CREATIVE LEARNING:
A CURRICULUM FOR PREPRIMAR Y CHILDREN
UNIT 8: DINOSAUR ERA AND FOSSILS

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To the children --

past, present and future --

of The Children's House.
PREFACE

When The Children's House of Mankato State University opened its doors in 1972, there were very few comprehensive appropriate curricular materials for preprimary children. The teaching staff, together with student teachers and other student participants, began creating, collecting, and organizing learning experiences to meet the stated objectives for the total development of the child.

An eclectic approach was utilized, looking at the needs and abilities of the total child. As such, the program which was developed at The Children's House was based on the philosophy that each child learns best in an atmosphere of care, trust, and respect. This atmosphere can be best achieved by demonstrating caring behavior and mutual respect, which allows each child to grow to her/his fullest potential.

For the young child, this means that the program must emphasize experiences rather than experiments, and exposure rather than mastery. Hands-on experiences are provided in order to further cognitive development through learning-by-doing. The program builds upon the knowledge and skills already in the child's life; furthermore, it provides opportunities to extend these skills.

After these years of teaching young children, we sense the need for a comprehensive curriculum in which we can incorporate our ideas and experiences. With this background, many resource units have evolved, which we offer to our colleagues in early childhood education, in an effort to help other programs meet the following goals for young children:

a. to help each child develop creativity and self-expression.
b. to help each child develop an inquiring mind and to provide experiences to develop problem-solving skills.
c. to help each child achieve and appreciate success while enjoying learning experiences.
d. to help each child accept personal responsibility and develop the ability to work and to organize work independently.
e. to help each child establish satisfying and successful social relationships with peers and with adults.
f. and, finally, to help each child develop a concept of himself/herself as a worthy individual, a good friend, an eager learner, and a willing participant in learning experiences.
DINOSAUR ERA AND FOSSILS is one resource unit. It is hoped to serve as a resource to others as they guide the learning of young children. It is not a cut-and-dried, how-to-do-it book. But it is a collection of numerous learning experiences within the context of a unit setting. The various disciplines are not, and cannot, be separated; learning overlaps. With a central theme, young children will have many opportunities to examine, investigate, explore, experience and discover concepts of meaning. As the children approach the same concept from a number of experiences, they will have opportunities to formulate ideas, to test these ideas for validity and meaning, and to draw conclusions relevant for them.

Real life experiences offer the core of this learning curriculum. First-hand, concrete opportunities to know the real world are crucial for young children. In the security and safety of the early childhood center, children may test and try their knowledge of, and contacts with, the reality of life. As they experience and learn, they may modify their knowledge and attitudes.

No time schedule is included in this curriculum. The child's learning should not be determined by the clock. As long as the child is interested and is learning, there should be time and opportunity to explore.

The child's learning also depends upon his/her safety and happiness. Therefore, in all these materials, safety is extremely important. Consider use of non-breakable materials (plastic rather than glass), non-toxic items (paints, plants, foods), non-infectious experiences (animals which do not transmit rabies).

Likewise, the child's happiness is crucial. Be certain the child's needs are considered, adjustments are made for developmental level and style of learning, and appropriate experiences and materials are provided.

We have used the female and male pronouns interchangeably in order to avoid sexist discrimination.

These materials have been collected from many sources: our own years of teaching children; teachers at The Children's House; student participants and student teachers at The Children's House; and other students in early childhood education. In addition, we are grateful for the valuable contributions from Elizabeth J. Sandell, author of children's stories about dinosaurs.*
Wherever possible, the copyright source has given permission. However, if by chance we have inadvertently infringed on copyrights, we apologize for it. If copyright owners will contact us, we will correct the error in subsequent editions.

In the preparation of this curriculum, we gratefully acknowledge the help and support of Marion Cords, Geraldine Skarphol, Patrice Parsons, and the other outstanding teachers who have involved children in the learning process through the years at The Children's House.

We recognize that the success of each resource unit is contingent upon the ability of teachers to adapt these materials to meet the needs of the children they teach.

We accept no monetary remuneration for our efforts; our reward is knowing the materials will benefit many children and their teachers. Net proceeds from the sale of this first printing will accrue to The Children's House, which is the campus prekindergarten daycare facility at Mankato State University. You are invited to visit us!

Marjorie L. Oelerich
Jean Peterson

Mankato, Minnesota

1989

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FOSSIL HUNTING

Bring examples of fossils found in rocks. If possible, take a field trip to a location where fossils may be found. Sometimes this is a quarry site. Sometimes fossils are found in fields and in gravel. Examine the fossils with a magnifying glass. How were they formed? Are they from plants or animals? What plant? What animal?

FOSSIL DISCOVERY

Read a story which contains authentic content and illustrations. Recommended is the series Dinosaur Discovery Era, authored by Elizabeth J. Sandell in 1988. See Page vi.

WHAT TO DO WITH ROCKS

Collect small rocks. Many concepts may be experienced with rocks.

Weight: Weigh the small rocks on a balance scale. Compare the weight with other common classroom objects, such as unit blocks, story books, and dolls.

Count: Count the number of small rocks. Place the rocks in different piles. Using one-to-one correspondence, discover which pile has more rocks.

Measure: Measure the length of various rocks with the use of a ruler or tape measure. Arrange the rocks in order of length, from the shortest to the longest.

Classification: Sort the rocks into separate piles according to size, shape, and hue (lightest to darkest color).
MEASURE TIME

Dinosaurs lived many millions of years ago. Help children think about the fact that this was a long, long time ago. It was long before you were born, before your parents were born, and even long before your grandparents were born.

How do we measure time? How long is one minute? Let's see if we can find out how long one minute is. Use a stop watch or clock with a second hand. Tell the children, "When you think one minute has passed, stand up." Be sure that all the children start at the same time to think about one minute.

Another way to measure one minute is to involve the children in some activity while they watch the minute hand on the clock. They might be sitting or standing quietly for one minute. Or they might be clapping their hands for the one minute.

Remind the children that one minute is very little time compared with years and thousands of years—a long time ago when dinosaurs lived on Earth.

WATER CLOCK

Prepare a plastic or styrofoam cup with a small hole in the bottom. Place the cup in the mouth of a large transparent jar with an opening small enough to support the cup. Fill the cup with water. Begin timing as the water runs into the jar. When one minute has passed, mark the jar at the water line.

