worm’s behavior.

2. How does the worm move?

3. Where do worms live? How can they be an important part of their habitat?

4. Draw animals that live on the forest floor.

You need

- tray
- hand lens
- worm
How do animals survive in a water habitat?

What to Do

1. Cut out pictures of two water habitats from a magazine.

2. Make a chart with two columns. Label the columns with the names of the habitats.

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3. **Infer** the characteristics that living things would have in each habitat.
4 Compare the characteristics for the two habitats. How are they alike? How are they different?

__________________________________________________

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__________________________________________________

Explore More

5 Draw conclusions. How do the characteristics of these animals help them survive in their habitat?

__________________________________________________

__________________________________________________

__________________________________________________
What lives in a freshwater habitat?

In this activity, you will classify animals by the kind of freshwater habitat in which they live.

What to Do

1. **Observe** the photos of animals, sort the photos into groups of animals that live in ponds or lakes and groups of animals that live in rivers or streams.

2. **Record data.** How are the animals that live in ponds or lakes like those that live in rivers or streams? How are they different?

What Did You Find Out?

3. Research two or three animals in your pictures to find out how they are alike and different.
Model a Swim Bladder

What to Do

1. Fill a clear tub with water.

2. Fill the bottle halfway with water and screw on the cap. Put the half-filled bottle in the tub of water and observe what happens.

3. Change the amount of water in the bottle and repeat the experiment. What happens this time?

You need

- tub of water
- plastic bottle with cap
What happens when habitats change?

What to Do

1. On a large sheet of paper, draw a large meadow, woods, and a river.
   Place the animals where they would live.

2. Use blocks as houses and buildings. Build a town with houses and stores.

3. Observe. What happens to the meadow, the woods, and animals that live there?
5 Infer. How does building a town affect animals, meadows, woods, farms, rivers, and people?

________________________________________________________________________

________________________________________________________________________

________________________________________________________________________

Explore More

6 Predict. What will happen if a highway is built?

________________________________________________________________________

________________________________________________________________________

________________________________________________________________________
What can change habitats?

In this activity, you will draw a habitat and make it change.

What to Do

1. On a separate piece of paper, draw a picture of land, trees, and small animals that live in a habitat.

2. Draw a town or city over your land with a dark marker. Include roads, houses, and stores.

What Did You Find Out?

3. **Infer.** How did the buildings and roads change the environment?

________________________________________________________________________

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________________________________________________________________________
Habitats Change

What to Do

1. Think of all of the different habitats that you know, and choose one. Which habitat did you choose?

2. Describe one way that your habitat can change.

3. Draw a three-panel comic strip showing how your habitat can change. The three panels should show what your habitat looks like before, during, and after it changes.

You need
• crayons
• paper
Why can’t we see the Sun at night?

What to Do

1. Stand 12 steps away facing a partner.
2. Point a flashlight at your partner. The flashlight is the Sun. Your partner is Earth.
3. **Predict.** Let your partner turn around slowly in front of the flashlight. Will he or she always be able to see the light? Try it.

---

**You need**
- flashlight
**Infer.** How does this model show why we cannot see the Sun at night?

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**Explore More**

**5 Make a Model.** What pattern is made when your partner turns around in front of the flashlight three times? Try it.

________________________________________________________________________

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________________________________________________________________________
Where is it day and night on Earth?

In this activity, you will identify where it is day and night on a globe.

What to Do

1. **Observe.** Shine a flashlight on a globe. Where is it day? Where is it night?

2. **Make a model.** Find your hometown on the globe and mark it with a pin. Use the flashlight to show your town during the day. Then rotate the globe to show your town at night.

What Did You Find Out?

3. What causes the change from day to night and back to day again?
Quick Lab
Name ____________________________ Date ___________

Make a Flip Book

1. On each index card, draw a horizon line about an inch from the bottom of the card. Stack the cards and staple the top two corners.

2. Draw a Sun on the left side of the first card. Draw the same Sun on each card, moving it slightly to the right every time.

3. Flip through the book. Observe how the Sun seems to move across the sky. What does this movement look like?

You need
- index cards
- markers
- stapler
Inquiry Skill: Draw Conclusions

Learn It

When scientists draw conclusions, they use what they observe to explain what happens.

Linda looks at this picture.

She sees the lights on and the dark sky. Linda has seen some of the houses before. She draws the conclusion that this picture was taken at night in her town.

Try It

Observe the lengths of shadows. Then draw conclusions about the time of day.

Push a stick straight into a pot of dirt. Place the pot in a sunny spot.
2 Look at the stick at different times of day. Sit in the same spot each time. Draw the Sun, the stick, and the shadow. Write the time of day on each drawing.

3 Compare. Talk to your partner about how the shadows changed. When was the shadow longest?

4 Draw Conclusions. What does the time of day have to do with the length of shadows?
How do we see the Moon at night?

What to Do

1 Use a white ball as the Moon. Turn off the room lights. Is it easy to see the Moon?

2 Make a Model. Shine a flashlight on the Moon. The flashlight is the Sun. Is the Moon easier to see now? Why?

You need
- flashlight
- white ball
3 **Draw Conclusions.** Where does the Moon’s light really come from?

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**Explore More**

4 **Investigate.** What if the Moon were a different color? How would that affect the brightness of the Moon? Make a model to find out.

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What makes the Moon visible from Earth?

In this activity, you will compare different colored rocks against a dark background to model the Moon in the night sky.

What to Do

1. Compare. Place rocks of different shades on a piece of black paper and see which rocks blend in and which stand out.

2. Turn out the lights. Talk with a partner about how easy or hard it is to see the rocks.

3. Stand far away from the rocks and shine a flashlight on them. Can all the rocks be seen? Which rock is easiest to see?

What Did You Find Out?

4. Draw Conclusions. Which rock is most like the Moon? Why?
Quick Lab

A Look at Stars

1 Observe. With an adult, go outside at night and observe the sky. What date and time are you observing the sky? Draw what you see.

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2 What shape was the Moon? How many bright stars were there?

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3 Share your observations with a classmate.
How does the Moon seem to change during one month?

Find out how the Moon seems to change shape each week.

What to Do

1. **Observe.** Look outside tonight. Find the Moon in the night sky.

2. **Record Data.** Draw what the Moon looks like on today’s date on the calendar.

3. Repeat steps 1 and 2 each night for a month.
4. When did you see a full moon during the month? When did you see a new moon?


5. **Draw Conclusions.** What do your drawings tell you about the phases of the Moon?


**Investigate More**

**Predict.** How do you think the Moon will look in the sky during the next month? Test your idea. Compare it to the calendar for this month.
How can we sort rocks?

What to Do

1 **Observe.** Look at your rocks with a hand lens. Describe what you see. How are they alike? How are they different?

2 **Classify.** Put your rocks into groups. Write your groups on a chart on a separate piece of paper. Record how many rocks are in each group.
3 Communicate. Share your chart with a partner. Discuss how you put the rocks into groups.

Explore More

4 What other ways can you classify rocks?

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Are all rocks alike?

In this activity, you and a partner will compare rocks.

What to Do

1. You and a partner should each select a rock. Observe their color, shape, and feel.

2. **Compare.** How is your rock similar to your partner’s rock? How is it different?

What Did You Find Out?

3. How are rocks different from each other?

4. Why do you think so many different rocks exist?
Quick Lab

Name ___________________________ Date ____________

Observing Minerals

What to Do

1. Work with a partner. Choose a rock and observe it with a hand lens.

2. Describe your rock. How many minerals do you see? What colors are the minerals?

3. Work with another pair and compare your rocks. Show how your rocks are alike and different using a Venn diagram.

You need

- assorted rocks
- hand lens

[Diagram of Venn diagram with Rock 1, Alike, and Rock 2]
Compare

When you compare, you look for ways that things are alike and different.

Learn It

Cats meow and have four legs. Dogs bark and have four legs. You can record how cats and dogs are alike and different in a Venn diagram. Write how the animals are alike in the space where the two circles meet.
Try It

How are feldspar and quartz alike? How are they different?

1. How are feldspar and quartz alike? How are they different?

2. Make a Venn diagram to compare feldspar and quartz.

3. Write About It. Find two other minerals and compare them. Use a Venn diagram.
Explore

What is in soil?

What to Do

1. Put some soil in a strainer. Gently shake it over a plate.


You need
- soil
- 2 plates
- strainer
- hand lens
3 Pour the soil left in the strainer onto another plate. Observe the soil. Draw what you see.

Explore More

4 Communicate. Repeat the activity with some new soil. Make a graphic organizer to compare your observations.
How are soils alike and different?
In this activity, you will observe and compare different kinds of soil.

What to Do

1. **Observe.** Look carefully at each picture of soil.

2. **Compare.** Talk with a partner about how the pictures are alike and different. Compare the color of the soils, what you see in the soils, and how the soils might feel.

3. **Communicate.** How can the different soils be used? Choose a type of soil. On a separate piece of paper, draw a picture of it being used.

What Did You Find Out?

