

Science Activities Through Literacy

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Theme: Plants

Activity #1: Parts of a Plant

Materials: assortment of plants with intact roots, stems, and leaves

Paper, crayons and markers

1. Gather an assortment of plants and remove them from their containers so that the roots are exposed. Also include carrots, radishes and cactuses. Display the plants and ask students *what do these things have in common?* Write student responses on chart paper.
2. Choose one plant and point out where each part is on the plant, and also explain its functions.

Roots anchor the plant in the ground. Roots transport nutrients and water from the ground to the plant's stem.

Stems give the plant support. They transport water and nutrients from the roots to the rest of the plant. Plants in dry climates sometimes have thicker stems to store more water.

Leaves come in many different shapes and sizes. The leaves are where the plant manufactures its food. They also take in carbon dioxide and give off oxygen.

Flowers and **seeds** are where the new plants are made. The flowers attract insects and birds, which pollinate the flower. The seeds grow until they are release to make new plants. Every plant does not always have flowers and seeds.

3. Give one plant to each group of children. Have the children draw their plant on paper and identify the leaves, stem, roots, and flowers/seeds of their plants. Also ask students to draw as many details as they possibly can.

Activity #2: Bean Bag Terrarium

Materials: 2-3 types of flowers for each group, paper towels, resealable plastic bags, water, staples, bag of presoaked lima beans

1. Give each group of children a set of flowers. Give children time to examine the flowers. Ask groups to share observations that they make with the class.
2. Explain to children that a flower is part of a plant. It is where the seeds are made so that the plant can make more plants. Tell children to pull apart their flowers and investigate the location of the seeds. Discuss the size and shape of the seed and the plant it will become. Ask students: *When a plant grows from a seed what part of the plant forms first? What does the new plant need to grow?* Tell children they will observe a new plant as it grows from a seed.

3. Tell children that each one of them will make a bean bag terrarium. Have student follow the teacher's directions. First fold a paper towel to fit inside a plastic bag. Place the towel in the bag and add 2 teaspoons of water. Measure approximately two inches from the bottom of the bag, and staple across the bag. Drop the presoaked beans into the bag so they rest on the staples. The roots will form and grow below the staples and the stem and leaves will grow above them. Seal the bag. Have children place their bags in a sunny spot. They can tape the bags to a window with indirect light. Have students observe their seeds as they grow and record their observations in a booklet.

Activity #3: What do stems and leaves do?

Materials: celery stalks with some leaves, red or blue food coloring, spoons, knife, and containers to hold water

1. Give students celery stalks to examine and label their plant parts on paper.
2. Show the students the bottom of the celery and explain to them that you pulled the stalks apart so that they could each have one. Show them where the roots had originally been. Inform students that the part of the celery that we eat is the stem part. Ask students: *What does the stem do?* Inform students that the experiment will allow them to see how the stem brings up water and nutrients to the leaves.
3. Trim the root off the celery. Place two or three drops of food coloring into a cup and ask children to stir the coloring into the water. Have students place their celery stalk into the water with the root end down. Have them monitor the celery throughout the day for changes. The following day when the coloring has started to travel up the stalk, cut it in half crosswise. Have children examine the little colored dots in the stem. Explain that these are like little straws that bring the water and nutrients from the roots, up the stem, and to the leaves.

Activity #4: Plant Habitats

Materials: Pictures of a forest, dessert, and wetlands & pictures of a forest, dessert, and wetlands plant (e.g. cactus, pine tree, and marsh grass), crayons & markers, and paper

1. Ask students to think about where they live. Show a picture of a dessert and discuss the temperature, and clothing worn in this area. Then show students a picture of the cactus and inform students that cactuses have special parts that allow it to live in a dessert. It has a swollen stern that allows it to store water. It has skinny and small leaves (the needles) so that it does not lose any water. The needles and fuzz also provide it some shade from the hot sun for the stem. The roots are very shallow to catch as much rainwater as possible when it does rain. The cactus has adapted to life in the dessert.
2. Display pictures of a forest and wetlands. Have children brainstorm the characteristics of each place and discuss what would make it easy and hard to live there. Then display the pictures of plants found in each location. Divide the class into small groups, and have children talk about and list how the parts of each plant have adapted to these locations.
3. As an extending activity have students consider to other habitats: arctic tundra and the rainforest. Have them list the good and bad things about living in each. Then ask them to write or draw about the kinds of plants that would be best suited for these types of habitats.