This experience may be repeated by various children. Each time the water passes through the hole in the cup and reaches the mark, one minute should have passed. In order to keep the time fairly accurate when using other cups, be sure the hole remains the same size.
FOSSIL "DIG" IN SAND

Prepare bones from the skeleton of a chicken, turkey, beef roast, pork chop, etc. First, clean the meat thoroughly from the bones. Then boil the bones for 20 minutes in a solution of one tablespoon of bleach or hydrogen peroxide to one quart of water. Remove any remaining muscle tissue. Rinse the bones. Dry thoroughly.

The cleaned bones may be buried in the sand box or the sand table. Children may use sand shovels, spoons and other tools to dig for the bones in the sand.

FOSSIL "DIG" IN ROCK

Clean bones may be buried in plaster of paris (to simulate a rock). One large rock may be made, containing several small bones, as a class activity. Mix four parts of plaster of paris with one part of water. Pour one-third of the mixture immediately into a container with a firm bottom (to support the weight of the mold). Place some cleaned bones on the top. Pour another one-third of the mixture over these bones. Place more cleaned bones on the top. Pour the remaining one-third of the mixture over these bones. Mound the plaster of paris to resemble a large rock (it should not be leveled to cover the bottom of the container). Remember, plaster of paris "sets up" quickly.

Children will use hammers and chisels very carefully to chip away at the plaster of paris rock in order to find the bones. A small brush will be used to clear the area which is being chipped. Children will learn to use great care, as do scientists, so they do not spoil the fossils which they are seeking.

FOSSIL "DIG" IN ROCK--INDIVIDUALIZED

Individual plaster of paris rocks may be made by each child. A smaller container should be provided each child. The child will put some mixed plaster of paris in the bottom. Then she will put a bone on top. Finally, she will put some more mixed plaster of paris on top of the bone. Keep it mounded as a rock; do not attempt to smooth it to the corners of the container. Remember, the plaster of paris "sets up" quickly.
FOSSIL "DIG" IN A ROCK –
PUTTING BONES TOGETHER

Save the bones from the Thanksgiving turkey. Clean them carefully as described in FOSSIL "DIG" IN SAND. Imbed all the bones in the large plaster of paris rock. When found by the children, all the bones may be put together as the original bones had been in the turkey.

Class discussion may raise questions such as what the children think the animal might have looked like. Children may make 3-d clay or playdoh models of what they think the animal might have looked like. Also, they may make drawings of the bones and/or the animal.

Rubbing petroleum jelly on each bone before covering it with the plaster of paris makes the bone easier to remove.

FOSSIL IMPRINT MADE IN CLAY

Fossils are the remains of animals and plants. Fossils may be bones, skin, teeth, or other parts of the animals. Or fossils may be roots, stems, seeds or other parts of the plants. Furthermore, fossils may be imprints left from the animals or plants.

Put a thin, flat piece of clay inside a shallow lid or pie tin. Put one leaf on top of the clay. Press lightly into the clay. Mix plaster of paris with water. Pour the mixture over the leaf. Be sure the leaf is completely covered.

When dry and hard, remove the plaster of paris from the lid. Peel off the clay. Then peel off the leaf. The impression of the leaf will be permanently imprinted in the plaster of paris, just as the impressions of prehistoric leaves and shells are found imprinted in rocks. (Bones, shells, and other items may be used instead of the leaf.)

Putting petroleum jelly on the leaf will make it easier to be removed from the plaster of paris.

Playdoh, instead of clay, may be used for this experience.
SCULPT A DINOSAUR

After learning about the period of dinosaurs, each child will select a favorite dinosaur. Using playdoh, each child will form the shape of this dinosaur. The child may also mold ancient insects, palm trees, ferns, and other things which may be seen in illustrations of dinosaurs. Children may work in teams, with each group producing a diorama depicting a scene from the dinosaur era.

To make playdoh, combine the following:

2 cups flour
2 tablespoons cooking oil
4 teaspoons cream of tartar
2 cups water
1 cup salt

Cook over medium heat, stirring constantly, until the mixture forms a ball (about 2 or 3 minutes). Remove from heat; cool until it can be handled. Knead like bread until this playdoh is smooth and supple.

Food coloring may be added. Oil of wintergreen or peppermint may be added for a fragrant scent.

Playdoh may be stored in plastic bags in a cool place. It will last a long time, because the cream of tartar serves as a preservative.

FOSSIL BONES MADE BY CHILDREN

It is easy to make a fossil bone. Put 1/2 cup of sand in a bowl. Sprinkle with a few drops of water to make it damp. Press a bone into the damp sand. (Be sure the bone is very clean.) Carefully lift out the bone. Note the imprint of the bone in the sand. Mix 1/2 cup plaster of paris with water. Carefully pour the plaster of paris mixture into the imprint. Dry thoroughly. Carefully remove the plaster of paris fossil. Use a small brush to brush off the sand. Use a brown or black marker to make lines on the bone to represent coloration as a result of years of fossilization.
FOSSIL DINOSAUR FOOT

After visiting the dinosaur museum exhibit (or observing models or pictures of dinosaurs), children will note and discuss the different kinds of dinosaur feet. Then each child will make one dinosaur foot from modeling clay or playdoh.

Select a box slightly larger than the dinosaur foot modeled by each child. Put enough sand in the box so the foot will not touch the bottom of the box. Dampen the sand with water. Put the dinosaur foot into the sand to make an impression. Remove the foot very carefully, so a good imprint is left in the sand.

Mix plaster of paris with water. Pour it slowly into the impression of the dinosaur foot. Dry thoroughly, at least overnight. Remove the plaster of paris cast of the dinosaur foot. Brush off the sand. The child will have her dinosaur foot. She may use tempera paint or marking pens to make it appear aged as a fossil. This dinosaur foot may be used as a paper weight or other purpose.

MAXI-MUSEUM

Children may display in a museum-like setting the dinosaurs made by them. The museum may contain a collection of dinosaurs made in a variety of ways. Some dinosaurs may be sculpted from playdoh or clay. Others may be three-dimensional stand-ups. Paintings, murals, etc., may also be included.

These dinosaurs may be arranged on shelves, on tables, on the floor, or mounted on the wall.

Each dinosaur may be labeled. Children may take turns serving as curator to guide visitors and tell visitors about the dinosaurs. Another variation would have each child tell about her dinosaur.