4. How are soils different?

---

You need
- crayons
- pencil
- pictures of soil
Make a Compost Pile

What to Do

1. Fill a plastic container halfway with soil. Add your lunch scraps to the soil.

2. Observe the mixed materials in the container. What does the mixture look like? Predict what you think will happen to the materials over time.

3. Each day, add more food scraps and some water to the compost pile. Mix the contents of the container.

4. How has the soil changed after a week?

You need

- plastic container
- potting soil
- lunch scraps
Which soil holds more water?

Find out how different soils hold different amounts of water.

What to Do

1. △ Be Careful! Use a pencil to poke three small holes in the bottom of each cup. Label the cups A and B.

2. Measure. Fill cup A with 1 cup of sandy soil.

3. Measure. Fill cup B with 1 cup of clay-rich soil.

You need

- 2 cups
- sandy soil
- clay-rich soil
- 2 measuring cups
- clock
- pencil
4 Predict. Which cup will drip more water from the bottom of the cup? Why do you think so?

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__________________________________________________________________________

__________________________________________________________________________

5 Hold each cup of soil over a measuring cup. Have a partner pour 1 cup of water into each cup of soil.

6 Measure. After 5 minutes, measure how much water dripped into each cup.

__________________________________________________________________________

Investigate More

Predict. Which type of soil is better for growing plants? Why do you think so? Try it.

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__________________________________________________________________________

__________________________________________________________________________
Explore

How do we use Earth’s resources every day?

What to Do

1. Make a chart on a separate piece of paper about how you use water, air, plants, animals, and rocks.

2. Communicate. Write down your ideas on the chart.

3. Work with a partner. Think of other things you use from Earth. Write down your ideas.
4 **Draw Conclusions.** How are the things that come from Earth important to us?

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Explore More

5 **Infer.** What if there were no more water or rocks on Earth? How would your life change? Write your ideas.

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What are things made from?

In this activity, you will find out how we use our natural resources.

What to Do

1. Read a magazine to find a picture that shows a lot of different objects.

2. Observe. Look carefully at your picture. What objects do you see? List the objects in your picture and tell what each one is made from.

3. Communicate. Share your list with your group. What are the objects on the other children’s lists made from?

What Did You Find Out?

4. What did you find out about how our natural resources are used?
Quick Lab

Reduce, Reuse, and Recycle

What to Do

1. Set up three recycling bins labeled “Reuse”; Nonrenewable “Plastic and Metal”; and Renewable “Paper.”

2. Predict how much trash your class can reuse and recycle in one week.

3. Begin filling the bins with trash from your classroom. Things such as rags and egg cartons can be placed in the Reuse bin and used again.

4. After one week of filling the bins, compare your prediction with the actual amount of trash in the bins.
How does the weather change each day?

What to Do

1. Make a chart with the following columns at the top: Date, Temperature, Weather.

   ![Blank chart for data recording]

2. Record Data. Observe the weather each day. Record what you see. Draw any clouds you see.
3 Compare. After several days, compare how the weather changed from day to day.

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Explore More

4 Add a column to your chart called Wind. Record how wind changes from day to day.
How much does the temperature change?

What to Do

1. **Predict.** How much of a difference do you think there will be between inside and outside temperatures?

2. Record the temperatures on the class chart for two weeks.

What Did You Find Out?

3. **Infer.** Why do you think the outside temperature changed more than the inside temperature?
Quick Lab

How strong does the wind blow?

What to Do

1. Tape a few strands of crepe paper to a craft stick.

2. Go outside with your teacher. Hold your wind tool in the air and observe what happens when the wind blows on it. Draw what your tool looks like on a separate piece of paper.

3. Find another location where you think the wind will have a different strength. Hold up your wind tool and draw what you see.

4. Was the wind stronger in one location than the other? Infer why the wind might have different strengths in different places.

You need

- craft sticks
- streamer crepe paper
- tape
- drawing paper
Do seeds grow faster when it is warm or cold?

What to Do

1. Plant radish seeds in two cups of soil. Cover the cups with foil.

2. Put one cup in a warm place. Put the other cup in the refrigerator.

3. **Predict.** Which do you think will grow faster?

   ________________________________
4 **Compare.** Check the cups every day. What happens?

5 **Infer.** What do you think will happen if you take the seeds out of the refrigerator and put them in a warm place?
Can plants live in cold weather?

What To Do

1 Observe. Observe a small house plant. Draw the plant.

What Did You Find Out?

2 Put the plant in the freezer. After an hour, observe the plant again. Draw what you see.

3 How did the plant change?

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_____________________________________________

You need

- small house plant
- pencil
Quick Lab

Weather Wear

1 Draw pictures of yourself in different seasons.

2 Describe the weather and the clothing for each season.

You need
- drawing paper
- crayons
- colored pencils

Spring:

Summer:

Winter:

Fall:
How do sweaters keep us warm?

What to Do

1 Fill two jars with warm water. Wrap one jar with a thick cloth.

2 Predict. Which jar will stay warmer? Why?

3 Measure. Measure the temperature of the water in each jar with a thermometer. Record your results on the chart on the next page. Measure again in 10 minutes.
Explore

Name ___________________________ Date ___________

Temperature in the jars

<table>
<thead>
<tr>
<th></th>
<th>Wrapped Jar</th>
<th>Other Jar</th>
</tr>
</thead>
<tbody>
<tr>
<td>1st reading</td>
<td></td>
<td></td>
</tr>
<tr>
<td>After ten minutes</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Explore More

4 Infer. How is wrapping cloth around a jar like wearing a sweater on a cool fall day?

__________________________________________________________

__________________________________________________________

__________________________________________________________
How do you keep warm?

What to Do

1. Write what you wear in winter to stay warm.

2. What is winter like in another place? Describe the place. Write about clothing people wear to stay warm there.
Leaves in Different Seasons

1. Your teacher will give you four pictures that show how the leaves of trees look in spring, summer and fall, and winter.

2. **Observe.** Look at each picture. Write about how the leaves change size and color throughout the year.

   __________________________________________________________
   __________________________________________________________
   __________________________________________________________
   __________________________________________________________
How can you describe objects?

What to Do

1. **Observe.** Look at each cracker. Do not eat them! Think about different ways to describe the crackers. What words can help you describe each one?

2. **Record Data.** Make a chart like the one shown. Write your observations on your chart.
3 **Classify.** Use your chart to help you sort the crackers.

![Chart to sort crackers](image)

**Explore More**

4 How else can you sort the crackers?

__________________________________________

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How are objects alike and different?

In this activity, you will use a Venn diagram to record how two objects are alike and different.

What to Do

1. Look around the classroom and select two different objects that are the same color.

2. On a separate piece of paper, draw a Venn diagram. Label it with the name of each object. In each oval, list some properties of one of the objects. In the middle section, list the properties that both objects have in common.

3. Ask a partner to check your work. If they can think of more ways to describe each object, add their ideas to your diagram.

What Did You Find Out?

4. How did you determine which objects were alike and which ones were different?
Quick Lab

Name ________________________  Date __________

Size and Shape

What to Do

1. Observe six objects in the classroom.

2. Take a piece of paper and fold it in thirds. Write Object on the top of the first fold, Shape on the top of the second, and Size on the top of the third.

3. Write the name of the objects in the first column. Draw the shape of each object in the second column and describe each object’s size in the third column.

4. Classify the objects by size and compare your findings with fellow students.

You need

• crayons
• classroom objects
• paper
Record Data

When you **record data**, you write down what you observe.

**Learn It**

Joanie talked to each of her classmates about what they had for lunch. She made a tally chart to help her count the kinds of foods they ate. She recorded what was a liquid and what was a solid.

<table>
<thead>
<tr>
<th>Our Lunch</th>
</tr>
</thead>
<tbody>
<tr>
<td>liquid</td>
</tr>
<tr>
<td>solid</td>
</tr>
</tbody>
</table>

Then she made a bar graph from her results. A bar graph is a good way to compare data in different groups.

![Bar graph of lunch types]
Try It

Look at this picture. Some things are natural and some are made by people. Make a tally chart to show how many of each thing you see. Then display your data in a bar graph.

1 How many things in the picture were made by people?

________________________________________________________________________

________________________________________________________________________

2 What kind of chart can help you record your data?

________________________________________________________________________

________________________________________________________________________

3 Write About It. How can a bar graph help you compare data?

________________________________________________________________________

________________________________________________________________________
What are the properties of these solids?

What to Do

1. **Observe.** Look at each spoon. What are the properties of each?

2. **Predict.** Which spoons will float in water? Which will sink? Try it out.

**You need**
- spoons
- tub of water
3 Record Data. Make a chart to list what you observe.

<table>
<thead>
<tr>
<th>Type of Spoon</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Sink</td>
<td></td>
</tr>
<tr>
<td>Float</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Explore More

4 Predict. How will your list change if you use different objects? How can you find out?

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________________________________________________________________________

Step 3
What happens when solids fall?

In this activity, you will investigate what happens when you drop three different solids.