Activity #5: Habitat Match

1. Label three cans: forest, desert, and wetlands & glue pictures of plants from each of these three locations to separate index cards & write the common name of the plant on the back of each card. Have children work in pairs to sort the cards into the correct cans.

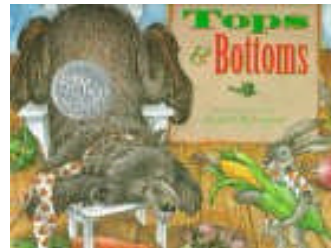
Activity #6: When I Grow Up

1. Have children match up the seeds to the plants they think they will become. Remove the seeds from the seed packets. Glue each set of seeds to a separate card and label each card (e.g. 1, 2, 3, and so on). Cut out the seeds on the seed packets, and glue the pictures to another set of cards. Label these cards with the plant's common name.

Activity #7: Tops and Bottoms

1. Read story, *Tops and Bottoms* (by Janet Stevens)

Caldecott Honor Book 1996



Description of Book: Responsibility means being dependable and making good choices ---even when nobody is watching! *Tops and Bottoms* is a hilarious story about a resourceful hare and a lazy bear. The bear learns a great lesson about being responsible as these animals work together, or actually **not** together, to plan a garden.

Ideas to use with Book:

1. In order to activate the student's schema for this lesson I will bring in actual samples of vegetables that are mentioned in the book. Some of these vegetables might include carrots, radishes, broccoli, celery, corn, etc. After presenting the items I will give the students a couple minutes to taste, touch, smell, and observe some of the vegetables that are on display.
2. Have students use pictures or flannel pieces to retell the story.
3. Using "Root Vue" (Lakeshore or Kaplan) plant a variety of vegetables and have students observe throughout time which vegetables grow under and above the ground.
4. Have students illustrate, write and discuss the growth of the various vegetables.

Activity #8: Growing Sunflowers

Have students grow sunflowers in a clear plastic cup. Students can watch the roots grow and create a journal to illustrate and write about what is happening with their plants. Student can also chart the growth of the plant and write about how they care for their plants.

Activity #9: Growing Grass

Fill a sock with dirt and Miracle Grow. Tie the bottom of the sock and draw a face on the sock. As the grass grows the student can keep a journal writing sentences and drawing illustrations. The student can cut the grass and wait to see what happens the following week.

Other Activities & Ideas:

What do seeds need to grow?

Lead a discussion by starting with "What do children need to grow?" Then, ask the students what they think plants might need.

- A. Sprout a seed in a jar/clear plastic cup with wet paper towels. A bean seed works great for this. You can also try alfalfa sprouts, or popcorn.
- B. Put some of the seeds in a windowsill to sprout. Put others in a dark corner. Discuss with the children, which of the seeds they think will grow the best. Check and show the children periodically.
- C. Have the children estimate how long it will take the seeds to germinate. Chart the growth of the seedlings after they sprout. Plant them in the soil when they become too large for the jar. I have potted them in the past, and made houseplants out of them.
- D. Write: "You find an odd-looking seed and plant it. Your seed grows into _____." Write an ending to the story.
- E. Create task cards for the children to manipulate showing the stages of a seed's growth. Children can also make their own cards to keep.

Discuss the job of the root system.

- A. Pass around enough straws and paper cups for each child.
- B. Tell the children they are the plants and the straws are the roots. This is a great explanation for the next experiment.
- C. Bring in celery or a carnation and show the children the power of the roots.
- D. Add colored water to a glass with the celery/carnation in it, and watch for the next few days as the celery/carnation changes colors. You might pre-start one to show what will happen.
- E. Create a word search or word puzzle using plant parts words OR allow the children to create the puzzle and exchange with a neighbor.
- F. Let the children pantomime plant growth.

Create several activities using all the plant and seed words that they have learned.

- A. Try a spelling bee, crossword or word puzzles. There are several software programs that will easily do this.
- B. Create a *Seed Word Book* by folding several pieces of writing paper in half and stapling it.
- C. Have the children make a mini dictionary for their terms and illustrate each item.
- D. Write several seed words on the chalkboard. Have the children use these words to create silly stories.
- E. Combine all the stories to write a class book. Choose several children to illustrate the cover and back page.

