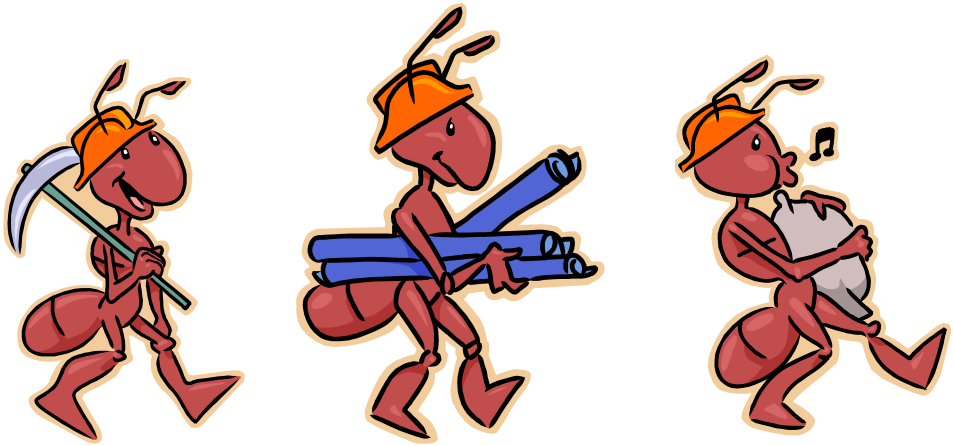
Underground Animals
Second Grade



NSF North Mississippi GK-8
University of Mississippi

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Activities

Materials

Books: *Diary of a Worm,* by Doreen Cronin, 2003
Earthworms, Underground Burrowers, Adele D. Richardson, 2001
Dirt, The Scoop on Soil, Natalie M. Rosinsky

Videos: "The Incredible Ant" by My Little Scientists, 2001
The Magic School Bus – Gets Ants in its Pants, 1994

Activity Sets: Worm-Vue Wonders
Uncle Milton's Fascinating Ant Farm

The Layers of the Earth

Intended for Grade: Second

Subject: Science

Description: This activity consists of a group activity and an individual activity in which the students become familiar with and then model the layers of the Earth.

Objective: The student will be able to identify, describe, and model the major layers of the Earth.

Mississippi Frameworks addressed:

- Science Framework 5a: Create a model depicting the layers of the Earth.
- Math Framework 1e: Recognize, describe, and present models of three-dimensional figures (e.g., sphere, cube, rectangular prism, cylinder, and cone).
- Math Framework 7e: Identify, discuss, and draw representations of equivalent fractions through one-third.

National Standards addressed:

- Content Standard D: Earth and Space Science
- Math Standard: Geometry
- Math Standard: Number and Operations

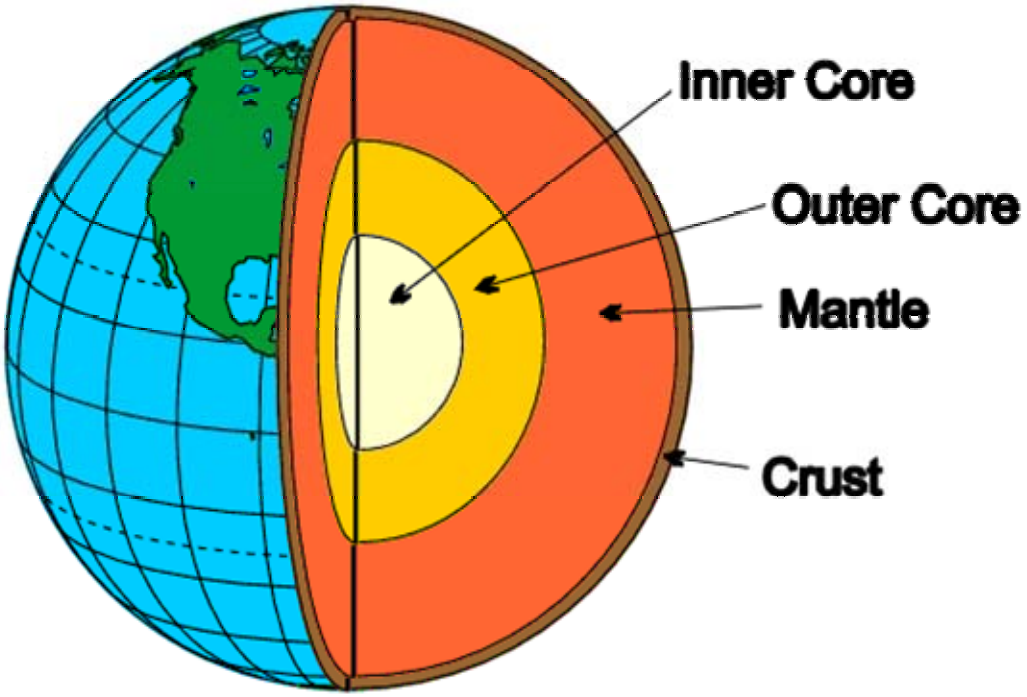
Materials:

- 1 hard-boiled egg (un-peeled, cut in half lengthwise)
- several apples (one apple for each group of 4 students)
- a knife
- plates (one for each student)

- Play-Doh or modeling clay (red, orange, green, and blue)
- pictures of the layers of the earth (included)

Background:

The Earth is made up of three main layers: the crust, the mantle, and the core. The crust is the layer that we live on, and it is the most widely studied and understood layer of the Earth. The mantle is a thick, dense, hot layer of semi-solid rock below the crust. The core is in the center of the earth and is composed of a liquid outer core and a solid inner core.



http://www.educ.uvic.ca/Faculty/jtinney/earth%20science/IMAGES/strrth.gif

The crust lies beneath the continents and the oceans and consists of soil, fragmented rock, and rigid bedrock. The crust is only about 3-5 miles thick under the oceans and about 25 miles thick under the continents. The temperatures of the crust vary from air temperature at the surface to about 1,000 degrees Fahrenheit in the deepest parts of the crust. It is very thin and brittle when compared to the other two layers, and it is broken into many pieces called plates. The plates "float" on the soft, plastic mantle

which is located below the crust. These plates usually move along smoothly, but sometimes they stick and pressure builds up. As the pressure builds, the rock bends until it snaps. When this occurs, an earthquake is the result!

Since the deepest layers of the Earth (the mantle and the core) cannot be sampled or directly observed, scientists learn about them by monitoring earthquakes. Earthquakes create seismic waves that travel through the Earth and bend and reflect at the interfaces between different materials. By analyzing seismic waves, scientists can explore the Earth's deep interior. When an earthquake occurs, seismic waves such as S waves, P waves, and Surface waves are recorded at observatories throughout the world. At observatories close to the earthquake, strong S, P, and Surface waves are recorded in quick succession. At observatories further away, the waves arrive later and there are delays between the arrival times of each wave type. By noting the delays and changes in the directions of the waves, scientists have found the boundaries between the Earth's layers. Also, P waves can pass through solids and fluids, while S waves can only pass through solids. Since S waves do not pass through the outer core, we infer that the outer core is liquid. In this way, scientists have determined the compositions of the mantle and the core.

The mantle lies beneath the crust and extends to a depth of about 1,800 miles. It consists of mostly rigid rock, but some rocks in the mantle flow like toothpaste. The mantle is much hotter and denser than the crust because the temperatures and pressures inside the Earth increase with depth. Temperatures in the mantle range from 1,000 degrees Fahrenheit to as high as 3,700 degrees Fahrenheit. Because the mantle is made of much denser, thicker material than the crust, the crustal plates "float" on the mantle like oil floats on water.

The core is located in the center of the earth and is made of metals such as iron and nickel, which make it twice as dense as the mantle (which is composed of rock). The outer core is so hot that the metals in it are all in the liquid state. As the Earth rotates, the liquid outer core spins, creating the Earth's magnetic field. The outer core is located about 1,800 miles beneath the crust and is about 1,400 miles thick. The inner core has temperatures and pressures so great that the metals are squeezed together and are not able to move about like a liquid, but are forced to vibrate in place as a solid. The inner core begins about 3,200 miles beneath the crust and is about 800 miles thick. The temperatures may reach 9,000 degrees

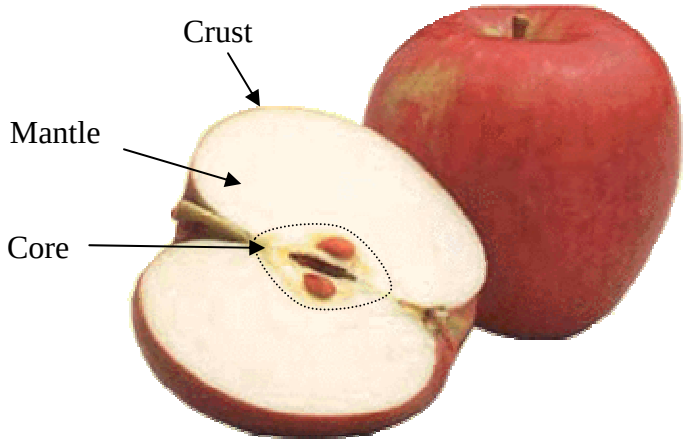
Fahrenheit and the pressures are 45,000,000 pounds per square inch. This is 3,000,000 times the air pressure that you experience at sea level!!!

A good way to think about the relative thicknesses of the Earth's three layers is to picture the three layers of a boiled egg: the shell, the egg white, and the yolk. The thickness of the crust would be comparable to the thin, brittle shell of the egg. The mantle could be compared to the relative thickness of the egg white, and the egg yolk could represent the Earth's core.