What to Do

1. Drop a pencil onto your desk. What happened?

2. Drop an eraser onto your desk. What happened?

3. Drop a piece of paper onto your desk. What happened?

What Did You Find Out?

Why did these solids behave differently when you dropped them?
Measuring Mass

What to Do

1. Look around the classroom and select some objects that you can measure with a balance scale.

2. Measure. Choose two items you think have the same amount of mass. Measure the mass of each with a balance scale. Which object had more mass?

3. Compare. Work with a partner. Keep the original two objects, while your partner tries to find a third object that has equal mass. Put the three objects in order from lightest to heaviest. Switch roles and repeat the experiment.

4. Was it easy to find a third object with the same mass? Why or why not?
Explore

What happens to water in different shaped containers?

What to Do

1. Put the containers on a tray. Measure one cup of water with the measuring cup. Pour the water into the first container. Mark where the water stops.

2. Predict. How high will the same amount of water be in the other containers?

_________________________________________

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3. Pour one cup of water into the next container. Mark where the water stops. Repeat for each container.

You need

- measuring cup
- containers
- tray
**Draw Conclusions.** Were your predictions correct? Explain.

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**Explore More**

**Infer.** Would the activity change if you used juice instead of water? Why or why or not?

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How high will the liquid go?

In this activity, you will observe how water level is affected by the shape of a container.

What to Do

1. Observe three different-shaped containers. Predict how high the water level will go when you pour one cup of water into each container. Mark the spot on each container where you think the water will rise to.

2. Measure and pour 1 cup of water into each container. Make another mark to record the actual water level.

What Did You Find Out?

3. Were your predictions correct? How does the shape of a container affect the height of the water level?
Quick Lab

Classifying Matter

What to Do

1. Place a different solid in each of 2 containers, and a different liquid in each of 2 containers. Leave the other 2 containers empty. Label the containers from 1 to 6.

2. Have a partner gently shake each container to infer what type of matter is inside. Sort the containers into solids, liquids, and gases. Complete the chart below by checking the box under the type of matter for that container.

<table>
<thead>
<tr>
<th></th>
<th>Solid</th>
<th>Liquid</th>
<th>Gas</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>3</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>4</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

3. Open the containers and check your results.

You need

- 6 film containers with lids
- 2 different solids
- 2 different liquids

GLE 0207.9.4
How can heat change matter?

What to Do

1 Predict. What do you think will happen to butter and chocolate in sunlight?

You need
- paper plates
- butter
- chocolate

2 Observe. Place the butter and chocolate on two plates. Draw how they look.

Step 2
3 **Predict.** How will the Sun’s heat change each object? Find a sunny spot. Leave the plates in the sunlight.

4 **Communicate.** What happens to each thing after one hour? Draw how they look. Compare your pictures.

---

**Explore More**

5 Now try another object. How will it change?
How does matter change?

In this activity, you will work with a partner to explore what happens to substances in a solid state when heat is added.

What to Do

1. Discuss with your partner the differences between an ice cream cone and a marshmallow.

What would happen if you left both on the table?

____________________________________________________________________________________

____________________________________________________________________________________

3. Predict what would happen if you held a marshmallow over a fire.

____________________________________________________________________________________

What Did You Find Out?

4. Infer. Why do some solids melt differently?

____________________________________________________________________________________

____________________________________________________________________________________
**Quick Lab**

**Water Changes States**

**What to Do**

1. Look through magazines and cut out pictures of water in all three states.

2. Glue the pictures of water to construction paper to make a collage. Make sure to have pictures of water as a solid, a liquid, and a gas.

3. Since water vapor is invisible, how can you illustrate pictures of water as a gas?

---

**You need**

- magazines
- construction paper
- scissors
- glue
- markers

---

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Where will ice cubes melt more quickly?

What to Do

1. Fill two cups with equal amounts of ice. Place one cup in a sunny place. Place the other cup in a shady place.

2. Predict. Which cup of ice will melt first?

You need
- ice cubes
- 2 cups
- watch or clock
3 Record how long it takes for the ice in each cup to melt. Why did one cup of ice melt more quickly?

___________________________________________________

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___________________________________________________

4 Predict. Put equal amounts of water of the same temperature in two cups. How will each cup of water feel after one hour?

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___________________________________________________

___________________________________________________
How can ice be melted quickly?

In this activity, you will discover what happens when you add body heat to ice.

What to Do

1. Predict. What do you think will happen if you and your classmates pass around an ice cube?

2. Using your hands, pass around an ice cube for at least five minutes. Place another ice cube on a plate. Leave it on the plate as you pass around the other ice cube.

What Did You Find Out?

3. Did the ice cube on the plate and the one you passed around melt at the same rate? Why or why not?
Test Soil, Water, and Air Temperatures

1. Take one plastic cup and put some soil in it. Put water in another cup. Leave the third cup empty.

2. Predict. Which cup do you think has the lowest temperature? Which has the highest temperature?

3. Observe. Put a thermometer into each cup and read the temperature. Be sure to let the thermometer return to room temperature before putting it in a cup. Make a chart to record the temperatures.

4. Which cup had the lowest temperature? Which one had the highest temperature?
How does sunlight affect the temperature of light and dark objects?

What to Do

1. Record the temperature of each thermometer on a chart. Wrap one thermometer in black cloth as shown. Wrap the other in white cloth.

2. Place the wrapped thermometers on a sunny windowsill. Wait 15 minutes.

You need
- black cloth
- white cloth
- 2 thermometers
- clock
3 Compare. Feel each cloth with your hands after 15 minutes. Which color cloth feels warmer?

4 Predict. Which color will have the higher temperature? Why do you think so?

5 Record Data. Unwrap each cloth and record each temperature on the chart.

6 Compare the temperatures. What happened to the temperature of each cloth? Was your prediction correct?

Investigate More

Compare. What other dark colors and light colors can you test? Make a plan and test it.
How is sound made?

What to Do

1. Tie the string to the paper clip. Make a hole in the bottom of the cup.

2. Pull the string through the hole. The clip keeps the string from pulling through the cup.

3. Wear goggles. Hold the cup and string with one partner. The third partner snaps the string.

4. Observe. What happens? How did you make sound?

   __________________________________________________________

   __________________________________________________________

   __________________________________________________________

You need

- string
- paper cup
- goggles
- paper clip
Explore More

5 Predict. How will the sound be different if you change the length of the string? Try it.
How can a flute be made out of a straw?

In this activity, you will make a musical instrument out of a straw.

What to Do

1. Make a point at one end of the straw by making two small cuts. Flatten the cut end of the straw by pulling it between your fingers.

2. Describe what happens when you blow into the cut end of the straw.

Describe what happens when you blow into the cut end of the straw.

What Did You Find Out?

3. What caused the straw to make a sound?

What caused the straw to make a sound?
Use a Tuning Fork to Study Sound

1. Strike a tuning fork against a hard surface. Then hold it in your hand. Why did the sound stop?

2. Predict. Fill a cup with water. What do you think will happen if you strike the tuning fork and hold it in the water?

3. Observe. Strike the tuning fork against a hard surface. Then hold it in the cup of water right away. What do you see and hear?

4. What did the water help you see about the way a tuning fork works?
What can a magnet pick up?

What to Do

1 Predict. Put the objects in a bag. Which objects will stick to a magnet?

   __________________________________________

   __________________________________________

   __________________________________________

2 Tie a string to a pencil. Tie a magnet to the end of the string.

3 Use the magnet to pull out objects from the bag.

You need
- small objects
- paper bag
- string
- pencil
- magnet
Explore More

Classify. How are the things that stick to the magnet alike?
What metals are attracted to magnets?

In this activity, you will separate magnetic metals from non-magnetic aluminum.

What to Do

1. Work with a partner. Gather several pieces of metal and aluminum provided by your teacher.

2. Investigate. Test each object to see if it can be pulled by a magnet.

3. Classify. Sort the objects that can be pulled by the magnet in one group. Put the ones that can not be pulled by a magnet in another group.

What Did You Find Out?

4. Which objects cannot be pulled by a magnet?

- metal objects such as soda cans and aluminum foil
- magnet
Quick Lab

The North and South Poles of a Magnet

1. Observe with your partner how two bar magnets react to each other.

2. Cover the poles on the magnets using the sticky notes.

3. **Experiment.** Try to find the north and south poles of each magnet and then take off the labels to see if you were right. How were you able to identify the north and south poles?

You need

- bar magnets
- sticky notes

Name ____________________________ Date ____________

Chapter 8 • Energy and Motion
Activity Lab Book

Use with Lesson 3
Exploring Magnets
How can you compare the strength of different magnets?

Find out how many paper clips each of the magnets can attract.

What to Do

1. Hang a paper clip from a magnet. Keep adding more clips in a line until no more will stick.

2. Record Data. Write how many paper clips can hang from the magnet.
3 Repeat the steps using different magnets.

4 Communicate. Make a bar graph to show the strength of your magnets. Use the graph below as an example.

Investigate More

Investigate. How many paper clips can you pick up with two magnets? Find a way to attach two magnets and try it out.
Why does a dropped ball fall to the ground?