MINI-MUSEUM

Use a bookcase with small sections to store three-dimensional models of dinosaurs, illustrations of dinosaurs, story books about dinosaurs, fossils and other materials used in the dinosaur unit. Label each section with the name and picture of the item.
VOLCANO ALIVE

Make a solution of 1 cup water, 3/4 cup vinegar, 1/2 cup liquid dish detergent, and a few drops of red food coloring.

Build a mound of sand in a container or in the sandbox. In the center of the mound, put a tall, large, empty juice can. Bank the sand around the can. Leave the mouth of the can open.

Put 1/4 cup baking soda in the empty can. Pour some of the solution into the can. Watch the volcano erupt. If it does not bubble vigorously over the top of the can, add more dry baking soda and more vinegar solution.

The eruption is caused by mixing the baking soda with the vinegar, which forms carbon dioxide gas. This carbon dioxide pushes up the colored mixture. A gas similar to this was deep inside some mountains when dinosaurs were alive. In a real volcano, the gaseous action pushed up hot, melted rock.

VOLCANO EXPERIENCE – INDIVIDUALIZED

Each child will be provided an empty small frozen juice can. Playdoh will be provided to form around the can. Each child will put 2 tablespoons of baking soda in the can. He will then pour the following mixture inside the can: 1/2 cup water, 1/3 cup vinegar and 1/4 cup liquid dish detergent. Watch your volcano erupt!
VOLCANO ERUPTION (DRY ICE)

This volcano eruption utilizes dry ice. For safety, the teacher must perform the dry ice portion of the experience.

Sawdust clay modeling material may be used for this simulated volcano. Combine five cups sawdust, one cup wheat paste, four to five cups water, and tempera paint for coloring.

Tape the bottom of a tall, large empty juice can to a large piece of cardboard to form a base. Add sawdust clay modeling material around the can, until the sides of the volcano are built.

Dry for several days. When thoroughly dry, it may be painted with thick tempera to resemble a volcano.

To activate the volcano, pour enough water through the top of the volcano so the can inside is half full. Add 1/4 cup dishwashing liquid detergent or "Ivory Snow" flakes and one tablespoon powdered tempera paint. Add dry ice with a pair of tongs. (Remember, dry ice must be handled carefully by adults.) The volcano will begin to steam and foam. "Lava" will stream down the sides of the volcano. When the action dissipates, add more dry ice. Occasionally, more detergent may be needed.

The churning of the water as the dry ice melts causes the detergent to foam. And the pressure of the carbon dioxide gas forces the suds out the top, much like a typical volcano.

VOLCANO RUBBING

Each child will make the outline of a volcano on 9" x 12" oaktag. See the Appendix for a pattern of a volcano. The child will use white liquid glue to outline the pattern. As the glue dries, the outline will remain raised. When dry, place a sheet of newsprint or onion skin paper over the volcano. Lightly rub with a crayon to produce a rubbing.

CAVES

Large packing boxes or barrels placed horizontally on the playground will allow children to pretend to be dinosaurs in or near caves.
DINO DENS

Provide each child with a small plastic dinosaur and several smooth rocks to build a small cave. Each child may have a second plastic dinosaur and more rocks to make a cave large enough for both dinosaurs. Have the child count the rocks they need. How many rocks are needed? Discuss the construction of the cave. What problems were encountered? How did the child solve the problems?

The caves may be made permanent by gluing the rocks together.

TRACKWAYS

Experiment with trackways. Trackways are fossil footprints which scientists use to learn about the size and speed of dinosaurs. Children will walk, run, skip, or jump in the sand. Examine the footprints to determine the length of the stride, the depth of the footprint, and the pattern of the steps. Compare these when walking, running, skipping, or jumping. Also compare these with children of different sizes.

Children will discover that the track (print) is deeper when jumping than when walking. And it is deeper when made by a larger person. Also, taller persons have longer strides.

A chart may be made to represent these differences.

DINOSAUR TRACKS

Use half of a raw potato. Carve the shape of a dinosaur foot. Provide paint in a shallow pan and paper so children may make dinosaur tracks. Children will dip the potato print into the paint, and then carefully touch the paper with the print to make that shape.

Flat sponges cut in the desired shape may also be used.

DINOSAUR REPORT BOOK

Use drawings or cut-outs for a book about dinosaurs. Each child may make her own. Or a class book may be developed. Script the sentence the child desires about the picture.
DINOSAUR SKELETONS

If possible, provide fossil bones of dinosaurs for children to touch and observe. Or provide models or pictures of dinosaur skeletons. What do the bones look like? What sizes are the bones from different parts of the body? How large is the arm bone compared to the child’s arm?

Introduce the word "skeleton" and explain its meaning. (Skeleton means the frame work of bones of a body.)

How are the dinosaur skeletons constructed?

Introduce the word "fossil" and discuss its meaning. A fossil is any trace of an animal or plant that has been preserved in the Earth's crust. Have a picture of a dinosaur "dig." Where are dinosaur fossils found? How were the bones buried? Provide clean chicken bones and a box of sand so children can experiment and experience one way in which bones have been buried and become fossils.

Explain that the top of the sand represents the surface of Earth where the chicken lived. When the chicken died, its body lay on the ground. The soft parts were eaten by hungry animals or decayed. The feathers were blown away. Only the bones remained. Have several children put chicken bones on top of the sand in the box. After many years, the sand would cover the bones. Have another child put sand over the bones. As the years passed, more sand would cover the bones. Have another child put more sand over the bones. Discuss the fact that the chicken bones are buried as dinosaur bones had been buried when water washed mud or sand over them. And now, many years later, we are discovering the dinosaur bones.

How could we use the chicken bones to make a chicken skeleton? Help children dig the bones and fit them together.

Scientists do the same with dinosaur bones. First, they dig the bones with great care. Then they fit the bones together into a skeleton.

PALEONTOLOGIST VISIT

Invite a paleontologist to visit the class. Have her bring her tools and explain how to use them. She will demonstrate how dinosaur bones are located and reconstructed into a skeleton.
VISIT A "DIG"

If you live near a "dig," be sure to visit it. Perhaps this is a scientific dig in a field. Or it might be a dig especially for children at a museum. Check it out.

LETTERS TO DINOSAUR TOWNS

Write letters to the Chamber of Commerce in some towns to find out the location of excavation sites, dinosaur specimens, and museums with dinosaur exhibits. Or write directly to certain museums.

If you live near a museum with a dinosaur exhibit, be sure to visit it. Discuss the exhibit. Observe the parts of the dinosaur. Note how the dinosaur on exhibit compares with the class activities. Discuss which exhibits include dinosaurs and which include other dinosaur era animals.