Procedure:

1. Separate the students into groups of 4.
2. Begin by discussing the Earth with the students. Ask the following questions:
    a. What is the shape of the earth?
    b. Where do we live, on the outside or the inside of the Earth?
    c. What is inside the earth?
    d. What would it be like inside the earth?
3. After the students answer the questions, discuss the three main layers of the Earth. Explain that we live on the crust, but that it is very thin compared to the other layers. Describe the other layers as well.
4. While discussing the layers of the Earth, show the pictures included in this activity.
5. Then show the hard-boiled egg (cut in half but not peeled). Ask the students if they see any distinct sections within the egg. Explain that the thicknesses of these sections can be compared to the layers of the Earth. Which layer is thinnest on the egg? Which layer of the Earth would the egg shell represent? Go through all three layers of the egg and discuss similarities between them and the Earth's layers. Also, point out that the egg is cut in two equal pieces, or halves.
6. Pass out plates to each student and pass out one whole apple to each group of 4 students.

7. Go to each group and cut their apple in half. Ask the students which sections of the apple represent which layers of the earth and why. Then cut each half in half. Discuss that the apple has been cut into four equal pieces, or fourths. Then remove the core from each slice and allow the students to eat the slices.



http://physics.bu.edu/ATLAS/guide/Graphics/one-half.gif

8. After all of the groups have correctly identified which layers of the apples represent which layers of the Earth, throw the plates away.
9. Pass out the Play-Doh. This is how much you will need *per student*:
    a. Core: 1/8 of a container (red)
    b. Mantle: 2/3 of a container (orange)
    c. Crust: 1/3 of a container (blue); a pinch (green)

    Therefore, if you have groups of four, each group will need 1 container of red, 3 containers of orange, 2 containers of blue, and one container of green.

10. Explain to the students that they will be modeling the layers of the Earth using Play-Doh. How many layers will they need to make? What shape will they make? (sphere) How many colors of Play-Doh will they need? Which layer will need to be the thickest? Which layer will be the thinnest?

11. Pass out the red Play-Doh, which will be the core. Instruct one student in the group to divide the cylinder of Play-Doh in half. (You will have to shake the container to get the cylinder of Play-Doh out because if you reach in and pull it out you will dent it.) Then instruct the student to divide each half in half. How many pieces is the Play-Doh in now? Now divide each fourth in half. How many pieces is the Play-Doh in now? If each student in the group needs 1/8 of a piece of Play-Doh, how many pieces are left over? After each student takes 1/8 of the Play-Doh, the remaining Play-Doh (4/8, or 1/2) can be put away.

12. The orange Play-Doh will be the mantle. Give the other three group members a container of orange Play-Doh. Have each student divide his or her cylinder of Play-Doh into three equal pieces. Explain that the pieces are called thirds. Show the class one-third, two-thirds, and three-thirds, or the whole piece of Play-Doh. If each student needs 2/3 of a container of orange, how much is left over from the entire group? (For a group of four with three containers of Play-Doh, 1/3 will be left over.)

13. The green and blue Play-Doh will be the crust. The green will be used to make continents and the blue will be used to make the oceans. Each student should have enough blue Play-Doh to make a very thin layer around the mantle. Give two students the cans of blue Play-Doh and instruct them to divide the cylinders into thirds again. Each student will need 1/3 of a container of blue Play-Doh. Flatten the blue Play-Doh so that it can wrap around the entire mantle. Only a small pinch of green is needed per student. The green can be divided into seven pieces, one for each continent on Earth. The students can look at a globe to see which shapes to make the continents and where to place them.

14. Explain that the Earth models will be cut in half at the end of the activity so that the layers can be seen. Only explain that red is for the core, orange is for the mantle, and blue is for the crust (with green continents). Don't actually tell the locations of each layer; let the students figure it out!

15. Allow the students to create their models. Then go to each group and carefully cut the models in half, exposing the Earth's layers! This will be more difficult than it sounds, as the Play-

Doh will deform when you cut it. To minimize deformation, slowly saw the spheres in half with a plastic knife. You will have to reshape each half of the Earth model after it is cut.

16. After all of the Earth models have been cut, ask the students what shape the models were to begin with (spherical). Then discuss that the models were cut in two parts called halves. Go over each layer of the Earth? Which color represents which layer?

Evaluation:

- Could the students identify which layer of the apple corresponded with each layer of the Earth?
- Did each student's model correctly depict the locations and relative thicknesses of the layers of the Earth?

Extended Activities:

Make a "Layers of the Earth" cake for your class and have a quick review before eating it!

What you'll need:

- Red velvet cake mix and the ingredients it requires (this will be the core)
- Chocolate cake mix and the ingredients it requires (this will be the mantle)
- Chocolate icing (this will stick the mantle to the crust)
- Green or blue icing (this will be the crust)

How to do it:

- Bake the red velvet cake and the chocolate cake at home. Make sure that the chocolate cake is not quite as thick as the red velvet cake, but make them the same length and width.
- Bring the cakes to the classroom in the pans they were baked in. Cut the red velvet cake and the chocolate cake into equal pieces such that each group gets one piece of each cake.

- Give each group a piece of red velvet cake, chocolate cake, chocolate icing, and blue or green icing.
- The students can place the chocolate cake on top of the red velvet cake and stick the two together with chocolate icing. Then the blue or green icing can be spread on top of the chocolate cake.
- Ask the students to explain which Earth layer is represented by which color cake or icing. The red velvet cake represents the core. The chocolate cake represents the mantle. The blue or green icing represents the crust. Note: the chocolate icing is only used to stick the mantle to the core- it does not represent a layer. The layers are represented by the three different colors.
- Also, note the relative thicknesses of each layer- they should be similar to that of the Earth (for example, the core is the thickest and the crust is much thinner than both of the other layers). You can show the "slice" of the Earth picture included with this activity.
- Now ask the group to cut their Earth cake into equal pieces so that every member of the group gets a piece of cake. Use this time to discuss the fraction of the cake that each member will be eating. Enjoy!

Sources:

http://geosun1.sjsu.edu/~dreed/images/exer2/earth-layers.GIF

http://pubs.usgs.gov/publications/text/inside.html

http://volcano.und.nodak.edu/vwdocs/vwlessons/lessons/Earths_layers/Earths_layers1.html

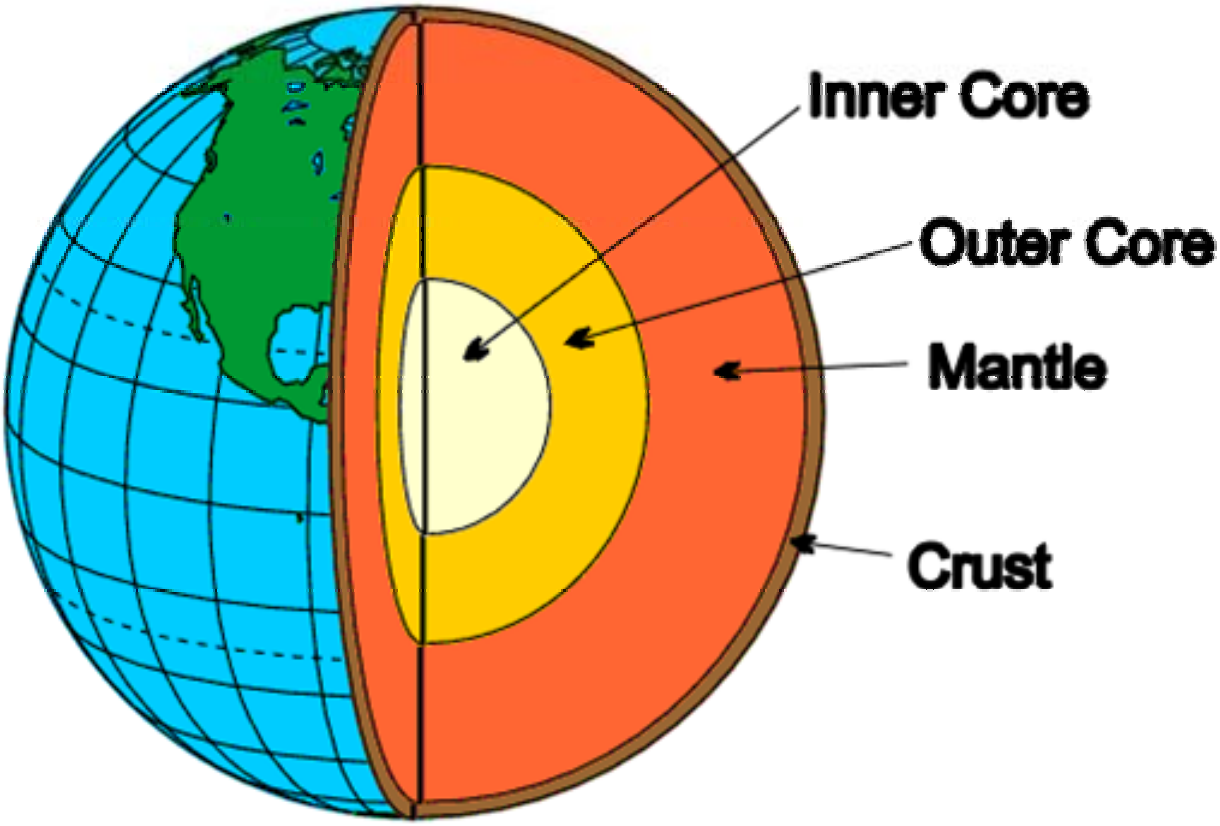
http://seismo.unr.edu/ftp/pub/louie/class/100/interior.html

http://www.coaleducation.org/lessons/sme/elem/2.htm

http://www.iris.edu/edu/onepagers/no5.pdf

Prepared by:

Ashley Phillips
NSF NMGK8
University of Mississippi
May 2004



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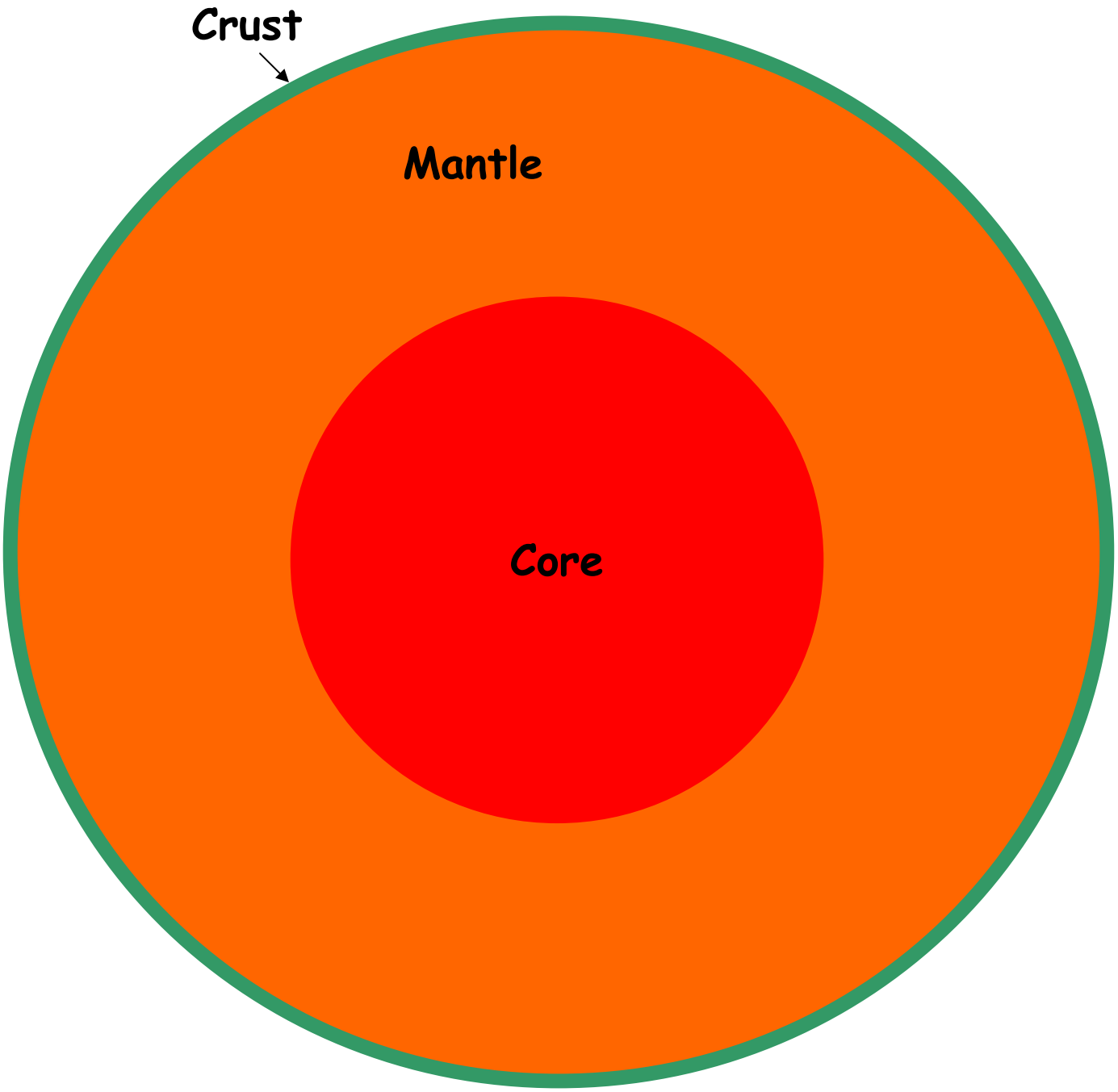
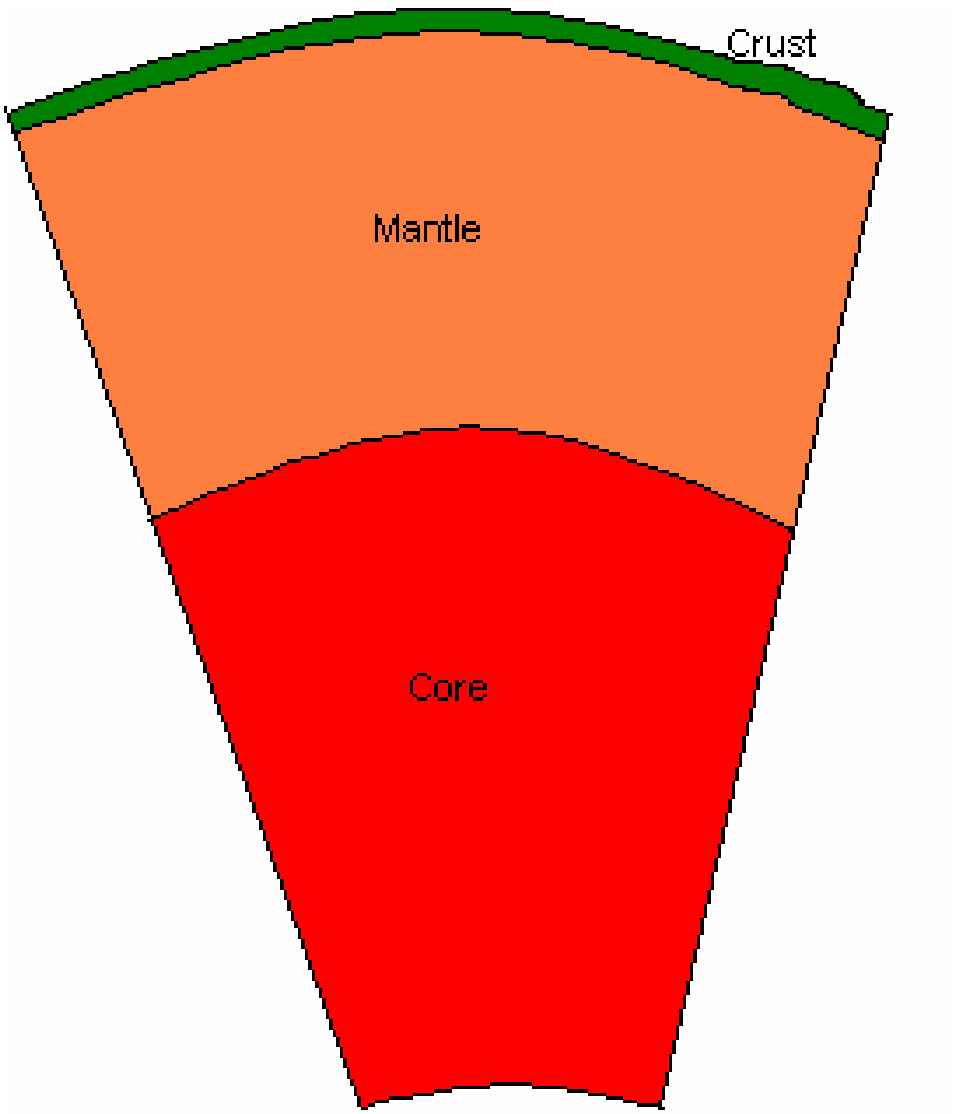

Crust
Mantle
Core


Crust
Mantle
Core

What's in the Soil?

Intended for Grade: Second

Subject: Science

Description: This activity includes three group activities in which the students examine various earth materials with a magnifying glass, compare and contrast different soil types, and then learn the relative grain sizes through a candy sorting activity.

Objective: The student will be able to explore and describe various earth materials.

Mississippi Framework addressed:

- Science Framework 5b: Discover and explore the characteristics of various earth materials such as clay, silt, sand, pebbles, and gravel.

National Standard addressed:

- Content Standard B: Physical Science

Materials:

- Powdered sugar
- Pixie sticks
- Sprinkles
- Nerds
- Whoppers
- Magnifying glasses
- Soil samples:
    - Clay
    - Silt
    - Sand

    - Gravel
- Paper plates
- Shovels
- Plastic baggies
- Marker to write on baggies
- Science notebook
- Pencil
- Soil Study worksheet

Background:

The crust is the layer of the Earth that we live on, and it is the most widely studied and understood layer. The crust lies beneath the continents and the oceans and consists of soil, fragmented rock, and rigid bedrock. The process of weathering breaks down rigid bedrock into smaller rocks, and the smaller rocks are further broken down into soils. Soils are composed of very small pieces of rock fragments and often contain organic matter such as pieces of decaying plants and animals. Soil forms in place as rocks break down, or sometimes it is transported to new locations by rainwater, rivers, or wind.

Soil varies in size from clay (the smallest particles) to gravel (the largest particles). Silt is one size larger than clay, but both are made of grains so small that they are hard to see without a magnifying glass. To distinguish between clay and silt, take the soil between your finger tips and rub them together. If it feels smooth, the sediment is clay; if it feels gritty, the sediment is silt. Sand grains are larger than silt, and they are visible without a magnifying glass. Think of the size of the grains at the beach- they are sand size grains. Gravel consists of grains that are even larger than sand. Gravel includes granules, pebbles, cobbles, and even boulders. Granules have diameters ranging from 2-4 millimeters. Pebble diameters range from 4-64 millimeters (between the size of a pea and a tennis ball). Cobble diameters range from 64-256 millimeters. Boulders have diameters greater than 10 inches (volley ball size). Soil usually consists of a mixture of all of the different types and sizes of grains ranging from clay to gravel.