What to Do

1 Measure. Use a meter stick and masking tape to mark heights of 100 centimeters, 50 centimeters, and 5 centimeters on the wall with masking tape.

2 Observe. What happens to a ball when you drop it from each of the heights marked? Make a chart to record your observations.

<table>
<thead>
<tr>
<th>Height (centimeters)</th>
<th>100 centimeters</th>
<th>50 centimeters</th>
<th>5 centimeters</th>
</tr>
</thead>
<tbody>
<tr>
<td>Trial #1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Trial #2</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

You need
- meterstick
- toy balls
- masking tape
- paper
- pencil
3 Infer. Why does a ball you set on the ground not bounce into the air?

Explore More

4 Predict. How would a larger or smaller ball behave in the same activity? Test your prediction to find out.

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________________________________________________________________________
How much force is needed?

In this activity, you will compare forces by pulling loads with a rubber band and measuring the lengths of the stretched band.

What to Do

1. Tie a piece of string around one book.

2. Tie the string to a rubber band.

3. **Record data.** Pull the rubber band slowly. Record its length at the moment the book begins to move.

4. Tie two books together, attach the same rubber band and repeat the activity.

What Did You Find Out?

5. **Infer.** What does the difference in the rubber band length tell you about the force needed to pull the loads?
Quick Lab

How does gravity affect different objects?

What to Do

1. With a partner, drop two different size balls at the same time.

2. Record. Write what happens to each ball.

3. Repeat the activity with two different balls. Try timing how fast each ball drops.


You need

- balls of different sizes
- stopwatch
How does gravity affect different objects?
Find out what happens when a penny and a piece of paper are dropped at the same time.

What to Do

1. **Predict** Will the paper and the penny land on the floor at the same time?

   Test Your Prediction

2. Hold a sheet of paper in one hand and a penny in the other. Hold each item at the same height and drop them at the same time.
**3. Observe.** Watch carefully as each item falls to the ground.

**4. Draw Conclusions** Which fell to the ground first, the penny or the paper? Why?

**5. Infer** Which do you think would fall faster, a feather or a pencil? Why?

**Investigate More**

**Investigate** How could you find out if heavier things fall faster than lighter things?
Make Your Own Tool

What to Do

1. Use a paper towel tube as the handle for a broom.


3. Investigate. Use your broom to sweep an area of your classroom. Collect the dirt in a paper plate.

Draw Conclusions

How is your tool like a real broom?

________________________

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Tech Activity

You need

- paper towel tube
- safety scissors
- paper plate
- tape
- glue

Activity Lab Book

Technology: A closer Look

Use with Lesson 1

We Use Tools
Classroom Properties

What to Do

1. **Observe.** Look around your classroom. Collect five items.

2. **Record Data.** Use the chart below. Draw the items you collected. Check off which properties each item has.

<table>
<thead>
<tr>
<th>Draw items</th>
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<tbody>
<tr>
<td>soft</td>
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<td>round</td>
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<tr>
<td>square</td>
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**Draw Conclusions**

3. Did any of your items have the same properties?
Design a Juice Box

What to Do

1. Wrap three ice cubes in three different materials. Wrap one ice cube in newspaper, one in aluminum foil, and one in bubble wrap. Use the same amount of material each time.

2. Observe. Wait one hour. Unwrap each ice cube. What do you notice?

3. Communicate. Describe what happened to each ice cube. Which ice cube melted the most? Which one melted the least? Why?

Draw Conclusions

4. Which material would be the best for keeping juice cool? Why?
Why Some Fruits Have Many Seeds

Many fruits and vegetables have seeds. Some fruits, like peaches, and plums, have only one seed. Other fruits have hundreds of seeds!

Purpose

Find out why some fruits have many seeds.

Make a Prediction

What might happen after you plant many seeds from a melon?

Test Your Prediction

1 Measure. Fill a pot close to the top with soil.

2 Plant 5 melon seeds. Bury each seed 1 inch below the soil. Water your seeds and put the pot in a sunny place.
3 Record how your seeds grow over the course of three weeks.

<table>
<thead>
<tr>
<th>Week</th>
<th>Seed Growth</th>
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Draw Conclusions
4 Why do you think some fruits have many seeds?

5 How do plants keep their seeds safe?

6 Why do you think some animals lay many eggs?
How Color Helps Animals Hide

Many animals blend into their environment to stay safe. Some toads are brown so they can hide in dirt and mud. The wings of some moths look just like tree bark.

Purpose

Find out why some animals grow different color fur or feathers in the winter.

Make a Prediction

What color fur would be hard to see in a snowy place?

Test Your Prediction

1. Fold the white paper in half. Spread out the circles on one half of the paper.

2. Fold over the other half of the paper to hide the circles.

3. You have ten seconds to pick up as many circles as possible after your partner unfolds the page. Use a stopwatch.

You need

- white paper
- 20 white circles
- 20 brown circles
- stopwatch
Record Data. How many circles of each color did you pick up? Switch roles and try it again.

Draw Conclusions

How did color help you pick up circles?

Predict. What would happen if you did the activity on brown paper?

Critical Thinking

Why do you think many desert animals are brown?

How could you find an animal that blends into its environment?
Soil and Sand

Some soils have no sand in them at all. Others are almost all sand. Sand can hold water because there is space between the grains. Topsoil can hold water because it has bits of dead plants and animals.

Purpose
Find out which dries first, topsoil or sand.

Make a Prediction
How fast do you think topsoil and sand will dry? Which one will dry faster?

Test Your Prediction

1 Measure. Pour one cup of topsoil into a cup. Then pour one cup of sand into another cup.

2 Place both cups in a sunny place.

3 Add three tablespoons of water to each cup.

4 Touch the top of the topsoil and the sand after a few hours.

You need
- sand
- topsoil
- measuring cup
- 2 cups
- tablespoon
- water
Draw Conclusions

5. Which stayed more damp, the topsoil or the sand?

6. Why do you think most plants grow better in soil than in sand?

Critical Thinking

7. Wind can blow sand away easily. How do you think plants stay in the sand?

8. Why do you think soils are different colors?
Wind Power

You already know that the wind can make things move. Sailboats use wind to move across the water. Many plants use the wind to move their seeds to new places. We also use wind to give us energy. When windmills turn, they make electricity. We can use this electricity to heat and power homes.

Purpose

Find out how we use wind.

Make a Prediction

Could a sail help a car move faster?

You need

- construction paper
- 2 toy cars
- tape
- ruler
- scissors

Test Your Prediction

1. Make a sail out of paper. Cut out a triangle and then fold it into two equal halves.

2. Tape your sail to one of the toy cars.

3. Measure. Make a starting line, and make a finish line that is 20 centimeters away.
Place both cars at the starting line. Work with a partner and blow on the cars.

**Draw Conclusions**

5. Which car crossed the finish line first? Why?

________________________________________________________________________

________________________________________________________________________

6. What do you think would happen if the sail were bigger?

________________________________________________________________________

**Critical Thinking**

7. Why is wind power useful? What is another way to use wind?

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8. Which do you think is a better natural resource, wind or coal? Why?

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________________________________________________________________________
Spin an Egg

Isaac Newton was a famous scientist who came up with the three important laws of motion. The first law of motion says that an object that is not moving will not move until something makes it move. This first law also says that if an object is already moving, it will keep moving until a force speeds up or slows down the object.

It is easy to tell the difference between a hard-boiled egg and an uncooked egg by using Newton’s first law of motion.

**Purpose**

Find out which stops spinning first, a hard-boiled egg or an uncooked egg.

**Make a Prediction**

Which type of egg will stop spinning first, a hard-boiled egg or an uncooked egg?

**Test Your Prediction**

1. Spin a hard-boiled egg.

**You need**

- hard-boiled egg
- uncooked egg
2 While the egg is spinning, grab it with your hand and then quickly let go of it. Observe what happens.

3 Repeat step 2 with an uncooked egg.

Draw Conclusions

4 Which egg stopped spinning first? Why?

________________________________________________________________________

________________________________________________________________________

________________________________________________________________________

Critical Thinking

5 How would you stop a soccer ball from moving?

________________________________________________________________________

6 Why do you think a ball will not stop moving in mid-air?

________________________________________________________________________

________________________________________________________________________
Move With Magnets

Every magnet has two poles. Poles are the places on a magnet where the magnet’s pull is strongest. Every magnet has a south pole and a north pole. The poles are at opposite ends of the magnet. When two of the same poles get close to each other, they will repel, or push away, from each other. When two opposite poles come together, they will attract, or pull toward each other. Two north poles will repel each other. A north and a south pole will attract each other.

Purpose

Find out how to move a toy car without touching it.

Make a Prediction

What will happen if you put a magnet next to a toy car with a magnet on it?

Test Your Prediction

Tape a bar magnet to the top of a toy car.
2. Use a second bar magnet to push the car.