Here are some museums with exhibits of the dinosaur era:

Academy of Natural Sciences, 19th and The Parkway, Logan Square, Philadelphia, PA, 19103
American Museum of Natural History, Central Park West 79th Street, New York, NY, 10024
Amherst College, Pratt Museum, Amherst, MA, 01002
Buffalo Museum of Science, Buffalo, NY, 14240
Carnegie Museum of Natural History, 4400 Forbes Ave., Pittsburgh, PA, 15213
Cleveland Museum of Natural History, Wade Oval, University Circle, Cleveland, OH, 44106
Denver Museum of Natural History, City Park, Denver, CO, 80205
Dinosaur National Monument, PO Box 128, Jensen, UT, 84035
Duquesne University, Pittsburgh, PA, 15213
Earth Sciences Museum, Brigham Young University, Provo, UT, 84602
Field Museum of Natural History, Roosevelt Road at Lake Shore Drive, Chicago, IL, 60605
Fort Worth Museum of Science, 1501 Montgomery St., Ft. Worth, TX, 76107
Houston Museum of Natural Science, Houston, TX, 77000
Los Angeles County Museum of Natural History, 900 Exposition Blvd, Los Angeles, CA, 90007
Museum of Comparative Zoology, Harvard University, Cambridge, MA, 02138
Museum of Northern Arizona, Box 720, Flagstaff, AZ, 86001
Museum of Palaeontology, University of California, Berkeley, CA, 94720
Museum of the Rockies, Montana State University, Bozeman, MT, 59715
National Museum of Natural History, Smithsonian Institution, Washington, DC., 20560
National Museum of Natural Sciences, Ottawa, Ontario, Canada.
National History Museum, University of Kansas, Lawrence, KS, 66044
Nebraska State Museum, University of Nebraska, Lincoln, NE, 68500
New Mexico Museum of Natural History, Albuquerque, NM, 87100
Peabody Museum of Natural History, Yale University, 170 Whitney Ave., PO Box 6666, New Haven, CT, 06511
Science Museum of Minnesota, St. Paul, MN, 55100
Sternberg Memorial Museum, Hays, KS, 67601
Tyrrell Museum of Paleontology, Drumheller, Alberta, Canada.
University of Michigan Exhibit Museum, Alexander G. Ruthven Museums, 1109 Geddes Ave., Ann Arbor, MI, 48109
University of Wyoming Geological Museum, Box 3254, Laramie, WY, 82071
Utah Natural History Museum, University of Utah, Salt Lake City, UT, 84112
Utah Natural History State Museum, Vernal, UT, 84008
W. H. Reed Museum, Laramie, WY, 82070
Zoological Gardens, Calgary, Alberta, Canada.
DRAWING LIFE-SIZE DINOSAURS

Share a dinosaur story with authentic content and illustrations. One such series is the Dinosaur Discovery Era, authored by Elizabeth J. Sandell. See Page vi.

Choose one or two well-known dinosaurs. Children will draw life-size replicas of them on the cement playground or parking lot. The shape may then be filled with chalk or tempera paint.

To draw a dinosaur, first establish the length and the height. Have children mark one-foot intervals on a long piece of twine. Then stretch the twine to the proper length for the chosen dinosaur. Do the same for the dinosaur’s height.

Now, draw the shape of the dinosaur between these points.

When children realize that some dinosaurs were as long as three school buses, they will have a better understanding of the size of these animals.

Children may compare the lengths and heights of different dinosaurs.

Here are lengths and heights of some dinosaur era animals:

- Ankylosaurus: 25 feet long; 4 feet tall.
- Apatosaurus: 65 feet long; 15 feet tall.
- Archaeopteryx: 1.6 feet long
- Compsognathus: 4.6 feet long
- Dimetrodon: 9 feet long; 4 to 5 feet tall (including the sail)
- Plesiosaurus: 10 feet long
- Pteranodon: 25 feet long (with wings spread)
- Seismosaurus: 100 feet long; 20 feet tall.
- Stegosaurus: 30 feet long; 11 feet tall.
- Triceratops: 30 feet long; 9 feet tall.
- Tyrannosaurus: 40 feet long; 20 feet tall.

LENGTH OF DINOSAURS

Cut lengths of rope equal to the length of a dinosaur, length of a cat, and height of a child. Or make paper chains equal to these dimensions. Put the ropes (or paper chains) in the hallway; label each with the word and a picture. Discuss how long the dinosaurs were in relation to the other items.
BUILD A BOX-O-SAURUS

Children will bring to class many small boxes, such as boxes from gelatin, toothpaste, cereal, egg cartons, handcream, and film. Various dinosaurs will be built.

For a Tyrannosaurus, use a large box for the body and a toothpaste box for the neck and head. Cut the tooth paste box at an angle and glue it to the body. Use a smaller section of a toothpaste box for the head. Cut the legs from the front of a box or use pressed-paper egg carton sections. Paint Tyrannosaurus with tempera, but add a few drops of detergent so it will adhere to the boxes. Or, before painting Tyrannosaurus, paste a layer of paper over the entire dinosaur and let it dry. Or several layers of papier mache may be added before painting.

Children will use their imaginations to make other dinosaurs.
PAPIER MACHE DINOSAUR

First, make a frame in the shape of the dinosaur’s head. Use newspapers which have been crumpled, pieces of cardboard or paper towel rolls. Or a big blown-up balloon makes a good frame. Tape the material with masking tape into the shape desired.

Add papier mache to enhance the shape. Make the papier mache paste by mixing equal parts of flour and water until it becomes a soupy paste. You may also use watered Elmer’s glue or wallpaper paste.

Tear newspaper into long strips about one inch wide. Dip each strip into the paste. Remove excess glue by running the paper between your fingers. Then apply the strip to the frame.

After coating the frame with one layer of papier mache, let it dry completely before adding the next layer.

When completely dry, the final layer may be painted with tempera.

DINOSAUR CHART

Make a chart to show the lengths of different dinosaurs, a cat, a dog, and the height of a child. Discuss the differences.

<table>
<thead>
<tr>
<th>Cat</th>
<th>Dog</th>
<th>Child</th>
<th>Dinosaur</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image" alt="Cat" /></td>
<td><img src="image" alt="Dog" /></td>
<td><img src="image" alt="Child" /></td>
<td><img src="image" alt="Dinosaur" /></td>
</tr>
</tbody>
</table>
DINOSAUR CREATIVE MOVEMENT

Cut pictures of several very different dinosaurs. See the Appendix for patterns. Paste each picture on a different large piece of cardboard.