A Demonstration of Photosynthesis and Transpiration

Objective Students will examine the effect that light and air has on green plants.

- Materials**
- two planting containers
 - seeds (lima beans, peas, broad beans...)
 - soil
 - a dark area and a bright area
 - a glass bottle or jar

- Method**
- Give the seeds a little head start by soaking them in water overnight.
 - With the class, plant a few seeds in each container.
 - Place one container in a dark place and the other in a bright place.
 - Ask students to predict and record (drawing and/or writing) what they believe will happen to the seeds above and below the soil.
 - Keep the seeds in their places for a little over a week, watering them when the soil gets dry.
 - After this time, remove the seed from the dark place and compare it to the one placed in the bright place. Ask students to record what they see. Were their predictions correct?
 - Separate one seedling away from each container compare the root systems. Ask students to record what they see. Were their predictions correct?
 - Have a class discussion on reasons the difference happened. Explain **photosynthesis** (Simple definition: plants using light to make food for itself).
 - Place the rest of the unhealthy seedlings in the bright place, record any changes. Explain photosynthesis.
 - Place the healthy seedlings in bright place with a clear bottle or jar on top of them.
 - Overnight, condensation will collect on the inside of the bottle or jar. This is the water vapor that is emitted by the plant when it exchanges oxygen for carbon dioxide, which is **transpiration**

My Garden

This is my garden. I'll rake it with care.
And then some flower seeds I'll plant there.
The sun will shine,
And rain will fall,
And my garden will blossom and grow straight and tall.

Resources:

*The Mountain that loved a Bird-by Alice McLerran /Ill. By Eric Carle
The Tiny Seed-by Eric Carle
Titch- by Pat Hutchins
Will Spring be early? Or Will Spring be Late- by Crocket Johnson
First Comes Spring- by Anne Rockwell
Round Robin-by Jack Kent
Anna in the Garden-by Diane Hearn
The Green Man-by Gail Haley
The Pea Patch Jig- by Thatcher Hurd
Sunflower House-by Eve Bunting
A Weed is a Seed- by Feida Wolff
From Seed to Plant by Gail Gibbons
Flowers, Fruits, Seeds by Jerome Wexler
Planting a Rainbow by Lois Ehlert
The Giving Tree by Shel Silverstein
The Carrot Seed by Ruth Kraus
The Flower Alphabet Book by Jerry Pallota
The Popcorn Book by Tomie dePoala
Sunflower by Miela Ford

Interactive Websites

[The Great Plant Escape](#)

Help unlock the amazing mysteries of plant life.

[All About Plants](#)

Web quest to find information about plants.

[The Dirt on Soil](#)

Find out what really goes on under the ground

[In Search of Green Life](#)

Label the parts of a plant.

[Plant Explorer](#)

Interactive guide to parts of a plant, what plants need, flowers, etc..

[Life Cycle of Flowering Plants](#)

Place labels and notes in correct sequence

[Plant Reproduction](#)

Fill in the correct words in a story about plant reproduction.

[Plant Games from PrimaryGames.com](#)

Theme: Animals/Habitats/Climate

Activities:

1. Have students compare their countries' climate to that of the United States'. Create a VENN diagram to show how the two are similar and different. Also discuss which plants and animals live in the two different countries.
2. Discuss which animals live in a forest & how they survive (e.g. Deer live in the forest and they eat grass and other low plants. Squirrels eat seeds and nuts).
3. Students draw a picture of animals that live a forest in the summer or winter. Write a caption for the picture & tell a partner about it.
4. Students could work in pairs or small groups and after choosing a place where animals live, they cut pictures out of magazines that represent their topics.
5. Students can sort pictures into categories based on places animals live.
6. On poster board list four or five different habitats and place picture cards in front of children. Have the children sort out the animal cards onto the poster board based on the animal's habitat.
7. List these categories on the board: *worms, mollusks, insects, arachnids, reptiles, amphibians, fish, birds, and mammals*. Have children list three examples for each category.
8. Invite children to sort out plastic animals by sorting them into trays. Post a list of possible classifications for children to use (e.g. size, way that they move, habitat, outer covering, and/or type of animal).
9. Have children pair animals into "Mommy/Daddy verses their Babies". Have children play in pairs or small groups. Explain to children that each pair consists of an adult and a baby picture of an animal. Teachers will have to provide a variety of picture cards so that students can play this game.
10. Use flashcards from www.bogglesworld.com to sort into categories based on characteristics. Also the teacher can create a matching game with these cards.
11. Use animal habitat flashcards from www.bogglesworld.com to teach prepositions. Also teacher can find a word search on this website. The cards can be used for discussions, or some sort of matching game.
12. Create an animal habitat booklet and use extended activities provided.
13. Create a food chain.
14. Students can complete activities for watching the development of a pupa (mealworm and caterpillar).