Draw Conclusions

3. How can you move a toy car without touching it?

________________________________________________________________________

________________________________________________________________________

4. Which poles did you put near each other to pull the car?

________________________________________________________________________

________________________________________________________________________

Critical Thinking

5. What else do magnets attract?

________________________________________________________________________

________________________________________________________________________

6. How can you use magnets?

________________________________________________________________________

________________________________________________________________________
What is the best way to grow corn?

Ask Questions
What does a seed need in order to grow? How much water does a seed need to grow? Does a seed need soil to grow?

Make a Prediction
Will corn seeds grow with different amounts of water?

You need
- half an ear of corn
- pan
- water

Test Your Prediction

1. Place half an ear of corn in a pan. Lay the corn on its side.

2. Pour water in the pan until half of the ear is underwater.
3 **Predict.** How many seeds will sprout? Which seeds will sprout?

4 Change the water every two days. Make sure you keep the water at the same level. Do not let the corn roll over.

5 **Observe.** Watch your ear of corn grow for two weeks. Record how your corn changes.

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<thead>
<tr>
<th>Week</th>
<th>Changes</th>
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<td>2</td>
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**Communicate Your Results**

Discuss your results with a partner.

- How did your predictions compare with your results?

- Can seeds have too much or too little water to grow?
Reach for the Sky

Ask Questions
Will corn seeds grow if they are planted in soil? Will they grow if they are planted close to the surface?

Make a Prediction
What will happen if you plant corn seeds under too much soil?

Test Your Prediction

1. Put two corn seeds in a clear cup. Put the seeds against the side of the cup so you can see them. Cover the seeds with just a little soil.
2 Put two corn seeds against the side of another cup. Add a lot of soil on top of the seeds.

3 Put two more seeds in a third cup. Add soil until the seeds are 1 inch below the surface.

4 Predict. Which seeds will sprout?

__________________________________________________________________

__________________________________________________________________
5 Record Data. Keep the soil moist, and record how your seeds change.

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<thead>
<tr>
<th>Week</th>
<th>Changes</th>
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<td>2</td>
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Communicate Your Results

Discuss as a group what happened to your seeds.

► Which seeds sprouted?

► Which seeds grew fastest?

► Which seeds started and then stopped sprouting?
Corny Experiments

What helps plants grow? What keeps plants from growing? Answer the questions below.

▶ Can corn grow in sand? Can it grow in clay?

▶ Does temperature change how seeds sprout? Would your seeds sprout in the refrigerator?
How do we use natural resources?

Ask Questions

Most plants need soil to grow. What is in soil? How many different things can you find in soil? Are all soils alike?

Make a Prediction

What do you think you will see in soil if you use a hand lens?

Test Your Prediction

1. Place some soil on your plate.
2. Use a hand lens to observe your soil.

You need
- soil
- plate
- hand lens
3 **Classify.** Find objects that look alike. Identify them as plants, animals, or rocks.

4 **Record Data.** Make a chart. On your chart, write and draw the objects you found.

<table>
<thead>
<tr>
<th>Plants</th>
<th>Animals</th>
<th>Rocks</th>
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</table>
Communicate Your Results

What did you find in the soil? Discuss your results with a partner.

▶ How did your predictions compare with your results?

____________________________________________________________________
____________________________________________________________________
____________________________________________________________________

▶ What did your partner find in his or her soil?

____________________________________________________________________
____________________________________________________________________
____________________________________________________________________

▶ How do you think the objects in the soil got there?

____________________________________________________________________
____________________________________________________________________
____________________________________________________________________
Fun With Cotton

Ask Questions
We eat many kinds of plants, but we also use them for other things. How do we use plants? What can we make out of cotton plants?

Make a Prediction
Why do people grow and pick cotton? Write a prediction.

Test Your Prediction

1. **Observe.** Use a hand lens to look at a cotton plant. What do you see?

2. Carefully take the fluffy, white ball off of the plant. Take out all of the seeds.

You need
- cotton plant
- hand lens
3 Communicate. What does the white part feel like?

4 Gently pull the cotton apart with your fingers. Stretch and twist the cotton to make thread.

Communicate Your Results
Discuss your results with a partner.
► What are some uses for thread?
What items that come from plants do you use every day?

Can animals be used to make thread?

More Natural Resources
We use many things from nature. Answer the questions below:

How can the Sun be used to heat water?

How can wind be used to cool water?

How can water be used to move things?
How can we test a magnet’s strength?

Ask Questions

What happens when magnets are next to each other? How far apart can two magnets be and still attract each other?

Make a Prediction

How will adding more magnets affect the strength of the attraction?

Test Your Prediction

1. Place a magnet on a piece of paper. Trace the magnet.

2. Place a second magnet on the paper. Move it toward the first magnet until the first one moves. Make another mark to show where the second magnet was when the first one moved.

You need

- 3 magnets
- ruler
- white paper
3 Measure. How far apart were the magnets when they attracted each other?


4 Now use two magnets to move the first magnet. How far apart were the magnets when they first attracted each other?


Communicate Your Results
Discuss your results with a partner.

- How did your prediction compare to your results?

- Are two magnets stronger than one magnet? How do you know?
Pulling Through Water

Ask Questions
Magnets attract objects that are made of certain types of metal. Magnets can also attract objects through some types of materials. What can magnets pull through?

Make a Prediction
Can a magnet attract paper clips through a cup of water?

Test Your Prediction
1. Put some paper clips in a clear plastic cup. Hold one end of the magnet against the side of the cup.
2. How many paper clips did the magnet attract?

3. Fill the cup with water and repeat the activity.
4 Record Data. Fill in the chart to share your results.

<table>
<thead>
<tr>
<th>Number of Paper Clips</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cup</td>
</tr>
<tr>
<td>Cup with water</td>
</tr>
</tbody>
</table>

Communicate Your Results

Discuss your results with a partner.

▶ When did the magnet attract more paper clips?

▶ What can magnets pull through?
Strength Test

What else can magnets do? Answer the questions below:

▶ Where on a magnet is the pull strongest?

▶ How many pieces of paper can a magnet pull through?
Why Some Fruits Have Many Seeds

Everyday Science Activity
Flipchart p. 61

Purpose. Children should understand that not all seeds will sprout, even if their environment is the same.

Make a Prediction. Children should formulate a prediction such as the following: When I plant many melon seeds, some will sprout and some will not.

Test Your Prediction. Have children describe or draw the sprouts that did grow.

Draw Conclusions. The amount of seeds that grow will vary. Plants have many seeds so that at least a few can grow into new plants. Some seeds end up with too much or too little Sun and water. Even if they are in the right conditions, not all seeds will sprout.

Critical Thinking Answers
5. Plants grow protective covers over their seeds to shield them from weather and scavengers.

6. Animals lay many eggs for the same reason that plants create many seeds. Not all of the offspring will survive, so the plants and animals that produce more seeds or eggs have a greater chance of survival.
How Color Helps Animals Hide

Everyday Science Activity
Flipchart p. 62

Purpose. Children should understand that some animals keep safe by using camouflage. In temperate environments, some animals change their camouflage to remain hidden as seasons and scenery change.

Make a Prediction. Children should formulate a prediction such as the following: White fur would be harder to see in a snowy place.

Test Your Prediction. Children will pick up more colored circles than white circles.

Draw Conclusions. The colored circles were easier to see and pick out, so they were selected first and with greater ease. If the activity had been on brown paper, the white ones would have been picked out more easily.

Critical Thinking Answers
7. Many desert animals, such as desert tortoises and gerbils, are brown and blend in with the sand and the dry desert environment.

8. You can find an animal that blends into its environment by closely examining plants and rocks and looking for motion.
Soil and Sand

Everyday Science Activity

Flipchart p. 63

**Purpose.** Children should know that sand and topsoil have different capacities for water retention and that if the water dries up too quickly, plants will not be able to grow in it as well.

**Make a Prediction.** Children should formulate a prediction such as the following: The sand will dry in 15 minutes, and it will dry faster than the topsoil.

**Test Your Prediction.** Make sure not to use too much water, or it will evaporate slowly and the experiment will take a long time. Even if the sand and topsoil are not completely dry, the sand should still feel drier on the surface.

**Draw Conclusions.** The topsoil stayed damp longer. Topsoil would be better for plants to grow in because water stays in topsoil longer than it does in sand, allowing the plant to draw in more water.

**Critical Thinking Answers**

7. Plants can stay in the sand because they have deep or wide roots and flexible stems that allow them to blow around without breaking or falling over.

8. Soils are different colors because of the minerals and amount of organic content in them.
Wind Power

Everyday Science Activity

Flipchart p. 64

**Purpose.** Discuss windmill farms (large pieces of land with lots of windmills on it that provide wind energy), the Hoover dam, and solar panels in homes.

**Make a Prediction.** Children should formulate a prediction such as the following: If you blow against the paper, then the cars will move.

**Test Your Prediction.** Children will need to practice with the direction of the “wind” (blowing the air). Sometimes it works better if blown on from the side.