Procedure:

1. Begin this activity with an introduction to the concept that soil comes in different sizes and compositions. Ask the students what soil is, where it is found, how it got to where it is, and why it is important.
2. Explain that soil comes from rocks that have been broken down into tiny fragments. Introduce the fact that soil sizes vary between very tiny sediments called clay up to very large sediments called gravel. Discuss clay, silt, sand, and gravel.
3. Divide the students into groups of three. Pass out a paper plate to each group. Draw sections on the paper plate so that each soil size has a section (ex: if you have sand, clay, and gravel, then each plate would have three divisions). Put about one spoonful of sediment within each section.
4. Pass out magnifying glasses. Discuss which sediments are which and the sizes of each. Allow the students to feel and observe the grains. Have a class discussion about the similarities and differences between each sediment type.
5. After the class discussion, take the students on a nature walk and allow them to collect soil samples from three different locations. Explain that they will collect their samples and then come back to the classroom to examine the soil.
6. Have each group bring a shovel, three plastic baggies, and a notebook. Have each group select a soil sample collector (the person to actually scoop the samples), and sample manager (the person to hold the bag open for the soil sample collector, label the bags, and keep up with the three bags), and a data collector (the person who will record details about the location where each sample was collected).
7. Take the class to three different locations outside. If possible, find a sandy location without many trees, a grassy location without many trees (or a flower bed), and a location where there are lots of plants and trees growing naturally.
8. Have the students collect one small scoop of soil from each location and place each sample in a separate bag. The student

with the notebook should record the locations and the bags should be labeled accordingly.

9. Return to the classroom and hand out the Soil Study worksheet and explain how to fill it out. Then allow the students to take turns looking at the three soil samples and drawing what they see in each sample (grain sizes, leaves, dead bugs, etc.).
10. After all students have examined all three soil samples and completed the worksheets, have the students place the soil samples aside and wash their hands.
11. Have a class discussion about what they observed. Was there anything in the soil that could only be seen if they used the magnifying glass? What did it feel like? What did it look like? How were the three soils different? Was there anything in one of the soils that wasn't in the other soils? Could they distinguish between clay, silt, sand, and gravel?
12. Finally, to reiterate the differences in size between clay, silt, sand, and gravel- pass out the candy!
13. Give each student another small plate. Place a small amount of powdered sugar, the sugar from an opened pixie stick, a few sprinkles, nerds, and a few Whoppers on each plate. (The powdered sugar is the smallest and thus represents clay, the pixie stick sugar represents silt, the sprinkles represent sand, the Nerds and Whoppers together represent gravel.)
14. Let the students look through the magnifying glassed and figure out which candy represents which soil grain size based on the sizes of the different candies.

Evaluation:

- Could the students figure out which candies represented which grain sizes based on relative size?
- Did the students understand the similarities and differences between the various earth materials?

Sources:

Bates, R.L., and Jackson, J.A., eds., 1984, Dictionary of Geologic Terms: The American Geological Institute, 571 p.

Primarily Earth: AIMS Activities for grades K-3

Prepared by:

Ashley Phillips
NSF NMGK8
University of Mississippi
May 2004

Underground and Burrowing Animals

Intended for Grade: Second

Subject: Science

Description: This presentation will introduce the major anatomical features of underground animals.

Objective: The student will be able to distinguish and compare and contrast the anatomy of underground animals.

Mississippi Framework addressed:

- Science Framework 2b: Compare and contrast physical and behavioral characteristics of different species.

National Standard addressed:

- Content Standard : Life Science

Materials:

- Underground Animals PowerPoint
- Paper
- Crayons or markers

Background:

See attached "Slide Show Notes."

Procedure:

1. Show the Underground Animals PowerPoint.

2. On each slide describe the major anatomical features and their appropriateness of that feature to an underground life style.
3. Encourage students to compare and contrast the different animals.
4. After finishing the presentation, review all of the major characteristics that animals living primarily underground possess.
5. Distribute paper and coloring implements.
6. Ask students to create their own imaginary underground animal.
7. Remind students to think carefully about what it would take to be a well adapted underground animal.
8. Once the drawings are finished, have students take turns describing their animal and its important features.

Evaluation:

To assess the students' understanding of this activity, print out two pictures from the slide show. Have students describe the animals and write about the unique adaptations of underground animal anatomy in an Underground Animal Journal. The activity can be further assessed by the students' ability to create a perfectly adapted imaginary animal.

Source:

http://www.zoomdinosaurs.com/Home.shtml

Prepared by:

Bret Morris and
Heath E. Capello
NSF NMGK-8
University of Mississippi
May 2004

Slide Show Notes

Source: http://www.zoomdinosaurs.com/Home.shtml

Ants

There are thousands of species of ants found all over the world and in just about every type of land environment.

Ants live in colonies that contain each of the following ant roles:

- **Queen** - The queen begins her life with wings, which she uses while mating. After mating with a male ant (or many males), she flies to her nesting area. She then loses her wings and spends her life laying eggs.
- **Workers** - Workers are the many non-reproducing, wingless female ants who are the daughters of the queen. These workers collect food and feed members of the colony, defend the colony, and enlarge the nest. Most of the ants in a colony are workers.
- **Soldiers** - Soldiers are large workers who defend the colony and often raid other colonies, capturing slaves.
- **Males** - Males are small ants that have wings. They die soon after mating with the queen.

Anatomy: Ants, like all insects, have jointed legs, three body parts (the head, thorax and abdomen), a pair of antennae, and a hard exoskeleton. The exoskeleton is made up of a material that is very similar to our fingernails. Ants range in color from yellow to brown to red to black.

Some ants have a stinger and some can even inject poisonous acid from the stinger. Ants can also bite using their jaws.

Life Cycle: The life cycle of the ant consists of four stages: egg, larva, pupa, and adult. Fertilized eggs produce female ants; unfertilized eggs produce male ants.

- **Egg**: Ant eggs are oval shaped and tiny (they are on the order of 1 mm long, but the queen's egg is many times larger).
- **Larva**: The worm-like larvae have no eyes and no legs; they eat food regurgitated by adult ants. The larvae shed their skin many times as they increase in size.

- **Pupa**: After reaching a certain size, the larva spins a silk-like cocoon around itself (against a solid object, like the wall of the chamber) and pupates. During this time the body changes into its adult form.
- **Adult**: The pupa emerges as an adult. The entire life cycle usually lasts from 6 to 10 weeks. Some queens can live over 15 years, and some workers can live for up to 7 years.

Armadillo

Armadillo are armored mammals that live in warm grasslands and forests from South America up to the southern United States. Armadillos are burrowers who dig underground dens. Armadillos can jump 3 ft (1 m) straight up into the air. Many armadillos are killed when they are run over by cars.

Anatomy: Armadillos are protected by plates of bony armor covered with skin. Many armadillos can curl into a ball when threatened by predators.

Diet: Armadillo are primarily insect-eaters. They dig into the earth using their large claws to find food. They use their long tongue to get ants, beetles, termites, worms, grubs, other small animals and eggs. Armadillos have peg-like teeth.

Reproduction: Most armadillos give birth to one or two offspring.

Badger

The badger is a burrowing mammal with a black-and-white striped face. Badgers are most active at night. They are found in tropical forests, plains, woodlands, mountains, and prairies in Asia, Europe, and North America. Badgers have a life span of 11-13 years in captivity.

Some badgers live in groups called clans. These clans construct complex, long-lasting networks of tunnels and chambers. Badgers communicate using sounds and scents. Their enemies include people, coyotes, and dogs.

Anatomy: Badgers range in size from 13-31 inches long plus a short tail that is 4-7 inches long. The American badger has brown-gray fur, black legs, long, flat feet with long, strong, curved claws, and a distinctively striped face. It weighs up to 37 pounds.

Diet: Badgers eat both animals and plants. They eat rodents, frogs, snakes, small mammals, worms, insects and their larvae, fruit, and roots. Badgers burrow for much of their food.

Chipmunks

Chipmunks are rodents that live in forests, open woodlands, and brushy areas in North America, and Asia. Chipmunks hibernate during the cold winter months. These small mammals have a life span of about 2 to 3 years in the wild.

Burrows: Many chipmunks dig extensive burrows which can be over 11 ft long. These burrows often have more than one entrance and have extra chambers in which chipmunks store their extensive winter food supply. Some chipmunks make nests in logs or in bushes.

Anatomy: Chipmunks are only about 4-7 inches long; their long, bushy tail is from 3-5 inches long. They weigh roughly 1 to 5 ounces. Chipmunks have gray-brown fur, with dark and light stripes along the back and with a light-colored belly. The eyes are surrounded by white fur, and there are dark brown stripes on the face. Chipmunks have cheek pouches in which they carry food to store in their burrows.

Diet: Chipmunks eat seeds, nuts, grains, and fruit. They also occasionally eat insects.

Predators: Chipmunks are hunted by many animals, including weasels, hawks, snakes, foxes, and house cats.

Earthworms

Earthworms are very important animals that aerate the soil with their burrowing action and enrich the soil with their waste products. Good soil can have as many as a million worms per acre.

These invertebrates (animals without a backbone) range in color from brown to red, and most have a soft body. Earthworms range in size from a few inches long to over 22 feet long. The largest earthworms live in South Africa and Australia.

Anatomy and Diet: The brain, hearts, and breathing organs are located in the first few segments of the worm. It has five pairs of hearts! The rest of the inside of an earthworm is filled with the intestines, which digest its food. Earthworms eat soil and the organic material in it - like insect parts and bacteria. The mouth is covered by a flap which helps the earthworm sense light and vibrations. Tiny bristles are on most segments of the earthworm's body.

Reproduction: Although each earthworm has both male and female reproductive systems, it takes two worms to mate and reproduce.

Groundhog

Groundhog is another name for Woodchuck. These solitary mammals sleep through winter in burrows. Groundhogs are found in North America in forests and fields.

Anatomy: A groundhog grows up to 17 inches long. It has a tail that is about 5 inches long. This mammal has a bulky body and short limbs. The fur is brown-gray and the eyes are black. The hands and feet are black and have sharp, sturdy claws. Like all rodents, their incisor teeth continue to grow throughout their entire life.