Discuss each one with the children. Refer to authentic stories about specific dinosaurs. Make a list of characteristics and life habits of each.

As children learn physical movements which are typical of a specific dinosaur, they may create that movement. For example, children may pretend they are Apatosaurs. With some children using rhythm instruments to provide background music, others may do an Apatosaurus dance, involving slow movements.

A list of characteristics for Apatosaurus might include the following:
- means "deceptive lizard"
- also called Brontosaurus, which means "thunder lizard"
- walked on all four legs
- average length was 75 feet; height, 15 feet
- weighed 30 to 40 tons
- had a flexible neck, which it used to eat leaves from tall trees, as giraffes do today
- swallowed leaves whole because it did not have teeth to chew them
- probably traveled in herds
- moved slowly, about 2 to 4 miles per hour

A list of characteristics for Tyrannosaurus might include the following:
- means "tyrant lizard"
- weighed more than 5 tons
- was a huge meat eater, called a carnivore
- had a head which was more than 4 feet long
- had jaws which were 3 feet long
- some of its teeth were 6 inches long
- walked on two hind legs
- had strong feet with claws like a bird
- used its jaws and claws to capture and kill animals
- swallowed huge chunks of meat
DINO NAMES

Provide plastic models of familiar dinosaurs (Apatosaurus, Stegosaurus, Tyrannosaurus, etc.). Discuss the appearance and name of each. Tell the children what the name means. Comment that each dinosaur name means something about what it looked like, what it ate, or where it was found.

DINOSAUR ENVIRONMENT

Discuss the life and environment of dinosaurs. Observe authentic stories depicting this material. Each child will trace around a stencil of a dinosaur onto gray paper. See the Appendix for dinosaur patterns. Cut out one of these dinosaurs; paste it on white paper. Use crayons to color a background for the dinosaur.

Rubber stamps of different dinosaurs are available commercially. The child could make the background picture of the environment and then stamp the outline of the dinosaur on the picture.

DINOSAUR COMMUNITY OF LONG AGO

Use a large cardboard box for a diorama of the dinosaur era. Children may paint trees and bushes on the inside and outside of the box for background. Plant life may be simulated with fresh plant branches. Terrain may include dirt and rocks from the playground. Add dinosaur models made from clay.

DINOSAUR COMMUNITY - INDIVIDUALIZED

Each child may make her diorama of the dinosaur era. Provide a shoe box for each child. Tempera paints may be used to paint trees and bushes on the inside and outside of the box. Terrain may include dirt and rocks. Add dinosaur models made from modeling clay or playdoh.
MATCH THE DINOSAUR NAMES

Put pictures of different dinosaurs on 3" x 5" cards. See the Appendix for patterns of different dinosaurs. Print the name of the dinosaur beneath the picture. Cut each card into two parts, between the letters. Players take turns to draw a card with some letters and part of a dinosaur. When they get both parts of the dinosaur, they place it in their winning pile. If all the cards are drawn from the central pile, players take turns drawing cards from each other's hands.

A more advanced level would require the child to name the letters and/or the word.

TELL A DINO STORY

To deal with creative situations, write a story about dinosaurs. What would happen if dinosaurs were alive today? If you were a dinosaur, what games would you play? Why do you think there are no more dinosaurs today?

DINOSAUR PUZZLES

Dinosaur puzzles may be made of heavy cardboard. Cut the shape of different dinosaurs. See the Appendix for patterns. Children will put the dinosaur shape in the right spot on the puzzle.
FOSSIL RUBBINGS

If you have access to fossils, children may make rubbings (prints) of them. Place onion skin paper, or other strong paper, over the part of the fossils to be rubbed. With pencil or crayon, rub over the paper. Use the minimum pressure necessary for the print; too much pressure will tear the paper.

PRETEND DINOSAUR

Pretend to be a dinosaur. What kind would you be? How would you walk? What could you do? How would you get food? What would happen when your enemy would come? What would you do when you see something to eat?

DINOSAUR HOMES

Make a poster which shows three habitats from dinosaur days: water, land, and air. Find pictures of various kinds of dinosaurs and other dinosaur era animals. Children will sort the pictures into the habitat in which the animal lived. Name the animals which walked on land. Name the animals which flew in the air. Name the animals which swam in the sea.

PET DINOSAUR

Pretend you have a pet dinosaur. What tricks would it do? What problems would you have with it for a pet? What would your neighbors say? Where would it sleep?

DINO BOOK

Children may draw, trace, color, or paint pictures of dinosaurs on different sheets of paper. Add a title page with the book's title and the child's name. Staple the pages together for the child's book.
DINOSAUR DICTIONARY

Staple blank pages for a book. The child will make a dinosaur for the front cover. As children add dinosaurs to their listening vocabulary, they write (or dictate to the teacher) the word on a page in their dictionary. They may also make a drawing to illustrate the word.

DINO BOOKMARKS

Use small dinosaur stickers, or trace small outlines of dinosaurs. See the Appendix for patterns of some dinosaurs. Glue one on a tongue depressor or long, narrow cardboard. This makes a great bookmark.

DINOSAUR IDENTIFICATION

Provide several picture cards of each of the most familiar dinosaurs. See the Appendix for patterns of dinosaur era animals. Each child should have a dinosaur card. Say, "I'm looking for pictures of an Apatosaurus. The Apatosaurus weighed as much as ten elephants. It ate only plants. Those who have Apatosaurus cards, stand up and make yourself look very large!" Recognize the children who respond. "Amy is an Apatosaurus. Ian is an Apatosaurus." Continue until each child has had a turn.

DINOSAUR BINGO

Make Bingo game boards with pictures of familiar dinosaurs. Stickers are acceptable if they are authentic. Or see the Appendix for patterns of dinosaur era animals. Make identical picture cards for each dinosaur. Children will match the pictures. A more advanced level would have children name the dinosaur before matching the picture. Or, the most advanced level would have one set of cards with the word for the dinosaur name, so the child would match this name card with the dinosaur picture on the game board.
DINOSAUR DOMINOES
Using 3" x 5" index cards, put a picture of two different dinosaurs on each card. Make 20 such cards. See the Appendix for patterns of different dinosaurs. Deal the cards among the children playing. Children find the ends of the cards which match. The player with the fewest remaining cards is the winner.