**Draw Conclusions.** Moving air can be used to do work. The car with the sail moves more than the car without the sail. If the sail were bigger, it might catch even more wind and move faster.

**Critical Thinking Answers**

7. Large windmills once were used to grind wheat into flour and to pump water. Windmills are still used today to turn the energy of the wind into electricity.

8. The main advantages of wind power are that there is no pollution produced and it is easily available and replaceable. Some disadvantages are that the devices that are involved in producing and harnessing renewable energy often take up a lot of space and only produce small amounts of energy. Another disadvantage is that for renewable energy to work, it is necessary to have a constant supply of Sun, wind, or water. Coal burns and gives off direct heat and produces pollution.
Spin an Egg

Everyday Science Activity

Purpose. Discuss with children what forces are. Newton’s first law of motion is common sense for children and the important lesson for them to learn is that a force is needed to change the direction and speed of objects.

Make a Prediction. Children should formulate a prediction such as the following: If a hard-boiled egg and an uncooked egg are spun, then the hard-boiled egg will stop spinning first, while the uncooked egg will continue to spin.

Test Your Prediction. To stop the eggs from spinning, a quick, gentle tap on the egg is all that is needed.

Draw Conclusions. The uncooked egg continued spinning after it was momentarily stopped.

The hard-boiled egg is one solid mass, and when you stop the egg, the inside is stopped, too. The uncooked egg contains liquid, which keeps moving after the shell has stopped. This moving liquid pushes against the shell and makes the egg spin again. You need to make the egg one solid mass to stop it from spinning, or hold it after you stop it.

Critical Thinking Answers

5. You can stop a soccer ball by putting your foot or body in front of it while it is in motion.

6. A ball will not stop moving in mid-air because nothing (except for the miniscule friction of the air itself) is stopping it. An object in motion will stay in motion unless acted upon by a force.
Move With Magnets

Everyday Science Activity
Flipchart p. 67

**Purpose.** Review properties of magnets. Give children two magnets and a toy car.

**Make a Prediction.** Children should formulate a prediction such as the following: If I tape one magnet to the top of the toy car, then I can use the other magnet to push the toy car without touching it.

**Test Your Prediction.** Make sure that the toy car moves smoothly since the magnets are not very strong. Reduce friction by placing the car on a piece of paper or smooth table, not on a rug.

**Draw Conclusions.** You can use a magnet to push a car without touching it. You have to use poles that repel each other—north to north or south to south.

**Critical Thinking Answers**

5. Big magnets are used by recycling facilities to take out the metal objects when different materials are being sorted.

6. Magnets attract iron, so anything with iron should work (such as thumbtacks, paper clips, etc.).
What is the best way to grow corn?

Learning Lab Activity
Flipchart p. 68

Purpose. Corn seeds, like other seeds, need a certain amount of moisture to start germination. Too much water and the seed will drown and rot. In this investigation the corn is planted in water. Even without soil, the seeds will germinate.

Make a Prediction. Children should formulate a prediction such as the following: Corn seeds need a medium amount of water to grow, not too much or too little. Make certain that children predict where the seeds will sprout.

Test Your Prediction. Maintaining a constant water level and not rolling the ear of corn around are important to the success of this investigation. That way, the corn under the water will rot and the corn on top will be too dry, but the corn near the water level will sprout. Explain to children that people typically do not grow seeds in just water. Usually seeds are planted, one at a time, in soil.

Draw Conclusions. Children should notice a similar pattern of growth on their classmates’ corn cobs. The seeds should have sprouted near the water line. Seeds need just the right amount of water to grow. Children should be able to understand how water and other environmental factors can affect germination. Water, air, temperature, soil, and light all need to be in balance for a seed to grow.
Reach For the Sky

Learning Lab Activity
Flipchart p. 69

**Purpose.** Plants make their own food when they are in the sunlight. While underground, the sprouting seed gets its food from nutrients stored in the seed. Therefore, seeds need enough food to grow to the surface so that they can start making their own food. If they are planted too deep, they may never make it to the surface and reach the sunlight. If they are planted too shallow, they may not have enough water and dry out.

**Make a Prediction.** Children should formulate a prediction such as the following: Corn seeds need to be planted near the surface of the soil and not too far down in the soil.

**Test Your Prediction.** Keep a cover around the cup to simulate underground conditions, otherwise seeds might get too much light. Wrap strips of construction paper around the cups to block the light if the seeds are not growing at all, or if the deep seeds are growing too much.

**Draw Conclusions.** The growth of the seeds will vary, but those planted at the bottom will usually not reach the surface of the soil to absorb sunlight, even if they do sprout. The seeds that are close to the surface may start growing and then stop because they are not getting enough moisture and nutrients.

**Corny Experiments**
Soil with clay can be very compact and hard and may not provide enough air for the plant’s roots. Sandy soils may not hold enough water.

Cold temperatures can stop germination. Seeds can sprout in a darkened room but they will not grow well unless they get light after they germinate.
How do we use natural resources?

Learning Lab Activity
Flipchart p. 70

Purpose. Soil is made from ground-up rocks that have been altered from their original composition, mainly by weather. All soils have certain things in common. Every soil consists of minerals, organic matter, water, and air. The solid soil particles are composed primarily of minerals that are produced from rock, which has been broken down into small pieces.

Make a Prediction. Children should formulate a prediction such as the following: There will be rocks, leaves, and worms in soil.

Test Your Prediction. This activity provides more interesting data if the soils are selected from natural areas that have a loam soil (a mixture of clay, silt, and sand). However, any soil will do. The teacher may need to point out the bits of organic matter in the soil such as leaf or insect parts because children might not recognize them in such small pieces.

Draw Conclusions. Children should develop their own criteria for sorting the soil particles into groups. Children should be able to see that there are different sized particles. Excluding stones, gravel, and other rock debris, most of the mineral particles in soil are categorized by size: sand, silt, or clay. Clay is the smallest, silt is slightly larger, and sand is the largest particle. Help children realize that there normally is water and air in the soil. The rocks in the soil came from weathering processes, and the organic matter came from decay.
Fun With Cotton

Learning Lab Activity
Flipchart p. 71

**Purpose.** Cotton needs a long growing season and fertile but well-drained soil to grow. Cotton plants will continue to flower until a frost stops them. Cotton flowers create “squares,” which contain four or five balls, each with their own seeds inside.

**Make a Prediction.** Children should formulate a prediction such as the following: We can make clothes and blankets out of cotton plants.

**Test Your Prediction.** Children should see fibers of the cotton ball, seeds inside it, and the stem and leaves of the plant. If the cotton is still on the plant, there will be four or five separate sections of the cotton bloom, each with seeds inside.

**Draw Conclusions.** Thread comes from cotton plants, and fibers come from other plants and animals. Thread is used to make cloth, which can then be used for clothing, sails, upholstery, etc. Some plants we use every day are food producers, like corn or wheat, or sources of wood, like maple or oak trees.

**More Natural Resources**
We can use the Sun to heat water with solar panels. The Sun will also directly heat water, and wind will cool it. We use water to ship goods in boats and move them from place to place. We also use running water to wash our hands and move the dirt into the drain.
How can we test a magnet’s strength?

Learning Lab Activity

Flipchart p. 72

**Purpose.** The circle magnets used here contain trillions of atoms, each with a small magnetic force. In a magnet, the atoms tend to clump together in tiny little groups called domains. Within each domain, the atoms point in the same direction, making each domain behave like a tiny bar magnet. Some atoms (and consequently some metals) have a greater magnetic potential than others because of electron configurations.

**Make a Prediction.** Children should formulate a prediction such as the following: Adding more magnets will increase the strength of attraction.

**Test Your Prediction.** Make sure the magnets are being pulled along a smooth surface because friction could stop the movement of the magnets. Children should recognize that the distance between magnets affects the strength of attraction.

**Draw Conclusions.** While the force surrounding a magnet has no absolute boundaries, the force does drop off rapidly as we get further away from the magnet. In this activity, we can find out how the force changes with distance and how that distance can be influenced by multiple magnets. Usually, children will find that the distance of the force increases when more magnets are used if their poles are lined up or pointing in the same direction. If the poles of the magnets are not facing the same direction, there will be very little attraction.
Pulling Through Water

Learning Lab Activity
Flipchart p. 73

Purpose. Attracting paper clips tests the direct strength of a magnet. Distance from the surface of the magnet is not an issue. The results allow children to rate a magnet’s strength by the number of paper clips it holds. Magnets can pull through almost any substance that is not itself magnetic.

Make a Prediction. Children should formulate a prediction such as the following: Magnets will attract paper clips through a plastic cup filled with water.

Test Your Prediction. The type of paper clips used does make a difference, and testing different types of paper clips could be an extension activity. The uncoated metal paper clips work the best. The colored, coated paper clips will be less attracted.

Draw Conclusions. The magnet will probably attract more paper clips in air than in water, but the difference will be very slight. The magnet can attract even more paper clips without the barrier of the plastic cup.