Diet: Groundhogs/woodchucks are mostly plant-eaters. They eat grass, seeds, leaves, flowers, fruit, eggs, and some insects.

Predators: Groundhogs/woodchucks are hunted by many animals, including wolves, dogs, coyotes, bobcats, foxes, and humans. Groundhogs cannot move very quickly, so their best defense is to retreat into their burrows. Keen eyesight and hearing help warn groundhogs of approaching predators.

Hamster

The hamster is a small, burrowing rodent that lives in the wild in parts of Asia and Europe. Many people keep hamsters as household pets. Hamsters are most active at night. They have a life span of about 2 to 2.5 years.

Anatomy: Hamsters range in size from 2 to 11 inches long. Most have a short tail, but some have longer tails. They weigh up to 32 ounces. The coat color ranges from white to brown. Like all rodents, the hamster's front top teeth continue to grow throughout its life. It must gnaw on hard things to keep wearing the teeth down.

Diet: Hamsters eat grains, seeds, grasses, fruit, roots, stems, and small animals like worms and insects. They can store food in their large cheek pouches.

Mole

The mole is a burrowing mammal with substantial claws. It lives underground for most of its life. They inhabit Asia, Europe, southern Africa, and North America. Moles live in a variety of habitats, including fields, woodlands, swampy land, riverbanks, and deserts. Moles have a life span of about 3 years in the wild. Some moles are very good swimmers.

Anatomy: Moles have tiny eyes and are virtually blind. They have an acute sense of touch, which is aided by sensory bumps on the snout, sensory whiskers on the face, and sensory hairs on the feet and tail. Moles range in size from 2 to 9 inches long with a 1 to 9 inch long tail. Moles have shovel-shaped, five-toed, thick-clawed feet that are very efficient at burrowing. Many moles have a long, powerful tail.

Diet: The mole is an insect-eater; it eats its own weight in food each day. Moles eat insects, earthworms, mice, fish, frogs, small crustaceans, and other small animals. Moles find prey mainly by using their sense of touch.

Desert tortoise

The desert tortoise is a timid reptile that lives in the sandy deserts of Southwestern North America. It can live from 50 to 80 years. It is listed as a threatened species.

Behavior: The desert tortoise is most active during the day, depending on the temperature. This tortoise spends most of its life underground. It burrows under the sand to protect itself from extreme desert temperatures, which range from 140°F down to well below freezing. Adults can survive for about a year without water. They produce a variety of sounds, including hisses and grunts. When in danger, tortoises can withdraw their head, legs, and tail into the shell.

Anatomy: The desert tortoise has a hard upper shell, which is about 9 to 15 inches long. The flattened fore limbs are armored, muscular and used for burrowing. The rear limbs are column-like. They have a gular horn that extends from the front of the plastron. When males fight other males, they use the gular horn to overturn an opponent. The tail is very short.

Diet: The desert tortoise is a plant eater. It eats grasses, herbs, and a wide variety of desert plants.

Reproduction: The female lays 1 to 2 hard-shelled white eggs in each clutch. The eggs are laid in a shallow pit that she digs with her hind legs. She covers the eggs with sand, and then abandons them. The temperature determines whether the babies will be male or female. Cool temperatures result in male hatchlings; warm temperatures result in female hatchlings.

Ferret

Black-footed Ferrets are a type of weasel. An endangered species, these mammals used to roam over much of the prairies and grasslands of North America, but are exceedingly rare now. They are more active at night and live in prairie dog burrows that they have overtaken.

Anatomy: The Black-footed Ferret has very short legs, a long snout, and a slender body. It is 1 1/2 feet long.

Diet: Ferrets are meat-eaters. They eat prairie dogs, squirrels, insects, mice, and birds, which they hunt at night.

Distribution: Black-footed Ferrets are found in the central part of North America, from southern central Canada to Texas, USA.

Fox

The fox is a clever mammal that has large ears and a long, bushy tail. It lives in many different habitats, including forests, deserts, scrub, plains, grasslands, and Arctic snow. Many live in the area where forests meet farms. Foxes are found in Europe, Asia, Africa, Australia, and North and South America. A fox can live up to 13 years in captivity. Predators of the fox include the wolf and man. Foxes will double back on their own tracks in order to confuse their enemies.

Anatomy: Foxes range from 14 to 39 inches long with a tail 7 to 20 inches long. The long, bushy tail helps the fox change direction quickly and keeps the fox's feet and nose warm when it curls up to sleep. Foxes have sharp, curved claws, sharp teeth, and thick, insulating fur.

Diet: Foxes are mostly meat-eaters. Most foxes hunt alone. They are nocturnal, meaning that they hunt mostly at night. Foxes eat small mammals (like mice), eggs, birds, insects, amphibians (like frogs), reptiles (like lizards), fish, grass, berries, nuts, and carrion (carcasses of animals that they find).

Gerbil

The gerbil is a small, burrowing rodent that is native to dry, sandy areas of Africa, the Middle East, and Asia. Many people keep gerbils as household pets. These desert mammals are most active at night; they spend the day resting in their burrows. Gerbils can hop, using their long tail as a balance. They have a life span of about 4 years in the wild. Gerbils often live together in large colonies.

Anatomy: Gerbils range in size from 3 to 7 inches long, plus a long tail that is 3 to 9 inches long. These tiny rodents weigh up to 7 ounces. The coat color ranges from white to gray to light brown. Gerbils have good hearing. Like all rodents, the gerbil's front top teeth continue to grow throughout its life. It must gnaw on hard things to keep wearing the teeth down.

Food and Water: Gerbils eat grains, seeds, grasses, fruit, roots, flowers, and small animals like worms and insects. They do not need much water to drink; they get most of the water they need from their food. They often bring food back to their burrow to eat later.

Prairie dog

Prairie dogs are not dogs at all. They are small, burrowing rodents - a type of ground squirrel. Prairie dogs live in short-grass prairies and mountain plains of the western USA and Mexico.

White-tailed prairie dogs hibernate (sleep in a state in which the body processes slow down) during the winter; black-tailed prairie dogs wake often during winter to collect food.

These social animals live in groups. Black-tailed prairie dogs live in large groups with a complex of burrows; white-tailed prairie dogs live in smaller groups in scattered burrows. Both types are most active during the day.

Anatomy: Prairie dogs are to 12-15 inches long, plus a tail that is about 3 to 4 inches long. They weigh from 2 to 4 pounds. Prairie dogs have a bulky body, big eyes, a short tail, and short limbs. The fur is brown-gray, and the large eyes are black. The hands and feet have sharp, thick, black claws that are used for burrowing.

Diet: Prairie dogs are mostly plant-eaters. They eat grasses, seeds, leaves, flowers, fruit, eggs, and some insects.

Predators: Prairie dogs are hunted by many animals, including wolves, dogs, coyotes, bobcats, foxes, and humans. A prairie dog's best defense is to retreat into a burrow.

River otter

River otters are sleek, furry, aquatic mammals that live in rivers, streams, ponds, and marshes in Canada and the USA. The river otter is an endangered species because of over hunting.

River otters are most active at night. During the day, they rest in underground dens.

Anatomy: River otters are from 3 to 4 feet long and weigh about 44-82 pounds. The tail is 1 to 1 1/2 feet long. Webbed feet help the otter swim. These sleek mammals have short legs and semi-retractable claws. Both the ears and the nostrils close when the animal is under water.

Fur: River otters are kept warm by their dense fur and high metabolism. They are active all year long, even through very cold winters. Careful grooming with their forepaws keeps the fur waterproof.

Diet: River otters are meat-eaters. They eat crustaceans (like crayfish, slow-swimming fish (like trout), amphibians, insects, small mammals and birds. They hunt for their prey in the water and on the land. These intelligent mammals have a keen sense of smell; they use their sensitive whiskers to help find prey in muddy water.

Predators: The bald eagle, some bears, and coyotes prey upon River otters.

Tarantula

Tarantulas are large hairy spiders that live in warm areas around the world, including South America, southern North America, southern Europe, Africa, southern Asia, and Australia. The greatest concentration of tarantulas is in South America. The biggest tarantula has a leg span of about 13 inches (33 cm). These arachnids have a very long life span; some species can live over 30 years.

Habitat: Some tarantulas live in underground burrows; some live on the ground, and others live in trees. They live in rain forests, deserts, and other habitats.

Diet: Tarantulas are meat-eaters. They eat insects (like grasshoppers and beetles), other arachnids, small reptiles (like lizards and snakes), amphibians (like frogs), and some even eat small birds. Tarantulas kill their prey using venomous fangs; they inject a chemical into the prey that dissolves the flesh. Tarantulas can crush their prey using powerful mouthparts. No person has ever died of a tarantula bite.

Anatomy: Tarantulas have a hairy two-part body and very strong jaws (with venomous fangs). They have eight hairy legs; each leg has 2 tiny claws at the end and a cushioning pad behind the claws. The hairs on the body and legs are sensitive to touch, temperature, and smell. Tarantulas have a hard exoskeleton and not an internal skeleton.

Worm World

Intended for grade: Second

Subject: Science

Description: This activity explores the importance of earthworms to both the soil and plants.

Objective: The student will be able to see how worms construct tunnel systems to aerate the soil for plant growth.

Mississippi Framework Addressed:

- Science framework 2c: Analyze the suitability of different environments in meeting the needs of plants and animals

National Framework Addressed:

- Content Standard C: Life Science

Materials:

- large wide-mouthed (pickle) jar
- tin can
- gravel or small pebbles
- soil
- 5 or 6 earthworms (from a garden, bait shop, pet store, or garden supply store)
- dark construction paper

Background: Worms feed by taking soil through their bodies, creating tunnels as they go. These tunnels aerate the soil providing plants with the air they need to grow. If it were not for earthworms, many varieties of plants would not be able to survive. Farmers consider earthworms some of the best "friends" they have.