15. Have students create an animal habitat of his or her choice. Students can use items from nature or create a diorama. Also have students briefly write about their projects. Display children's work.

Rainforest/Environment

Activities:

1. Choose an environment group that interests you and write a letter to that group. Ask how the group helps the environment and ask what can you do to help.

Addresses:

The Children's Rainforest P.O. Box 936 Lewistown, Maine 04240	Kids Against Pollution (KAP) Tenakill School 275 High Street Closter, New Jersey 07624
The Nature Conservancy 1815 North Lynn Street Arlington, Virginia 22209	World Wildlife Fund 1250 24 th Street NW Washington, DC 20037

2. Draw a picture of an animal in its habitat. Write about the animal's habitat.
3. Share the information you receive from the environmental group with the class. Plan what your next step will be in helping to protect the environment.
4. **Create a Mini Rainforest in a Bottle:**

Materials

- Book *Nature's Green Umbrella: Tropical Rain Forests* by Gail Gibbons
- 2 Liter soda bottles
- Stones or gravel
- Potting soil
- Plant Cuttings
- Plastic bags and bag ties

Procedure

- Read the book *Nature's Green Umbrella: Tropical Rain Forests* by Gail Gibbons.
- Have students place a layer of stones on the bottom of a soda bottle.

-Add a two to three inch layer of potting soil on top of the rocks.

-Plant a few plant cuttings making sure all roots are covered.

Water the plants until the soil is moist.

-Demonstrate to students how to cover one of their plant cuttings, from the base to the top, with a plastic bag. Use a bag tie to secure the bag at the stem.

-Place the bottles in a warm, sunlit area.

-After several hours, have students make observations about their bottles.

-Explain the processes of transpiration, condensation, and precipitation.

-Observe what happens in the bottle everyday during the unit.

5. Hand out copies of rain forest animals to each student. Discuss the layers of the rain forest and how animals live in different layers. Have students cut out animals and glue them in the proper layer. They can color animals and forest.
6. Divide the class into groups and have them make posters to make the school more aware of saving the rain forest. Have each group create a slogan and then design a poster around the slogan. Hang the posters around the school.
7. Have the students read the play, *Save the Great Kapok Tree*.
8. Have students paint a picture of the rainforest and verbally tell the class about their pictures.
9. Teacher can create a variety of graphs for students themed around the Rainforest and then have students complete the questions.
10. Teacher can display a Rainforest and its four layers. Have children color pictures of animals and then place them on the display board in the correct layer. Students can also tell about the different layers (*see attachment*)
11. Students can write reports about an animal found in the rainforest.
12. Read Reader's theater script, *The Rainforest*. Students can also develop props for the play (*play is attached*).

Rocks/Fossils/Earth

Activities:

1. Rock Testing: Have children choose three rocks that they think are interesting. Have them perform tests on each of the rocks. Ask them to do all the tests with one rock at a time. Encourage them to record their observations as they work.

2. Fossil Match: Before the students complete this activity the fossils have to already be prepared. Press a layer of modeling clay into the bottom of each container. Spread petroleum jelly over an object, and press it into the clay, leaving an impression. Repeat this process for each “fossil”. Number each container. Include extra objects that were not used to make fossil impressions. (see attached)
3. Show students a variety of rocks and have them discuss their similarities and differences. Children draw conclusions about the rocks by scratching them with their fingernails, a penny, and a paper clip. They make a hardness chart and record their findings of each of the rocks. They identify which objects make a mark on each of the rocks. Objects harder than minerals leave marks. Students look at the chart and discuss their results.
4. Discuss with students what they know about fossils. Complete a KWL chart. Ask students “*What can we learn from fossils?*”
5. Excavate: Place a small object inside a flattened ball of clay. Cover the object with clay and let it get hard. After it’s hard, trade clay with classmates. Use a variety of tools to uncover the object in the clay. Tell your classmates what you discovered.
6. Discuss the meaning of the word *extinct*. After discussing the sequence of events that explain how dinosaurs became fossils. Have children illustrate pictures to explain this process. (e.g. 1-dinosaurs lived in Earth millions of years ago, 2-dinosaurs died out, 3-The bones and teeth of some dinosaurs became fossils, 4-Today, scientists learn about dinosaurs from fossils)
7. Teacher show picture of how fossils were formed & explain to students the differences between something that is soft vs. hard (e.g. bones and skin). Have students find examples around the classroom.
8. Make a Print in Clay: Model for children how to press an object carefully into the clay and then remove it to make an imprint. Have children explain how they inferred what made the imprint.
9. Sort herbivorous and carnivorous dinosaurs.
10. Try to use visuals to describe the size and height of dinosaurs.