DINOSAUR NAIL GAME
Draw a dinosaur outline on a piece of soft wood at least 8" x 16" x 1". Drill holes about every inch around the outline. Children will insert nails into these holes.

For variety, use different sizes of holes as well as different depths of holes. Children will then use different sizes of nails. This promotes discrimination of size.

DINO BEAN BAG TOSS
Make a dinosaur backboard and put it behind a cardboard box. Children will toss bean bags into the box. Older children will use greater distances from the box.

PEEK-A-BOO
Use several different dinosaur plastic models. Place them on a tray. Have the children observe carefully to remember what is on the tray. Then the children close their eyes. The teacher removes one dinosaur. Which one was removed?

FELT SHAPES
Cut several different dinosaur shapes from felt. See the Appendix for patterns. Place them on the flannelboard. Have the children observe carefully to remember what is on the flannelboard. Then the children close their eyes. The teacher removes one dinosaur. Which one was removed?
MATCH A MEAL

Put picture of dinosaurs, other animals, and plants on different 3" x 5" index cards. Children will match which dinosaurs ate animals and which dinosaurs ate plants.

BODY MATCH

Show the children a plastic model of a dinosaur. Identify and discuss the different parts of the dinosaur body. Tell the children that scientists look at different parts of the body in order to classify the dinosaurs into different groups.

As different parts of the dinosaur body are identified, have each child find that part of his body: head, back, legs, arms, shoulders, feet, knee, chest, neck, mouth, eyes, teeth. In what ways are the dinosaur body parts like yours? How are they different? (sizes, lengths, claws instead of fingernails, etc.)

DINOSAUR SPINNER

Using a pizza cardboard circle, mark it into six sections. Attach a spinner at the middle of the circle. Put a picture of a different dinosaur in each section. See the Appendix for patterns of different dinosaurs.

One child will flick the spinner. Another child will say the name of the dinosaur to which the spinner points. If that child is correct, he pretends to be that dinosaur. And he has the next turn to spin.

DINOSAUR PUPPET

The teacher will prepare the envelope for this puppet. Seal two envelopes. Cut them open at one short end. Tape one cut edge of an envelope to one cut edge of the other envelope. The children will draw many teeth inside. Children will use hand motion to make a mouth motion for a dinosaur.
**STANDING DINO**

Cut the outline of a dinosaur body from oaktag. See the Appendix for patterns of dinosaurs. Cut two sets of legs. Make slits from the top about half-way down in the leg section. Cut two slits in the body portion. Fit the dinosaur body outline into the slits, so it stands up.

A larger, sturdier dinosaur may be made by using the cardboard from a grocery box. An even larger dinosaur may be made from a refrigerator or mattress box.

**STANDING DINOSAUR**

Cut the outline of a dinosaur body from heavy paper. See the Appendix for dinosaur patterns. Cut a slit in a styrofoam cup. Fit the dinosaur body into the slit so it stands up.

**DINOSAUR EGG HUNT**

Put small plastic dinosaurs inside plastic eggs. Hide them around the room for the egg hunt.

**NUMBER-SAURUS**

Attach dinosaur shapes to cards. See the Appendix for patterns. Write numerals "1" through "10" on different dinosaur shapes. Deal the cards to the children playing the game. The leader calls out a number. The child with that numeral places it in the center of the table. The child who gets rid of his cards first is the next leader.
DINOSAUR STEPPING STONES

Cut ten different dinosaur shapes from oaktag. See the Appendix for patterns. There should be one set for each child. Mark each shape with a different numeral "1" through "10." Laminate each card.

Place the shapes about six inches apart on the floor in sequence from one through ten. Give directions to the children: Step on numeral three. Take one step ahead. What numeral are you? Step on numeral six. Go to numeral four. In what direction did you go? Follow the numerals from one to ten and say them aloud. in what direction did you go? Now step backwards and say each numeral aloud.

DINOSAUR TWIST

Make ten different dinosaur shapes on a large sheet of oaktag. See the Appendix for patterns. Mark each shape with a different numeral "1" through "10." Place on the floor. Have a child place his right hand on one numeral, left hand on a different numeral, right foot on another numeral, etc. Children may take turns. Or two children may do this together for a real twisted effect!

DINO CAKE WALK

Cut different dinosaur shapes. See the Appendix for patterns. On each, place different numerals "1" through "10." Place the shapes in a circle on the floor. As background music is played, children walk around the circle. When the music stops, children listen for the numerals the leaders calls. Children on those numerals win dino stickers.

DINO MURAL

Place a large sheet of paper on the floor. Children will draw, crayon, or paint dinosaur pictures on the paper to make a mural. Hang the mural on a wall.

DINOSAUR EXHIBIT

Make a huge dinosaur from brown wrapping paper. Unroll paper on the floor. Children will draw a huge dinosaur. Cut out this dinosaur. Cut another like it. Staple both together. Stuff with newspaper. This dinosaur may be painted with tempera.

Or the dinosaur may be covered with colored tissue paper bits brushed on with liquid laundry starch.

Display by hanging from the ceiling or place on a large table. Label the dinosaur.
DINO DESIGN

Cut sponges into different dinosaur shapes. See the Appendix for patterns. Children will use the dinosaur-shaped sponges for sponge printing. Provide a shallow container of tempera paint. Also, provide paper.

Children will dip the sponge in the paint and print it on the paper for a dinosaur design.

DINO T-SHIRTS

Use crayons to decorate T-shirts with dinosaur designs. The T-shirts should be 40% cotton and 60% polyester for this purpose. Children will make dinosaur shapes, using crayons which have a wax content. Fabric crayons are advised.

DINO CAVES

Use clean milk cartons to make dino caves. Label each one with a numeral from "1" to "10." Make a set of 3" x 5" index cards, each with dinos for a numeral "1" to "10." Also, provide small plastic dinosaurs. The child will match the index cards and/or the number of plastic dinosaurs with the numeral on the milk carton.

DINOSAUR DANCE

Provide each child with a dinosaur card threaded onto a string to wear around her neck. See the Appendix for patterns. As background music plays, children dance as they pretend to be the dinosaur on their card. When the music stops, all the children freeze. Children exchange cards in order to be a different dinosaur before the music resumes.
PARACHUTE PLAY

Children will move the parachute (bedsheet) as if it were different types of dinosaurs. For example, children can pretend to be the Pterodactyl by standing and letting the parachute float through the sky like large wings, dive for something on the ground, and then take off again. Stegosaurus had a tail for defense. Let the parachute be the tail moving back and forth as it protects the Stegosaurus. Or the activity may be slow and ponderous, as were some dinosaurs.