Procedure:

1. Stand a tin can in the middle of the jar.
2. Place a layer of gravel or small pebbles about ½ inch (1.2 cm) deep on the bottom of the jar sides.
3. Fill the jar with garden soil to the top of the tin can.
4. Place the worms on top of the soil.
5. Wrap the dark construction paper around the outside of the jar to keep out the light. Note: Check the condition of the soil every so often and moisten it as needed.
6. After several days, check to see if the earthworms have dug a series of tunnels.
7. Carefully removing the construction paper from the sides of the jar.
8. Replace the construction paper after observing their work so the worms will continue to tunnel in the darkness.
9. You should be able to watch the worms without harming them, for three or four weeks, but then you should put them back outside.

Evaluation:

Have the students record in a journal what they observe in their worm jar. You can also have them draw a picture of the tunnel system. Check to make sure they understand the importance of the worms aerating the soil.

Source:

365 More Simple Science Experiments, Breckenridge, Judy. 1998.

Prepared by:

Bret Morris
NSF NMGK-8
University of Mississippi
May 2004

How many words can you come up with that relate to worms. Can you think of 26 different words that start with a different letter? You can use a dictionary if you like.

A_____ N_____

B_____ O_____

C_____ P_____

D_____ Q_____

E_____ R_____

F_____ S_____

G_____ T_____

H_____ U_____

I_____ V_____

J_____ W_____

K_____ X_____

L_____ Y_____

M_____ Z_____

Reference: http://yucky.kids.discovery.com/noflash/worm/pg000102.html

The Ants Go Marching…

Intended for grade: Second

Subject: Science

Description: In this activity, an ant farm is constructed in order to observe how team work plays an important part in the construction of an underground tunnel network.

Objective: Students will be able to describe how ants form tunnels.

Mississippi Framework Addressed:

- Science framework 2c: Analyze the suitability of different environments in meeting the needs of plants and animals

National Framework Addressed:

- Content Standard C: Life Science

Materials:

- large clear (pickle) jar
- small shovel or trowel
- loose or sandy soil with ants
- black construction paper
- water
- small saucer
- sugar water (2 or 3 large spoonfuls dissolved in a cup of water),
- large cake pan
- small bits of fruit

Background: Many kinds of ants live in large colonies underground. Each of the ants has a job to do in order to keep the colony running smoothly. Many ants, known as "workers," are responsible for building the tunnels and

the small caves that are home to the ant colony. It is in these tunnels that all the ants live, work, sleep, and eat.

Procedure:

1. Look outside for a rotting piece of wood or other area where you might find lots of ants.
2. Scoop up into the glass jar some of the soil nearby, along with a collection of ants.
3. Put the lid on the jar until you get the ants back to the classroom.
4. Cover the jar with black construction paper so that it is completely dark inside.
5. Put an inch of water in a cake pan.
6. Put a saucer upside down in the middle of the pan.
7. Place the jar on top of the upturned saucer.
8. Remove the lid. (The water prevents the ants from escaping into the room in case they leave the jar.)
9. Sprinkle some sugar water over the soil and place two or three small bits of fruit on top of the soil.
10. After a few days, remove the paper.
11. Have students draw the tunnels they observe in their Underground Animals Journal.

Evaluation: Have the students record in a journal what they observe in their ant farm. In their journal, ask if they can identify the different types of ants and where they might be found in the tunnel system.

Source: 365 More Simple Science Experiments, Breckenridge, Judy. 1998.

Prepared by:

Bret Morris
NSF NMGK-8
University of Mississippi
May 2004

Ant Food

Intended for grade: Second

Subject: Science

Description: Ant food preferences will be experimentally tested.

Objective: The student will be able to observe the different types of food ants eat and predict what kinds of foods ants favor.

Mississippi Frameworks addressed:

- Science Framework 2c: Analyze the suitability of different environments in meeting the needs of plants and animals
- Math Framework 3a: Tally, interpret, predict, and record outcomes based on given information.
- Math Framework 3b: Using collected data from students and other resources, create line, bar, and pictorial graphs.

National Standards addressed:

- Content Standard C: Life Science
- Math Standard: Data Analysis and Probability

Materials:

- One sheet of plain poster paper, cut into rectangular strips about 1" x 6" long. You will need one paper strip per group of students.
- One data sheet per student group and one clipboard per group.
- Assorted food items (5 different kinds) with the appropriate dispenser. You may want to ask your students to suggest food items to test on the day before the experiment. Good possibilities to start

might include honey or a sugar solution, bird seed, vegetable oil or animal fat shortening, tuna packed in oil, crackers or cookies, etc. You want to be able to control the amount of each food item and make sure the samples are small. Possible dispensing containers include spoons, swabs, and eyedroppers.

- Magnifying lenses – 1 per group.

Background: Most ants eat a variety of small insects that are either dead or insects that they capture. They also enjoy nectar and honeydew. A balance of carbohydrates and proteins is needed. Protein is especially necessary for the queen ant to make eggs and for the larvae to grow.

Procedure:

1. Split students up into groups and distribute the pre-cut strips

2. Have the students draw 5 evenly-spaced circles of about 1/2" diameter lengthwise along the strip. You can refer to this strip of paper as the ant cafeteria tray.

3. Draw a sample cafeteria tray on the board to show how the food items will be arranged (one food item per circle). You may choose to leave one circle empty or including only tap water as a control.

4. Ask each group to predict which food item will be preferred by the ants and why they think so. Compile the different groups' predictions on a class chart. Discuss how preference for a particular food item will be measured.

5. In the schoolyard, help your student groups locate a sufficient number of ant colonies so that each group can observe a different colony.

6. Ask your teams to observe the ant colonies for a few minutes while you distribute the food items onto the cafeteria trays. USE ONLY A VERY SMALL AMOUNT OF EACH FOOD ITEM - ABOUT THE AREA EQUIVALENT OF YOUR PINKY FINGERNAIL.

7. Then, have the students place the tray lengthwise alongside the entrance to the ant colony, about 2 inches away. Caution the students against disturbing the colony itself or they may find that the ants spend all of their time repairing the damage rather than looking for food.

8. Specify a time period for food preference observations (at least 30 minutes). It may take the ants 10-20 minutes to discover the new food source.

9. At the end of the investigation, each group should tally their results and report to the class. Display the compiled results alongside the initial predictions. Did the ants behave as predicted? Why or why not? Can the students propose reasons (nutritional or otherwise) for food preferences of the ants? Ask the students to generate new questions and proposals for answering those questions.

Evaluation:

Verbal and visual response from students on the predictions and results of the foods the ants ate.

Extended Activities:

- Do ant food preferences differ for different species of ants? Do ant food preferences differ with time of day, weather conditions, or season? If many kinds of food were tested, can you begin to define the characteristics of foods that are attractive to your ants (e.g. sweet foods, salty foods, oily foods)?
- Challenge your students to write a recipe for their own mixture of Ant Superfood (one that is more preferred than any other tested food type) and provide a rationale for their proposed recipes....then, hold an Ant Superfood Contest!

Sources:

http://www.ecostudies.org/syefest/ap1res5.htm
http://insected.arizona.edu/antinfo.htm

Prepared by:

Bret Morris
NSF NMGK-8
University of Mississippi
May 2004

Fire Ant Game

Intended for Grade: Second

Subject: Science and Math

Description: This game incorporates math and science in a learning activity about fire ants.

Objective: The student will be able to label the anatomy of the ant and review addition and subtraction facts.

Mississippi Frameworks addressed:

- Science Framework 2b: Compare and Contrast physical and behavioral characteristics of different species.
- Math Framework 6a: Compute the basic facts 0 to 18 for addition and subtraction with and without manipulatives.

National Standards addressed:

- Science Content Standard C: Life Science
- Math Standard: Number and Operations

Materials:

- Colored Ant drawing
- A pair of Dice
- Black and White copies of the ant drawing for each student or each team.
- Crayons for each student

Background:

Many options exist for adapting this activity to your class. You will find a colored and labeled ant with this activity. You may use it as a teaching tool and display it in class. The students can choose their own colors for their ant parts when they perform the activity. There are two different black and white ant coloring pages. One has the ant labeled, and the other is

unlabeled. You may choose to show the students the labeled one to study and then play with the unlabeled, or allow them to use the labeled ant. Students can play as a team or individually.

The ant parts that are discussed in this activity are the thorax, abdomen, head, 6 legs, stinger, 2 eyes, and 2 antennae.

Procedure:

1. Explain ant anatomy using the colored ant drawing.
2. Distribute coloring page and crayons to each student.
3. Students will take turns rolling the dice.
4. The first player will roll the dice, and add or subtract the numbers on the dice to get a total. If double 4's, 5's, or 6's are rolled, then the student should roll again.
5. Using the key on the coloring page, the player determines which part of the ant can be colored on the page.
6. The player must verbalize the addition or subtraction problem and announce to the group which part will be colored.
7. The other players should verify that the part called out is the correct one.
8. Play continues with each person. The first player to completely color in their ant wins!

Evaluation:

Teachers can evaluate the students' adding and subtracting skills as the addition or subtraction problem is verbalized to the class. A second method of evaluation could be to create a quiz that requires students to label the ant picture.

Extended Activities:

Another version of this activity: Have the students draw the ant instead of coloring it. In this version, the students roll the dice and add or subtract, but they must draw the parts of the ant. For

example, if the total was 8, they could draw the thorax. But if the total was 6 they could not draw the legs until they had drawn the thorax (the total was 8 in a turn before). Another example would be if the total was 4, they would have to have gotten a total of 6 to draw the head before they could draw the eye. This would be more challenging and would allow the students to answer more addition and subtraction questions.