Gas, Solids and Liquids

Activities:

1. Make cookies. Ask how many solids, liquids, and gases are in the recipe. After you have made the cookies evaluate and see if the children can name all the states of matter.

Recipe for the cookies are as follows:

No Bake Cookies

one half cup of butter
two cups of sugar
one half cup of milk
two tablespoons of cocoa
one fourth teaspoon of salt

Bring this to a full boil and remove from the heat. add one half cup of peanut butter while it is still hot, also add one fourth teaspoon vanilla flavor, and three cups of Quick Oats. Use a tablespoon and spoon the cookies onto wax paper.

Serve the cookies with juice or milk.

2. Introduce the three states of matter and create a table with the students' definition of each of the states of matter. Then allow the children to select solids out of a grab bag and have them describe the solid objects by talk about color, shape, size, weight, space, and what is it used for.

Ask the class what is left in the bag after everything is taken out. AIR! Pass out objects with air in them, such as balloons, and balls. Ask students, "What is air?" It is a gas. Talk about what gas does. Fill a clear container with water and take a cup stuffed with a paper towel in the bottom. Push the cup straight down in the water. Does the towel get wet? No! Why? What is the water in the container? Liquid

3. Forms of Water: This is a great way to spice up a common simple experiment demonstrating the three forms of water.

Materials: Fill a rubber glove with water and freeze the night before the lesson

You will also need: a burner and a pot

Show students the hand-shaped ice sculpture. Place the pot on the burner, and the ice in the pot. Have the students observe the hand every few minutes and record their observations in picture form and/or writing. Students can also label the picture. Have the students note the water vapor and explain how it is a gas.

4. Burn a candle and allow it to burn long enough to accumulate a puddle of melted wax. Allow children to witness the wax changing from a solid to a liquid and to respond to this change. Ask what caused the solid to change to liquid? Next, place a small drop of cooking oil into a sauce pan. Crack a raw egg and ask the children to predict what will happen once the heat has been applied to the egg? Allow the children to see the egg change from a fluid-like form to a stiff, solid form. Ask what the two demonstrations have in common. What

had to happen in order for the matter to change from one form to another?

Explain that heat can cause matter to change from one form to another. Describe the difference between a physical change and a chemical change as they relate to each demonstration.

5. **Blowing Bubbles:** The teacher can buy bubble liquid from discount store or make your own by mixing two cups of water to two tablespoons of liquid soap for each group of children. Give each group a tin pan with bubble mixture. Do this activity indoors or out, but have plenty paper towels on hand for spills. Begin by asking children: what's a bubble made of? What makes it float? Give each one a Styrofoam cup and a drinking straw. Demonstrate how to use a pencil to make a hole just large enough for the straw to be inserted into one side near the bottom. Have one child at a time place his or her cup mouth down into the soapy mixture until a film forms across the top. Slowly lift the cup from the pan and turn it right side up. Blow gently into straw to form bubbles. Discuss: bubble-blowing techniques, correlation between the amount of air and size of bubble and what happens when a bubble bursts.

6. **Egg-in-a-bottle Brain Teaser:** Strike a match and light a small piece of paper. Place burning paper in a jar and put the small end of egg on top of the mouth of the bottle. The fire heats up the air inside the bottle and the egg starts to "dance". Since the fire consumes the oxygen in the bottle, the air pressure outside the bottle is greater than the air pressure inside the bottle. The outside air pressure pushes the egg into the bottle. Ask children if they can think of a way to get the egg out of the bottle without breaking the bottle. You can heat the bottle and then turn it upside down or hold it upside down and blow into it. This increases the air pressure inside the bottle and forces the egg out. Demonstrate both and have children try to explain what happened.