Strength Test. The magnet’s pull is strongest at the poles. On some magnets, one pole might even be stronger than the other. The number of pieces of paper a magnet can pull through will depend on the thickness of the paper and the strength of the magnet being used.
### Pupil Edition Materials List

#### Consumable Materials (based on 6 groups)

<table>
<thead>
<tr>
<th>Materials</th>
<th>Quantity per group</th>
<th>Kit Quantity</th>
<th>Chapter Lesson</th>
</tr>
</thead>
<tbody>
<tr>
<td>Apple</td>
<td>1</td>
<td>2/1, 2/2</td>
<td></td>
</tr>
<tr>
<td>Aluminum foil</td>
<td>1 roll</td>
<td>1/1, 6/2, TACL/2</td>
<td></td>
</tr>
<tr>
<td>Balloon</td>
<td>1</td>
<td>8/4</td>
<td></td>
</tr>
<tr>
<td>Bag, paper</td>
<td>1</td>
<td>6</td>
<td>8/3</td>
</tr>
<tr>
<td>Batteries, D-cell</td>
<td>2</td>
<td>2</td>
<td>4/1, 4/2</td>
</tr>
<tr>
<td>Bubble wrap, 6&quot; x 12&quot;</td>
<td>1 roll</td>
<td>TACL/2</td>
<td></td>
</tr>
<tr>
<td>Butter</td>
<td></td>
<td>7/4</td>
<td></td>
</tr>
<tr>
<td>Chenille sticks</td>
<td></td>
<td>5/1</td>
<td></td>
</tr>
<tr>
<td>Chocolate pieces</td>
<td></td>
<td>7/4</td>
<td></td>
</tr>
<tr>
<td>Cracker, fish-shaped</td>
<td>4</td>
<td>7/1</td>
<td></td>
</tr>
<tr>
<td>Cracker, round</td>
<td>4</td>
<td>7/1</td>
<td></td>
</tr>
<tr>
<td>Cracker, square</td>
<td>4</td>
<td>7/1</td>
<td></td>
</tr>
<tr>
<td>Craft stick</td>
<td>1</td>
<td>30</td>
<td>4/1, 5/1, 6/1</td>
</tr>
<tr>
<td>Crayons</td>
<td></td>
<td>1/2, 1/4, 2/1, 2/2, 3/1, 3/3, 4/1, 4/2, 5/3, 6/2, 6/3, 7/1, 8/1</td>
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</tr>
<tr>
<td>Cup, foam</td>
<td>2</td>
<td>5/2</td>
<td></td>
</tr>
<tr>
<td>Cup, paper, 200 mL</td>
<td>3</td>
<td>25</td>
<td>8/2</td>
</tr>
<tr>
<td>Cup, plastic, 9 oz.</td>
<td>2-3</td>
<td>100</td>
<td>2/2, 3/2, 5/2, 6/2, 6/3, 7/3, 8/1, 8/2</td>
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<tr>
<td>Food scraps</td>
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<td>5/2</td>
<td></td>
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<tr>
<td>Glue</td>
<td></td>
<td>1/4, 7/4</td>
<td></td>
</tr>
<tr>
<td>Glue stick</td>
<td>1</td>
<td>6</td>
<td>3/2</td>
</tr>
<tr>
<td>Ice cubes</td>
<td></td>
<td>8/1</td>
<td></td>
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<tr>
<td>Index cards</td>
<td>100</td>
<td>2/2, 4/1</td>
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<tr>
<td>Knife, plastic</td>
<td>1</td>
<td>24</td>
<td>7/4</td>
</tr>
<tr>
<td>Liquids, various</td>
<td></td>
<td>7/3</td>
<td></td>
</tr>
<tr>
<td>Live coupon, earthworms</td>
<td>1</td>
<td>1</td>
<td>3/1</td>
</tr>
<tr>
<td>Live coupon, mealworms</td>
<td>1</td>
<td>1</td>
<td>2/2</td>
</tr>
<tr>
<td>Live coupon, pill bugs</td>
<td>1</td>
<td>1</td>
<td>3/1</td>
</tr>
<tr>
<td>Magazines</td>
<td>1/1, 1/2, 1/3, 2/1, 2/2, 3/2, 3/3, 4/1, 4/2, 5/3, 6/2, 7/4</td>
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<td></td>
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<tr>
<td>Markers</td>
<td>1/2, 1/3, 3/2, 4/1, 4/2, 5/3, 6/2, 7/4</td>
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</tr>
<tr>
<td>Oatmeal</td>
<td></td>
<td>2/2</td>
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</tr>
<tr>
<td>Paper</td>
<td>1/1, 1/2, 1/3, 2/1, 2/2, 3/1, 3/2, 5/3, 3/4, 4/1, 5/1, 5/2, 6/1, 6/2, 6/3, 7/1, 7/2, 7/3, 8/1, 8/4</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Paper, construction</td>
<td></td>
<td>1/4, 6/1, 7/4</td>
<td></td>
</tr>
<tr>
<td>Paper, crepe streamer</td>
<td>1 roll</td>
<td>6/1</td>
<td></td>
</tr>
<tr>
<td>Paper, chart</td>
<td>1</td>
<td>1/4, 3/3</td>
<td></td>
</tr>
<tr>
<td>Paper strip, brown</td>
<td>1</td>
<td>1/4</td>
<td></td>
</tr>
<tr>
<td>Paper strip, green</td>
<td>1</td>
<td>1/4</td>
<td></td>
</tr>
<tr>
<td>Paper strip, red</td>
<td>1</td>
<td>1/4</td>
<td></td>
</tr>
<tr>
<td>Paper strip, yellow</td>
<td>1</td>
<td>1/4</td>
<td></td>
</tr>
<tr>
<td>Paper, tissue, colored</td>
<td></td>
<td>5/1</td>
<td></td>
</tr>
<tr>
<td>Paper towel tube</td>
<td>1</td>
<td>6</td>
<td>TACL/1</td>
</tr>
<tr>
<td>Pencil</td>
<td>1</td>
<td>1/1, 1/2, 1/3, 2/1, 2/2, 3/1, 4/1, 4/2, 5/1, 5/2, 6/1, 6/2, 6/3, 7/1, 7/2, 7/3, 8/1, 8/3</td>
<td></td>
</tr>
<tr>
<td>Pencils, colored</td>
<td></td>
<td>3/3</td>
<td></td>
</tr>
<tr>
<td>Plastic wrap</td>
<td>1 roll</td>
<td>3/1</td>
<td></td>
</tr>
<tr>
<td>Plates, paper</td>
<td>1</td>
<td>50</td>
<td>1/4, TACL/1</td>
</tr>
<tr>
<td>Plates, paper</td>
<td>2</td>
<td>50</td>
<td>5/2, 7/4</td>
</tr>
<tr>
<td>Plant, potted</td>
<td>2</td>
<td>1/1, 3/1</td>
<td></td>
</tr>
<tr>
<td>Posterboard</td>
<td></td>
<td>5/3</td>
<td></td>
</tr>
<tr>
<td>Rocks</td>
<td></td>
<td>3/1</td>
<td></td>
</tr>
<tr>
<td>Seeds, lima bean</td>
<td>2</td>
<td>1 package</td>
<td>2/1</td>
</tr>
<tr>
<td>Seeds, radish</td>
<td>3</td>
<td>1 package</td>
<td>6/2</td>
</tr>
<tr>
<td>Self-stick notes</td>
<td></td>
<td>8/3</td>
<td></td>
</tr>
<tr>
<td>Soil, clay</td>
<td>1 bag</td>
<td>5/2</td>
<td></td>
</tr>
<tr>
<td>Soil, potting</td>
<td>3 bags</td>
<td>3/1, 4/1, 5/2, 6/2, 8/1</td>
<td></td>
</tr>
<tr>
<td>Soil, sandy</td>
<td>1 bag</td>
<td>5/2</td>
<td></td>
</tr>
<tr>
<td>Spoon, plastic</td>
<td>1</td>
<td>24</td>
<td>3/1, 7/2</td>
</tr>
<tr>
<td>String, cotton</td>
<td>200 feet</td>
<td>8/2, 8/3</td>
<td></td>
</tr>
<tr>
<td>Tape, clear</td>
<td>1 roll</td>
<td>6/1</td>
<td></td>
</tr>
<tr>
<td>Tape, masking</td>
<td>1 roll</td>
<td>6/1, 8/4</td>
<td></td>
</tr>
<tr>
<td>Yarn</td>
<td>2</td>
<td>1 skeins</td>
<td>1/4, 2/2</td>
</tr>
</tbody>
</table>

### Activity Lab Book
### Non-Consumable Materials

(based on 6 groups)