DINOSAUR LOCATION GAME

Provide pictures of different dinosaurs and a volcano. See the Appendix for patterns. Put backing on each picture for the flannelboard. Or put magnetic strips on the back for use with the magnetic board.

Various directions may be used to help children learn concepts of behind, over, under, beside, between, upon, above, on top of, in front of, to the right of, to the left of, etc.

For example, the following directions may be used:
1. Put all the dinosaurs and the volcano on the board.
2. Put Triceratops behind the volcano.
3. Put Stegosaurus beside the volcano.
4. Take Pteranodon off the volcano and put it above Stegosaurus.

DINOSAUR BUDDY

Obtain a toy stuffed dinosaur for a class buddy. Each night, a different child may take the dinosaur home. Send along a spiral notebook to serve as a diary. The child and family will write in the diary about things they did with the dinosaur buddy.

COMPARE DINOSAURS

Put pictures of five different dinosaurs on the bulletin board. See the Appendix for patterns. Ask children to note body parts which all of these dinosaurs have. They will note four legs, rough skin, mouth, stomach, back, etc.
DINOSAUR SOUP

You'll need:
- 2 to 3 soup bones
- 2 quarts of water
- 1 package dry onion soup mix
- 3 cups of mixed diced vegetables, such as carrots, celery, peas, corn and potatoes

A class trip to the store may result in obtaining these items. The soup bones may be designated as the "dinosaur bones." Brown the meaty bones in a large kettle. Cover with water and boil about 15 minutes. Add the onion soup mix. Lower the heat and simmer for about two hours. Remove the meat from the bones; discard the bones for another activity. Add the meat to the broth. Add the vegetables and cook about 20 minutes until the vegetables are tender.

DINOTREATS

Make tasty Dinotreat cookies from any rolled cookie recipe. Children may draw simple dinosaur shapes which they use to cut the cookies. Or commercial dinosaur cookie cutters may be used.

Here is a suggested recipe for Sugar Cookies.

- 1 cup soft butter or margarine
- 1 1/2 cups sugar
- 2 eggs
- 3 cups flour
- 1/2 teaspoon soda
- 1 teaspoon vanilla

Mix together. Chill the dough. Roll on lightly floured surface and cut into desire shapes. Bake at 350° for 6 to 8 minutes. Cookies should be done but not brown.
APATOSAURUS BREAD

Make yeast bread. Shape the dough long and wide but narrow at each end. Add short, stumpy legs. Use tiny bits of dough for eyes. Green vegetable coloring may be added to an egg yolk water glaze. Brush on the Apatosaurus bread. Bake.

Here's a bread recipe which is enough for several Apatosaurs.

2 envelopes dry yeast
1/2 cup warm water
1/4 cup honey
4 tablespoons butter
2 cups milk
1 tablespoon salt
2 to 3 cups all-purpose flour
1/2 cup wheat germ
3 cups stone ground whole wheat flour

Dissolve the yeast in the warm water. Add honey and butter. Scald the milk and add to the yeast mixture. Combine the salt and all-purpose flour. Add to the yeast mixture. Stir thoroughly in electric mixer or by hand. Add the wheat germ and mix thoroughly. Gradually add the whole wheat flour. If the dough is still sticky, add more flour. Knead a few minutes.

Give each child a ball of dough. He will pat, squeeze, and roll his dough. When his dough is smooth and elastic, he will shape it for the Apatosaurus. Let it rise until doubled. Bake for 25 minutes at 425° and another 25 minutes at 350°.

DINOSAUR LISTENING

Listen and participate in DINOSAUR ROCK, which is a cassette tape containing children's songs about dinosaurs. The music is performed by Michele Valeri and Michael Stein.

Some other sources of music about dinosaurs include the following:
Once Upon A Dinosaur, including songs of fact and fun, such as My Pet Tyrannosaurus,
The Dinosaur Dance, The Fossil Rock.
Dynamic Dinosaurs, introducing children to math, language, and art activities.
Dinosaurs, Dolphins and Dreams, including Dinosaur Dreams, Milestones, and Casey in the Boat.
STEGOSAURUS COLORS

Children are given paper replicas of Stegosaurus bony plates of different colors. See the Appendix for this pattern. When the color is named, children hold up their pattern. Each underlined word in the following poem is accented. Hands may be clapped on this accented word.

Once upon a time, there was a Steg-o-saur-us.
Would you be-lieve that up and down its spine,
In a ver-y fine line,
Grew red* colored plates?
I think it's true. Do you believe it, too?

*Use a different color. Children hold up the color said.

DID YOU KNOW THE STEGOSAURUS?

Did you know the Stegosaurus had a brain so tiny?
Smaller than the Apatosaurus?

Nose to the ground, bony plates up and down its spine.

Did you know the Stegosaurus had a coat of armor?
Braver than the Apatosaurus!

Spikes on the tip of its tail like a whip goes 'round!
ELASMOSAURUS

If you take a turtle, (hold out right hand with palm up) and a snake, (hold out left hand with palm up) Put them together (bring both hands together with palms touching) and see what they make. A neck that's long (put left hand to neck with fingers gently around neck) A tail that's strong (put right arm behind back with hand outstretched representing the tail, moving the hand back and forth) And four paddles. (put both arms down at sides with hands pointed outward at wrists, representing paddles) These all belong to A..B..C..D..E.. (clap hands as each letter is said) E..lasmosaurus. (clap hands as E is sung) The giant of the sea. (extend both hands straight out to the side of the body as far as possible, representing the giant of the sea)

FIVE ENORMOUS DINOSAURS

Five enormous dinosaurs, letting out a roar. (show five fingers) One went away, and then there were four. (remove one) Four enormous dinosaurs, crashing down a tree. One went away, and then there were three.

Three enormous dinosaurs, eating fern stew. One went away, and then there were two.

Two enormous dinosaurs, trying to run. One went away, and then there was one.

One enormous dinosaur, afraid to be a hero. He went away, and then there were zero.
FIVE BIG DINOSAURS

One, two, three, four, five. (count fingers) Five big dinosaurs standing in a row.

This big dinosaur stubbed his toe. (point to each finger in turn) This big dinosaur said, "Oh, oh, oh." This big dinosaur laughed and was glad. This big dinosaur cried and was sad. This big dinosaur, so thoughtful and good, Ran for the doctor as fast as he could.