7. **Making Oobleck:** Need water and cornstarch (optional food coloring)

Mix 1 part water with 1.5 to 2 parts cornstarch. You may wish to start with one cup of water and one and a half cups of cornstarch, then work in more cornstarch if you want a more 'solid' oobleck. It will take about 10 minutes of mixing to get nice homogeneous oobleck.

Mix in a few drops of food coloring if you want colored oobleck. **Tips:** Oobleck is a type of non-Newtonian fluid called a dilatant. If you slowly lower your hand into oobleck, it will sink, but it is difficult to quickly remove your hand (without taking all the oobleck and its container with you). If you squeeze or punch the oobleck, the starch particles will not move out of the way quickly, so the oobleck will feel solid. Oobleck can be molded in a container, but when the mold is removed, the oobleck will lose its shape.

Have students discuss whether the oobleck is considered to be a liquid or solid and why?

Weather/Seasons

Activities:

1. **Evaporation:** experiment

Materials: measuring cup, clear plastic saucer, clear shallow plastic bowl, clear plastic cup, room-temperature water

Make sure that a half cup of water will fit into each of the containers without overflowing. Also make sure that the containers are identical in color and composition. Use room temperature tap water. Adding a drop of food coloring to each puddle will make measuring the remaining water easier for children. Stress to children that they should be careful not to spill any of the water at any time. Losing even a few drops can affect the outcome of this experiment.

Ask students to make predictions about which will evaporate first (write predictions on charts). Students can make graphs and draw pictures as they analyze the experiment daily. Discuss what happened and why it happened in the end.

2. Teachers can have students cut pictures out of magazines that relate to specific seasons and have them sort them, create collages, or glue them on paper and then have students write about their pictures.
3. Display pictures from calendars and magazines that illustrate each season. Say the name of a season and point to a picture of it. Have children repeat the name after you. When children are comfortable saying the names and identifying the seasons, point to a picture and ask them to name the season.
4. Write *spring, summer, winter, fall* and *season* on the board. Have children use the terms to ask and answer questions about the pictures.
5. Have children write sentences about the pictures using the terms *spring, summer, winter, fall* and *season*.
6. **Wind:** Tell children to act out trying to hold onto a hat in windy weather and winding string around a pencil. This activity is completed so that children don't confuse the two homographs. Also children can draw pictures to illustrate the homograph. Ask questions that require the children to use the correct word. Have children make up sentences using the homograph, or provide sentences such as the following and have children complete them with the correct word: *You need ____ to fly a kite. Did you ____ the clock?*

7. Have children make a set of 5-6 question-and-answer cards about why and how we measure weather. Have them write each question on a separate index card and the answer on the reverse side. Children can then use their cards to play a question and answer game. For example, one player may read the answer and challenge another player to come up with the correct question.
8. Students can make a chart or a bar graph measuring the quantities of rainfall or snow they received throughout the season. After the chart or bar graphs have been complete they can each make a statement about the information and ask another student a question about the same information.
9. After discussing various types of weather conditions the teacher can ask students about what types of weather conditions they like and why they like it. They can also create a VENN diagram to compare and contrast types of weather conditions that they have experienced in the United States vs. their own countries. Also you can discuss what types of activities they like to do in each of the seasons. Students can illustrate this information. They can write sentences under their illustrations.
10. Teachers can discuss with students how they should dress for each of the seasons. Students can cut pictures out of magazines to represent what they should wear during each of the seasons.
11. Teachers can have the students create *theme file folder Word Walls*. Teacher gives students an outline picture of an umbrella and a file folder. In the file folder the student glues or illustrates pictures related the theme. Also it could be words and pictures the teacher provides in class. The student has a themed Word Wall that they can always use to help them write and understand what is being discussed.
12. Teacher can have students create a *VENN Diagram* and have students compare two seasons.
13. **Evaporation:** Have students paint water color pictures and observe the effects of evaporation on the paper. Ask children to place their piece of paper in a sunny location until it is fully dry.
14. **Measuring Temperature:** Have children measure and compare the temperature of four locations over a period of a week. Place a thermometer in each of these four locations: full sun, shade, over soil in light shade, over sand or concrete in light shade. At the end of the week have students answer the following questions: *Which location was the warmest? Which location was the coolest? If the temperature were different, why do you think that happened?*