<table>
<thead>
<tr>
<th>Materials</th>
<th>Quantity per group</th>
<th>Kit Quantity</th>
<th>Chapter Lesson</th>
</tr>
</thead>
<tbody>
<tr>
<td>Balance</td>
<td>1</td>
<td>7/2</td>
<td></td>
</tr>
<tr>
<td>Ball, foam 4”</td>
<td>2</td>
<td>12</td>
<td>4/2</td>
</tr>
<tr>
<td>Ball, golf</td>
<td>1</td>
<td>1</td>
<td>8/4</td>
</tr>
<tr>
<td>Ball, hard rubber</td>
<td>1</td>
<td>6</td>
<td>8/4</td>
</tr>
<tr>
<td>Ball, table tennis</td>
<td>1</td>
<td>6</td>
<td>8/4</td>
</tr>
<tr>
<td>Bin, recycling</td>
<td>3</td>
<td></td>
<td>5/3</td>
</tr>
<tr>
<td>Block, wood</td>
<td>1</td>
<td>6</td>
<td>8/3</td>
</tr>
<tr>
<td>Block, various</td>
<td>5</td>
<td></td>
<td>3/3</td>
</tr>
<tr>
<td>Bottle, 1-liter, with cap</td>
<td>1</td>
<td></td>
<td>3/2</td>
</tr>
<tr>
<td>Bottle, 2-liter</td>
<td>1</td>
<td></td>
<td>3/1</td>
</tr>
<tr>
<td>Bowl, small</td>
<td>1</td>
<td></td>
<td>2/1</td>
</tr>
<tr>
<td>Calendar</td>
<td>1</td>
<td></td>
<td>4/2</td>
</tr>
<tr>
<td>Can, film, lidded</td>
<td>6</td>
<td>36</td>
<td>7/3</td>
</tr>
<tr>
<td>Classroom objects</td>
<td></td>
<td>7/1, 7/2, 8/3</td>
<td></td>
</tr>
<tr>
<td>Clock</td>
<td>1</td>
<td></td>
<td>5/2, 8/1</td>
</tr>
<tr>
<td>Cloth, cotton, white</td>
<td>1</td>
<td>1</td>
<td>8/1</td>
</tr>
<tr>
<td>Cloth, flannel, black</td>
<td>1</td>
<td>1</td>
<td>8/1</td>
</tr>
<tr>
<td>Cloth, wool</td>
<td>1</td>
<td>1</td>
<td>6/3</td>
</tr>
<tr>
<td>Container, plastic</td>
<td>1</td>
<td>6</td>
<td>2/2, 3/1, 7/3</td>
</tr>
<tr>
<td>Container, plastic, lidded</td>
<td>1</td>
<td></td>
<td>5/2</td>
</tr>
<tr>
<td>Cup, measuring</td>
<td>1</td>
<td>6</td>
<td>5/2, 7/3</td>
</tr>
<tr>
<td>Cup lid, for 9 oz. cup</td>
<td>1</td>
<td>6</td>
<td>2/2</td>
</tr>
<tr>
<td>Feather</td>
<td>1</td>
<td></td>
<td>8/4</td>
</tr>
<tr>
<td>Flashlight</td>
<td>1</td>
<td>6</td>
<td>4/1, 4/2, 5/1</td>
</tr>
<tr>
<td>Hand lens</td>
<td>1</td>
<td>6</td>
<td>1/3, 2/1, 2/2, 3/1, 5/1, 5/2, 7/1</td>
</tr>
<tr>
<td>Jar, plastic, 16 oz.</td>
<td>2</td>
<td>12</td>
<td>8/3</td>
</tr>
</tbody>
</table>

- Knife (teacher use only): Chapter 2/1
- Magnet, bar: 2 pieces in Chapter 12
- Magnet, donut: 1 piece in Chapter 8/3
- Magnet, horseshoe: 1 piece in Chapter 2/2, 8/3
- Mineral specimen kit: 1 piece in Chapter 5/1
- Pennies: 15 pieces in Chapter 8/4
- Pots, small plastic: 1 piece in Chapter 4/1
- Rock specimen kit: 1 piece in Chapter 5/1
- Ruler: 1 piece in Chapter 2/2, 6/1
- Safety goggles: 6 pieces in Chapter 8/2
- [Materials List lozenge]: 1 piece in Chapters 7/4, 8/2
- Small toys: 4-5 pieces in Chapter 7/3
- Spoon, measuring: 1 piece in Chapter 6/2
- Spoon, metal teaspoon: 1 piece in Chapter 6/2
- Spoon, wooden: 1 piece in Chapter 6/2
- Stapler: 1 piece in Chapter 4/1
- Stopwatch: 1 piece in Chapter 8/4
- Strainer: 1 piece in Chapter 5/2
- Thermometer, indoor/outdoor: 1 piece in Chapter 6/1, 8/1
- Thermometer, plastic: 2 pieces in Chapter 18, 6/3, 8/1
- Toy cars or buses: 4 pieces in Chapter 3/3
- Toy, plastic animal: 4 pieces in Chapter 3/3
- Tray, plastic: 3 pieces in Chapter 3/1, 7/2
- Tub, plastic: 1 piece in Chapter 3/2, 7/2
- Tuning fork: 1 piece in Chapter 8/2
### Everyday Science Materials List

#### Consumable Materials

<table>
<thead>
<tr>
<th>Materials</th>
<th>Quantity per group</th>
<th>Kit Quantity</th>
<th>Chapter Lesson</th>
</tr>
</thead>
<tbody>
<tr>
<td>Construction paper</td>
<td></td>
<td>5</td>
<td></td>
</tr>
<tr>
<td>Construction paper, brown</td>
<td></td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Construction paper, white</td>
<td></td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Cup, plastic</td>
<td>1, 2</td>
<td>100</td>
<td>5</td>
</tr>
<tr>
<td>Egg, hard boiled</td>
<td>1</td>
<td>8</td>
<td>8</td>
</tr>
<tr>
<td>Egg, uncooked</td>
<td>1</td>
<td>8</td>
<td>8</td>
</tr>
<tr>
<td>Flower pot, 4 in.</td>
<td>1</td>
<td>7</td>
<td>7</td>
</tr>
</tbody>
</table>

#### Non-Consumable Materials

<table>
<thead>
<tr>
<th>Materials</th>
<th>Quantity per group</th>
<th>Kit Quantity</th>
<th>Chapter Lesson</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hand lens</td>
<td>6</td>
<td>4/1</td>
<td></td>
</tr>
<tr>
<td>Magnet, bar</td>
<td>12</td>
<td>7/3</td>
<td></td>
</tr>
<tr>
<td>Measuring cup</td>
<td>6</td>
<td>1/3, 4/1, 3/3</td>
<td></td>
</tr>
<tr>
<td>Measuring tape</td>
<td>6</td>
<td>5/1</td>
<td></td>
</tr>
<tr>
<td>Penny</td>
<td></td>
<td>7/2</td>
<td></td>
</tr>
<tr>
<td>Stop watch</td>
<td>1</td>
<td>2/4</td>
<td></td>
</tr>
<tr>
<td>Tablespoon</td>
<td></td>
<td>3/3</td>
<td></td>
</tr>
<tr>
<td>Toy car</td>
<td>12</td>
<td>7/3, 5/1</td>
<td></td>
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</tbody>
</table>

### Learning Lab Materials List

#### Consumable Materials

<table>
<thead>
<tr>
<th>Materials</th>
<th>Quantity per group</th>
<th>Kit Quantity</th>
<th>Chapter</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aluminum pan</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Corn, on ear</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Cotton plant</td>
<td>1</td>
<td>5</td>
<td>5</td>
</tr>
<tr>
<td>Paper</td>
<td>1</td>
<td>7</td>
<td></td>
</tr>
<tr>
<td>Paper plate</td>
<td>50</td>
<td>5</td>
<td></td>
</tr>
<tr>
<td>Plastic cup</td>
<td>100</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Plastic cup</td>
<td>1</td>
<td>24</td>
<td>5</td>
</tr>
<tr>
<td>Plastic spoon</td>
<td>1</td>
<td>5</td>
<td></td>
</tr>
<tr>
<td>Seeds, corn</td>
<td>1 bag</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Soil, potting</td>
<td>1 cup</td>
<td>3 bags</td>
<td>1</td>
</tr>
<tr>
<td>Soil, potting</td>
<td>1 spoon</td>
<td>3 bags</td>
<td>5</td>
</tr>
<tr>
<td>Water</td>
<td>filled pan daily; keep plant moist</td>
<td>1</td>
<td></td>
</tr>
</tbody>
</table>

#### Non-Consumable Materials

<table>
<thead>
<tr>
<th>Materials</th>
<th>Quantity per group</th>
<th>Kit Quantity</th>
<th>Chapter</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hand lens</td>
<td>6</td>
<td>5</td>
<td></td>
</tr>
<tr>
<td>Magnet disk</td>
<td>3</td>
<td>7</td>
<td></td>
</tr>
<tr>
<td>Magnet wand</td>
<td>1</td>
<td>7</td>
<td></td>
</tr>
<tr>
<td>Paper clips</td>
<td>1 box</td>
<td>7</td>
<td></td>
</tr>
<tr>
<td>Ruler</td>
<td>1</td>
<td>7</td>
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