Instead of using dice, you could use an number popper (like the one in the game "Sorry").

Instead of using dice, you could use a spinner with numbers on it. This would be a great introduction to probability. Label the spinner with more ways to get the total of 2 because you need to have a total of 2 six times in order to color all 6 legs.

Gather pictures of where ants might live and make a collage.

Write a story using the ant as the main character.

Draw a picture of the life cycle of an ant. Get creative and work in 3 dimensional spaces by using materials such as egg cartons, beads, cellophane, etc.

Have the students research and write reports about ants.

Talk about using safety around ant beds.

Sources:

Idea and information from California Department of Agriculture

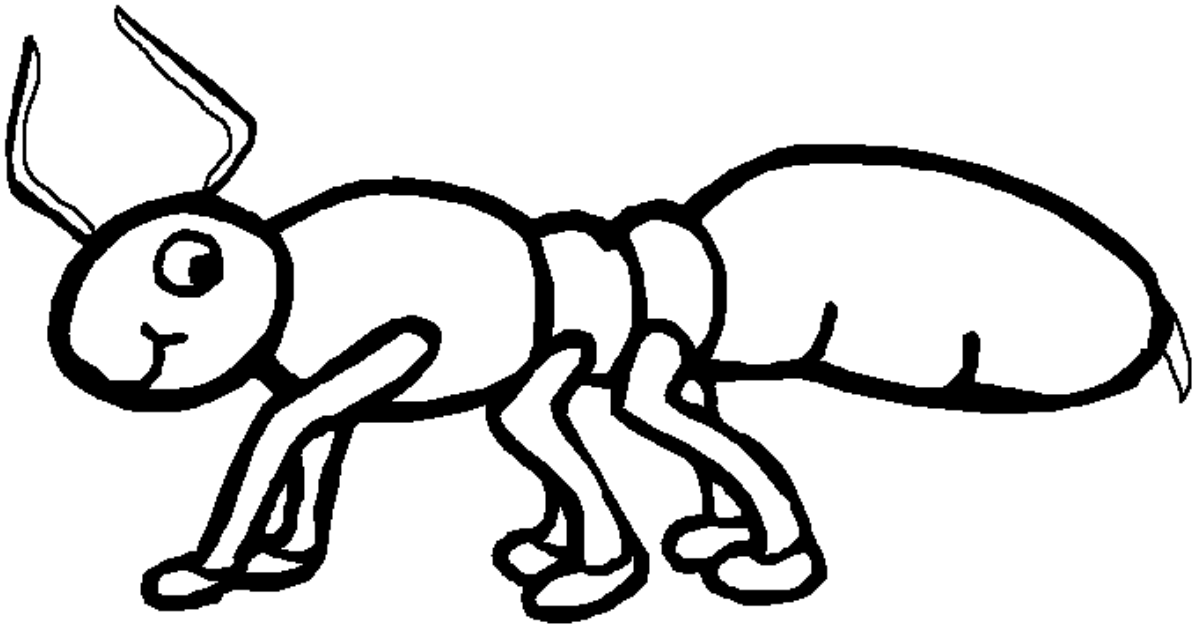
Material from Mississippi Farm Bureau

Prepared by:

Alice Sanford
NSF NMGK-8
University of Mississippi
August 2002

Red Fire Ant Game

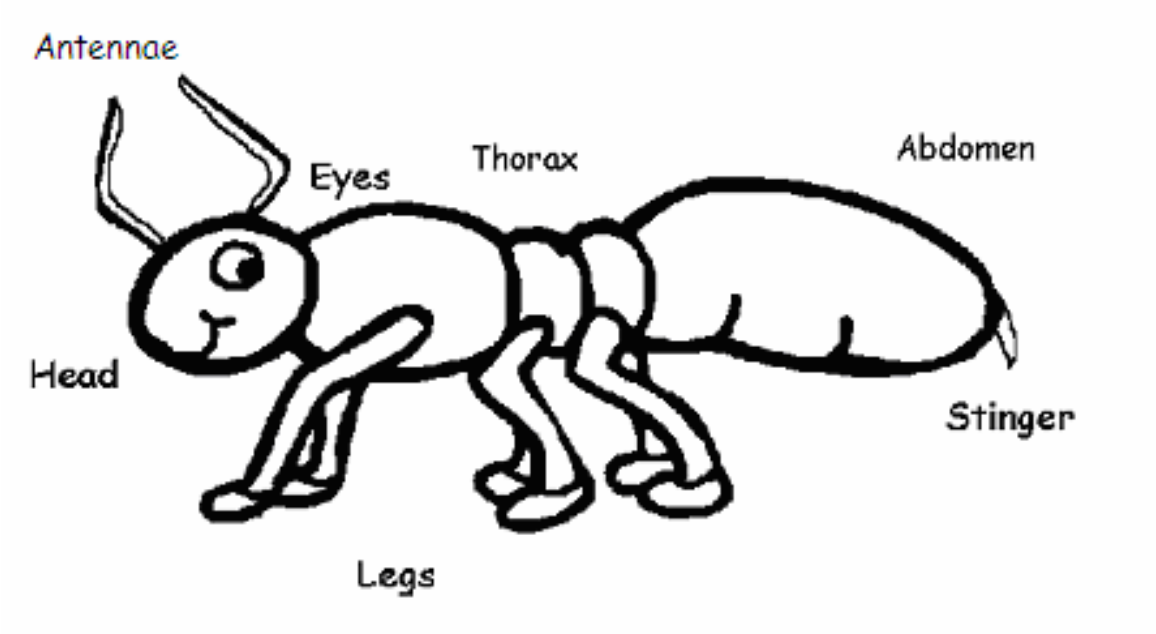
Directions: Take turns rolling the die. Add or subtract the numbers face-up on the dice and use the key at the bottom of the page to see what part of the Red Fire Ant you can color. You can only color one part of the ant each time! Have Fun!



If you add or subtract and get a total of:	You may color in one:	To complete your ant, you must color in:
1	Thorax	1 Thorax
2	Leg	6 Legs
3	Antenna	2 Antennae
4	Eye	1 Eye showing
5	Stinger	1 Stinger
6	Head	1 Head
7	Abdomen	1 Abdomen

Red Fire Ant Game

Directions: Take turns rolling the die. Add or subtract the numbers face-up on the dice and use the key at the bottom of the page to see what part of the Red Fire Ant you can color. You can only color one part of the ant each time! Have Fun!



If you add or subtract and get a total of:	You may color in one:	To complete your ant, you must color in:
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2	Leg	6 Legs
3	Antenna	2 Antennae
4	Eye	1 Eye showing
5	Stinger	1 Stinger
6	Head	1 Head
7	Abdomen	1 Abdomen

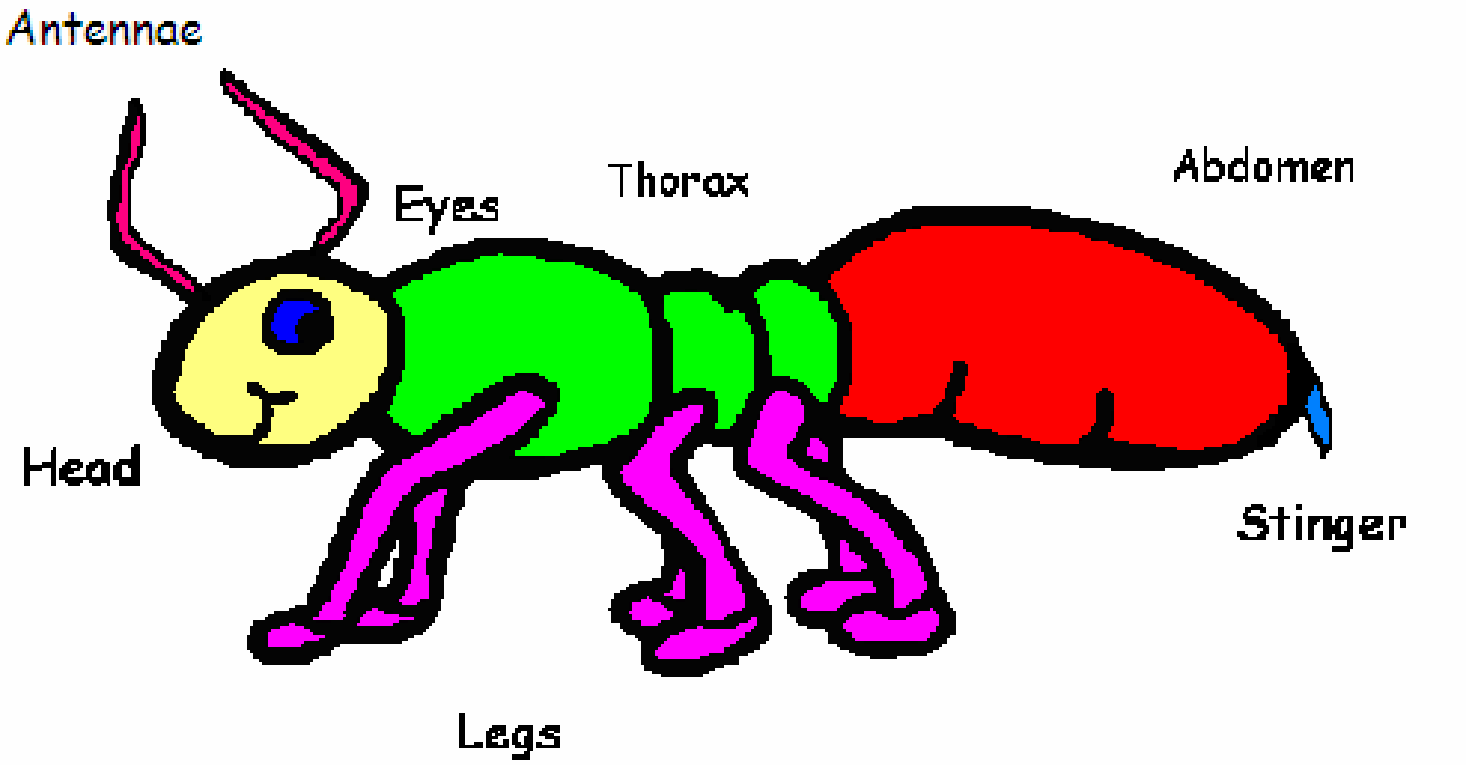
Teachers:

These are the different dice addition and subtraction combinations.