Weather Words: Make two copies of weather words reproducible, cut apart the phrases, and glue each phrase to a card. Have children choose one card and draw a picture of it. Once all cards are illustrated, have children use them to play a matching game. (*Reproducible attached*)

Solar System

Activities:

1. Have a child in each pair hold a card that says *sun* and the other hold a card that says *Earth*. Have the *sun* child stand still as the "*Earth*" child turns around. Tell "*Earth*" to say *day* when he/she sees the *sun*. When "*Earth*" doesn't see the *sun*, have the child say *night*.
2. Have children draw a picture of Earth and the sun and label the parts of *Earth* day and night.
3. Have children draw pictures and draw captions to show how Earth's rotation causes night and day.
4. Different planets have different numbers of hours in their days. This is because they all rotate at different speeds. Make a bar graph that shows the number of hours in a day for each planet.
5. Model Moon Phases: Wrap a ball in foil. Hold the ball while a partner shines a light onto it. Slowly turn in place, keeping the ball in front of you. When do you see the new moon? quarter moons? and full moon?
6. Make a chart with two columns (cause and effect). Show the cause and effect of the phases of the moon.
7. Make a blank calendar. Go outside each month for one month, and observe the moon. Draw what you see. Label the new, first quarter, full, and last quarter moon. How many days are there between the phases?
8. Teacher has cards with definitions and other cards with pictures. The students are asked to work together to match them up.
9. Choose a planet. Find out four facts about it, and write a short report. Share your report with the class.
10. Shadows change during the day and the sun's position causes the shadow to change because it shines on Earth differently throughout the day. Have the student stand outside in the morning. Have a partner trace your feet with chalk and label the shadow. Stand outside two hours later in the same place. Have your partner use chalk to trace your shadow again. Repeat two hours later and communicate what you observed.

11. Have children draw a chart with two headings: *Things I Do When It Is Light & Things I Do When It Is Dark*. Have children fill in their charts by listing appropriate activities in each column. After children have completed their charts, make a class chart on the board, and fill it in with children's suggestions. Then discuss which activities are listed in both columns and which appear in only one column.

12. Edible Solar System

I've used a lesson on making a solar system with different candies. It doesn't get the true size difference but does bring out some characteristics. You can either draw your orbits on black construction paper or a paper plate. Sun- butterscotch, Mercury- orange jujube; Venus- Nestle's snow caps; Earth- blue Skittle; Mars- red Skittle; asteroid belt- candy sprinkles; Jupiter- peppermint with red hot stuck on top; Saturn- lemon drop with twizzler wrapped around; Uranus- green Jujube; Neptune- aqua Skittle; Pluto- tart n tiny. I changed some of the candies that I couldn't find and used some sweet tarts and mini M&Ms.

13. Scott Foresman Science-3rd Grade

Has a great science "experiment" for this. Using a shoe box, golf ball, string, tack and flashlight. The string is thumb tacked to the golf ball and hung from the center interior lid of the shoebox. Tape the lid down. Cut a hole for the flashlight at one end. Cut 3 eye holes on the remaining sides of the shoe box. Then peer through and record your observations of the phases of the moon.

14. The Science Guy has a great video on the phases. Honestly, it didn't click for me until I saw it, even though I thought I had a good grasp on it to begin with. He likens it to a baseball field - Earth is always the pitcher, the sun is always the catcher, and the moon is running the bases. 1st base = first quarter, etc.

15. Another fun activity to go along with the phases of the moon....the students use vanilla wafers as the moon, and they dip them in chocolate to model the phases of the moon. (they dip 1/2, 3/4 , etc.).

16. Book List:

The stories by Frank Asch would be good literature tie in for K - 2. Some of the titles are *Mooncake*, *Moonbear*, and *Moon Dance*. Also, Regards to *Man in the Moon* by Ezra Jack Keats and *Papa, Please Get the Moon for Me* by Eric Carle. Frank Brantley has several early science book about the moon.

17. Give students black paper (strip) and eat your way through the phases using a vanilla wafer cookie. Glue the parts you do not eat. A new moon we traced using a template and ate the whole cookie.