FIVE BIG DINOS

Five big dinosaurs sat on the shore. (open hand and extend fingers; push down each finger as each dino leaves) One went for a swim, and then there were four. Four big dinos looked out to sea. One went swimming, and then there were three. Three big dinos said, "What can we do?" One went in the water, and then there were two. Two big dinos sat in the sun. One swam off, and then there was one. One lonely dino said, "This is no fun." He dived into the water, and then there were none.
LITTLE JOEY DINOSAUR
(an exercise; do the appropriate movements)

Little Joey Dinosaur counts to three. \(\text{(count)}\)
Little Joey Dinosaur bends one knee.
Little Joey Dinosaur stretches his wings.
Little Joey Dinosaur whistles and sings. \(\text{(la-la)}\)
Little Joey Dinosaur makes a funny face.
Little Joey Dinosaur runs in place.
Little Joey Dinosaur says, "It's time to go to town." \(\text{(hands on hips)}\)
Little Joey Dinosaur dresses up \(\text{(touch head) to down. (touch feet)}\)
Little Joey Dinosaur puts on his shirt.
Little Joey Dinosaur brushes off some dirt.
Little Joey Dinosaur steps into his slacks.
Little Joey Dinosaur scratches his back.
Little Joey Dinosaur touches his toes.
Little Joey Dinosaur touches his nose.
Little Joey Dinosaur lays on the floor.
Little Joey Dinosaur starts to snore.
Little Joey Dinosaur puts on a hat.
Little Joey Dinosaur gives his tummy a pat.
Little Joey Dinosaur wears a tie. \(\text{(twiddle fingers at throat)}\)
Little Joey Dinosaur puts on his shoes and socks.
Little Joey Dinosaur doesn't ride, he walks.

FOLLOW THE LEADER

One child is chosen as the first leader. He walks the way a specific dinosaur did. Other children follow him. Children take turns being the leader.

CAPTAIN, MAY I?

One child is chosen as the first leader. The leader names dinosaur movements for the others to follow. Children take turns being the leader.

An example of an instruction the leader would say: Take two giant Stegosaurus steps forward.
LET'S GO ON A DINOSAUR HUNT

Let's go on a dinosaur hunt. *(children repeat each line after the leader)*

Oh, look, there's a tree up ahead!
Can't go over it, can't go under it.
We'll have to climb it! *(children pretend to climb tree, up one side & down the other)*

Let's go on a dinosaur hunt.
Oh, look, there's a river ahead!
Can't go under it, can't go around it.
We'll have to swim it! *(pretend to swim the river)*

Let's go on a dinosaur hunt.
Oh, look, there's a swamp ahead!
Can't go over it, can't go around it.
We'll have to stomp through it! *(run hands on thighs for a rustling noise)*

Let's go on a dinosaur hunt.
Oh, look, there's a cave ahead!
Can't go under it, can't go over it.
We'll have to go in it!

It's kind of dark in here! *(pretend to feel in the darkness)*

It feels really big, feels scaly! *(pretend to feel object)*

It's...it's...it's a dinosaur!

Hurry! Let's get out of here!

Here's the swamp!

Can't go over it, can't go around it.
We'll have to stomp through it! *(do actions)*

Here's the river!
Can't go under it, can't go over it.
We'll have to swim it!

Here's the tree!
Can't go over it, can't go under it.
We'll have to climb it!

At last! We're safe at home!
DINOSAUR SONG
(tune: Oh, Christmas Tree)

Oh, dinosaurs.
Oh, dinosaurs.
Oh, how big
You are to me.

Oh, dinosaurs.
Oh, dinosaurs.
What a wonder
You are to me.

So heavy,
So tall.
As you lived
Long ago.

Oh, dinosaurs.
Oh, dinosaurs.
How wonderful
You are to me.

FRERE STEGOSAURUS
(tune: Frere Jacques)

Stegosaurus, Stegosaurus.
In the swamp, in the swamp.
Plates upon your back.
With your tail you whack.
Clomp, clomp, clomp.
Clomp, clomp, clomp.
FRERE DINOSAURS
(tune: Frere Jacques)

Dinosaurs, dinosaurs.
Big and strong, big and strong.
Hold your head up high.
Hold your head up high.
Walk along, walk along.

Dinosaurs, dinosaurs.
Walking by, walking by.
You're so big and tall.
You're so big and tall.
You fill the sky. You fill the sky.

TYRANNOSAURUS REX
(tune: Wheels on the Bus)

Tyrannosaurus rex used to romp, romp, romp,
romp, romp, romp.
T y rannosaurus rex used to romp, romp, romp.
All around the Earth.

Tyrannosaurus rex used to stomp, stomp, stomp,
stomp, stomp, stomp.
Tyrannosaurus rex used to stomp, stomp, stomp.
All around the Earth.

Tyrannosaurus rex used to chomp, chomp, chomp.
chomp, chomp, chomp.
Tyrannosaurus rex used to chomp, chomp, chomp.
All around the Earth.

SAY GOODBYE TO THE DINOSAUR
(tune: Who's Afraid of the Big Bad Wolf)

Say goodbye to the dinosaur, the dinosaur, the dinosaur.
Say goodbye to the dinosaur. It's extinct. It is no more.
ONE LITTLE, TWO LITTLE, THREE LITTLE DINOSAURS

One little, two little, three little dinosaurs.
Four little, five little, six little dinosaurs.
Seven little, eight little, nine little dinosaurs.
Ten little dinosaurs dance!

DINOSAUR IN THE DELL
(Tune: Farmer in the Dell)

The dinosaur in the dell.
The dinosaur in the dell.
Hi, ho, the derry-o.
The dinosaur in the dell.

DINOSAURS AND PTERANODONS

The dinosaurs lived long ago
When life on Earth began.
Some were tall. (stretch hand upwards to show height)
And some were small. (crouch down low to show shortness)
Some liked water. (make swimming motions)
Some like land. (stomp feet)
Pteranodons had leathery wings. (flap arms)
Apatosaurs had long necks. (hands on jaw, palms up, as if stretching neck upwards)
And the meanest dinosaur of all
Was the Tyrannosaurus rex! (feet apart, hands clawlike, scowl and growl)
STEGOSAURUS BONY PLATE PATTERN
ANKYLOSaurus Pattern
APATOSAURUS PATTERN
(also known as Brontosaurus)