If the students happen to roll a double 4, double 5, or double 6, have them roll again.

Dice rolled	Dice rolled	Added	Subtracted
1	1	2	-
1	2	3	1
1	3	4	2
1	4	5	3
1	5	6	4
1	6	7	5
2	2	2	-
2	3	5	1
2	4	6	2
2	5	7	3
2	6	-	4
3	3	6	-
3	4	7	1
3	5	-	2
3	6	-	3
4	4	**ROLL AGAIN**	
4	5	-	1
4	6	-	2
5	5	**ROLL AGAIN**	
5	6	-	1
6	6	**ROLL AGAIN**	

The Fire Ant



Extended Ant Activities

Arts and Crafts

Giant Ant Hill
Materials: Large Butcher Paper; Black crayons. Cut the paper in the shape of an ant hill. Help your child draw tunnels with the crayon and draw ants in the tunnels.

Fingerprint Ants
Materials: Non toxic ink pad (black); Paper; Black pens or crayons. Show your child how to make finger prints on a piece of paper. Have your child draw six legs, a head and antennae onto their prints to create ants.

Ants in the Dirt
Materials: Brown and blue construction paper; Non toxic ink pad; Glue; Black Marker. Have the children tear pieces of the brown construction paper and glue them onto the bottom of the blue paper to represent the dirt and sky. After the glue has dried, have the children place a few fingerprints on the brown paper to represent ants. Add legs and antennae with black marker.

Ants at My Picnic
Materials: Construction paper; Paper plates; Magazine ads for food; Black marker. Have your child glue pictures of their favorite foods onto the paper plate, then glue the plate onto the paper as if the paper were the place mat. Then have your child draw the ants on the place mat and plate.

Balloon Ants
Materials: Balloon; Marker; Yarn. Blow up a balloon, have your child tape six pieces of yarn onto the balloon for the ant's legs,

and let them draw on a face.

Tube Ants
Materials: Cardboard tube from a tissue paper roll; Raisins. Have your child dip the raisins into glue and stick them inside the tube to simulate ants being in their tunnels.

Play doh Ants
Have your children make Ants out of play doh.

Busy Ants Headbands:
Materials: Construction paper; Tape or glue; Pipe cleaners; Markers. Have the children cut out two strips of paper that when connected will fit around their head. Connect the strips with glue or tape, (staples will catch the child's hair). Supply the children with two pipe cleaners... and have them shape them however they want to and tape them on the inside of the headband. On mine I wrote "Busy Ant Suzy" and "Busy Ant Max" or whatever they wanted to be:)

Toothpick and Marshmallow Ants
Materials: Marshmallows; Toothpicks. They can connect three marshmallows with toothpicks to form the body and head. They may use toothpicks for the legs as well.

Games, Math and Science

Lacing Cards
Cut colored poster board into a ant shape and punch holes around the edges. Then let the student lace yarn or a shoestring into the cards.

Bean bag toss
Have your student toss bean bags into a box with fingerprint ants on it. You can use masking tape to mark where the child should stand.

Ant Sizing
Cut out many different sized ants. Ask the children to line up the ants from largest to smallest.

Ant Numbers
Cut out ten ant shapes. Number them one to ten. Ask the children to line up the ants from one to ten.

Ant Colors
Cut out many ant shapes from different colors. Ask the children to sort the ants by color.

Ants in a nest
Materials: Muffin Tin; Raisins; Small Tongs; Paper; Tape; Pen. Number small pieces of paper 1 through 6. Tape these numbers into the bottom of each hole in the muffin tin. Ask your child to place the appropriate number of raisins (ants) in each hole (nest). One raisin in the hole marked 1, and so on.

Group Time and Songs

Ant Shapes
Cut out ant shapes from large white construction paper. Have the children paint them red, black or brown, and after they dry write each childs name on them. Laminate them so you can use them for the activities below.

Ant Jump
Set out the ant shapes on the floor. Have the children hop from one ant shapes to another.

Ant Musical Chairs
Set out the ant shapes on the floor in a circle. Have the children walk around the circle of ants. When the music stops have the children race to their ant shapes. Every child should have an ant shape to stand on.

Ant Circle Time
Set out the ant shapes on the floor in a circle. Have each child sit on his/her own ant for circle time.

Ant Place Mat
Make ant shaped place mats. Use instructions above.

The Ants go Marching
The ants go marching one by one, hurrah, hurrah
The ants go marching one by one, hurrah, hurrah
The ants go marching one by one,
The little one stops to suck his thumb
And they all go marching down to the ground
To get out of the rain, BOOM! BOOM! BOOM!

The ants go marching two by two, hurrah, hurrah
The ants go marching two by two, hurrah, hurrah
The ants go marching two by two,
The little one stops to tie his shoe
And they all go marching down to the ground
To get out of the rain, BOOM! BOOM! BOOM!

The ants go marching three by three, hurrah, hurrah
The ants go marching three by three, hurrah, hurrah
The ants go marching three by three,
The little one stops to climb a tree
And they all go marching down to the ground
To get out of the rain, BOOM! BOOM! BOOM!

The ants go marching four by four, hurrah, hurrah
The ants go marching four by four, hurrah, hurrah
The ants go marching four by four,
The little one stops to shut the door
And they all go marching down to the ground
To get out of the rain, BOOM! BOOM! BOOM!

The ants go marching five by five, hurrah, hurrah

The ants go marching five by five, hurrah, hurrah
The ants go marching five by five,
The little one stops to take a dive
And they all go marching down to the ground
To get out of the rain, BOOM! BOOM! BOOM!

The ants go marching six by six, hurrah, hurrah
The ants go marching six by six, hurrah, hurrah
The ants go marching six by six,
The little one stops to pick up sticks
And they all go marching down to the ground
To get out of the rain, BOOM! BOOM! BOOM!

The ants go marching seven by seven, hurrah, hurrah
The ants go marching seven by seven, hurrah, hurrah
The ants go marching seven by seven,
The little one stops to pray to heaven
And they all go marching down to the ground
To get out of the rain, BOOM! BOOM! BOOM!

The ants go marching eight by eight, hurrah, hurrah
The ants go marching eight by eight, hurrah, hurrah
The ants go marching eight by eight,
The little one stops to shut the gate
And they all go marching down to the ground
To get out of the rain, BOOM! BOOM! BOOM!

The ants go marching nine by nine, hurrah, hurrah
The ants go marching nine by nine, hurrah, hurrah
The ants go marching nine by nine,
The little one stops to check the time
And they all go marching down to the ground
To get out of the rain, BOOM! BOOM! BOOM!

The ants go marching ten by ten, hurrah, hurrah
The ants go marching ten by ten, hurrah, hurrah
The ants go marching ten by ten,

The little one stops to say "THE END"
And they all go marching down to the ground
To get out of the rain, BOOM! BOOM! BOOM!

The Ant Song Written by Chicky
Sung to "The more we get together"
If I could be an ant
an ant, an ant
If I could be an ant, What color would I be?
Red or brown or black you see
If I could be an ant, I would be quite (child fills in the color)

Building Ants by chicky
(sung to "London Bridge")
Ants are building a big hill
A big hill
A big hill
Ants are building a big hill
And they call it home.

Ants are Busy by chicky
(sung to "Where is Thumbkin?")
The ants are busy
The ants are busy
Yes they are
Yes they are
Busy finding some food
Busy building their home
Work away
Work away

Simple Ant Farm
Materials: Glass Jar; Black Paper; An old nylon stocking; Soil; Ants; A rubber band. Fill a glass jar with loose soil, and add your ants. Use the rubber band to secure the stocking on the top of the jar, and cut off the excess, leaving a good amount left so you can easily take it off and put it on the jar again.

Tape black paper around the outside of the jar so the ants will build tunnels on the sides of the jar. Don't forget to feed and water your new pets. After a couple of hours, take off the paper and see what is happening. Don't forget to put the paper back on the jar.

Parts of an ants
Talk about the different parts of an ant, head, body, legs. For older children talk about thorax, abdomen, antennae. Have the children compare the ant to themselves. What is the same? What is different? Make a list.

Ants on a Log Snack
Spread peanut butter on a piece of celery. Add raisins to the peanut butter.

Source: http://www.123child.com/animals/ants.html

FamilyFun Magazine

MAKING MUD PIES
A dessert with worms from FamilyFun

With lots of cookie crushing and ice-cream smooshing, this edible mud pie is as much fun to make as the real thing. Here's how you made the edible version:

• Put 16 cream-filled chocolate cookies or chocolate graham crackers in a plastic bag and crush them with a rolling pin.

•Empty into a bowl and stir 4 tablespoons of melted butter into the cookie crumbs.

Using your fingers, press the mixture into a 9-inch pie plate to form a shell.

•Freeze for 20 minutes.

• In a mixing bowl, slightly soften a pint of ice cream by stirring it with a wooden spoon.

• Drop in a few gummy worms and spoon the concoction into the pie shell.

• Top with a thick layer of fudge sauce and whipped cream (optional).

• Freeze the pie for at least 1 hour before dishing it out. Makes 8 servings.

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