18. Use the website www.bogglesworld.com for worksheets, flashcards, and word searches.

Pollution/Recycle

Activities:

1. **How Clean Is The Air?** Experiment

Materials: 4 Index Cards, Petroleum Jelly, a Hole Puncher, String, and Hand Lens

Begin by writing a number on each card. Punch a hole at one end of each card. Tie a long piece of string through the hole to use as a hanger. Spread a thin layer of petroleum jelly on one side of each card. Hang each card in a different place: at school, at home, or outdoors in a place protected from rain. Collect the cards at the end of one week. Use a hand lens to look closely at each card. Tell what you see.

What places seem to have the most air pollution? What places seem to have the cleanest air?

2. List everything you throw away for one day. Identify the things you could have recycled.

Make a chart like this one:

Metal	Glass	Plastic	Paper

Have students cut pictures out of magazines and have them sort them into categories. Have students write items you can recycle under each column.

3. **See Through Composter:** Experiment

Materials: clear glass containers, soil, a Styrofoam cup, coffee grains, left-over food, something plastic, etc.

Students will bury each of the items in a separate glass container and pour soil over it. Students are to watch daily to see what happens in each of the containers. Which items decompose and which ones don't.

4. **Model An Oil Spill:**

Materials: jar, water, oil, feathers

Put some water in a jar, and add a little oil. Dip a real feather or a paper feather into the oily water. Then feel the feather. Discuss how you think oil spills harm birds.

5. Bring a variety of items you saved and didn't throw out. Have children create something from recycled garbage. It could be a piece of art work, something useful, or even something to play with. Have children discuss what items they used and how they could make similar items. (for example: use an old container to make a pencil holder. Wrap some construction paper around it and decorate it, put your pencils in it).
6. Write and illustrate *reuse*, *reduce*, and *recycle* on index cards. Talk about each picture. Then say each definition, and have children point to the correct card and say the word.
7. Display jars labeled *reuse*, *reduce*, and *recycle*. Write examples of reducing, reusing, and recycling on slips of paper. Have children read the sentences and place the papers in the correct jars.
8. Write sentences that contain *reuse*, *reduce*, and *recycle*, leaving blanks for the words. Read aloud the sentences. Have volunteers write the missing words and read the completed sentences.

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Senses

Activities:

1. **Sight:** Give each pair of students a newspaper article and a transparency square. Have the children set the square on top of the article. Put a large drop of water on the plastic. Ask children to observe what happens to the letters underneath. Have children notice the bulge of the water drop from the side. The curved surface is magnifying the letters. It is acting like a mini magnifying glass.
2. **Sight:** Have children test their vision at a distance. Have one partner write a message in very small letters on a piece of paper. Then have the other partner stand at the other

- side of the room and take a step forward until he or she is able to read the message. Students could continue the activity by switching partners.
3. **Use a Sensory Box:** Teachers can make sensory boxes (just make sure you include a hole, so that children can stick their hands inside and feel the objects. Students use their sense of touch to try to identify objects inside of the box. Students identify the shape, texture, size, etc of the objects.
 4. **Blindfold Students:** Teacher blind folds the students and reads a set of directions to him/her. Student has to listen to directions to be able to feel himself/herself around the room and find the objects that he or she are being asked to find (students all senses to find the objects).
 5. **Blindfold Students:** Teachers blind fold students and place objects in front of student. The student uses all senses to try to figure out what object is in front of him/her.
 6. **Taste:** Teacher can teach different tastes by allowing the students to taste various objects. For example: teaching sweet vs. salty-students taste pretzels & cookies. Once the students have tasted the variety of objects, the teacher can introduce new items to taste and the students identify which taste each object has. Students can even draw a table identifying the item they are tasting and the item's taste.
 7. **What do you Hear?:** Before the students complete this activity the instructor has to record things around the house or neighborhood. Before each new noise the teacher says 1, 2, 3.... When the students are completing the listening activity in class they number their paper and listen to the sounds and try to identify what they heard.
 8. **Tell the Smell:** Put a drop or pinch of a scent in each film canister. Add a cotton ball, and seal the canisters 1-6 (can make more if desired). Tell children to open one canister at a time. Ask them to take a small sniff of the contents and make a prediction about what they smell. When teacher reviews assignment he/she can even discuss the characteristics of each smell and why students made the predictions they did.

Optical Illusions: Students can go over the enclosed sheet and discuss what they see; as well as which they saw first.