

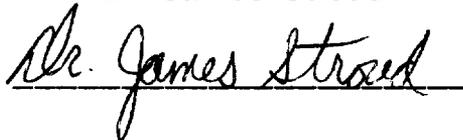
Science in the Early Childhood Curriculum

An Honors Thesis (HONRS 499)

by

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Abstract

The purpose of this thesis is to enhance the importance of science in the early childhood classroom. The benefits of science for students and teachers are discussed along with the teacher's role in implementing science in the classroom. Suggestions are also given on how to integrate science with the other subjects that are most commonly taught in the early childhood classroom. Following these discussions is a detailed science unit plan on winter. This plan outlines activities that can be used to teach a science unit on winter while integrating the activities with the other subjects that will be taught during each day. Four appendices will follow that contain actual lesson plans and patterns from the winter science unit. Additionally, there is a list of other unit ideas, and a list of materials that are commonly used in science centers and lessons.

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Science is a subject that many early childhood teachers shy away from. Two common reasons for this are that teachers are unsure if they know enough about science to teach it, and they are not sure how much a young child can understand about science concepts. One thing to remember when teaching science is not to worry about if you know enough. Teachers can utilize the many sources that may have the answers and facts to fill a child's curious mind. As a teacher do not be afraid to tell a child that you do not know an answer to their question and that you will get back with them the next day. Who knows, when you research that question you may find that you have enough information to teach a lesson on that subject to the whole class. Science is all around us every day. We simply need to look for it and bring these experiences into the classroom.

The second thing to remember is to think big about children. Chances are that they will understand more than you expect. "If the children are enjoying an activity or lesson then you can be sure that it is appropriate for their age" (Ziemer, 1987).

For many teachers science was not a positive subject when they were students. Hopefully by looking at the benefits, teaching and integration of science in the early childhood classroom some of these apprehensions can be changed into positives that can be taught to today's young children. We

need to remember that “we do not “teach” science; joyfully, we investigate it together” (Ziemer, 1987).

Having a science curriculum in an early childhood classroom is very beneficial for young children and for their teachers. Science can build confidence and enhance problem solving skills of children because it gives them a chance to discover things for themselves that take place in their world every day. The natural things that occur in science are enough to stimulate a child’s curiosity without even having a planned lesson.

Science gives children hands on experience that helps develop their language and their senses. Many prereading skills can be developed in preschoolers for that next step into kindergarten. A child’s senses are enhanced by just being in nature. Every day they taste, touch, smell, see or hear something that can be related to science.

Along with the development of language and senses, science can also develop a child’s motor skills. In many science activities children are encouraged to use tools and resources to develop fine muscle movement. For example the children may be asked to use scissors to cut out their own snow flake shape. Science can also develop large muscles by simply taking a nature walk.

Along with the many benefits for children, science also benefits the teacher. Science allows the teacher to observe each child’s skills because it uses verbal as well as non-verbal language. Some preschoolers

have a large vocabulary and do well when making predictions and discussing activities. Other children, however, do better when manipulating and actually working with an activity. Once a teacher identifies each child's skill area she or he can continue to enhance it while also trying to strengthen other skills the child may not be as comfortable using.

Another benefit of science for teachers is the ease it offers to get children actively involved. A child's curiosity is so strong that they naturally want to take part in any excitement going on. For instance, if the teacher brings in a pet cat to show the children that it has developed its heavy coat for winter, the children will all want to take part in touching the cat to feel this thick coat for themselves.

The last benefit of science for teachers is the rapport it builds between themselves and the students. Science activities offer constant verbal as well as physical interaction. Questions, answers, predictions, and conversation all take place during activities. The teacher may also physically assist a child if the child seems to be having difficulty or if a task may be a little too dangerous for the child to do unassisted.

These benefits should give teachers a more positive, excited feeling towards facilitating science in their classrooms. The benefits for the students also give them confidence and make science a positive thing to learn.

Now that we know that science can be positive and beneficial in early childhood we need to look at the teacher's role in making sure that science is facilitated in the classroom.

To begin with, the teacher must have a positive attitude towards science and towards questions that may be asked by the children. Teachers need to remember that simply answering a question can be a form of teaching. Along with the children, teachers need to have an inquiring mind to find out all they can about science. As teachers "when we present science experiences in the early childhood years, we are not introducing new activities to children. We are merely defining a process they began at birth: making sense out of their world with the intellectual processes currently available to them" (Taylor, 1985). The teacher also needs to set limits for the children to work within and make sure that all materials and activities are safe for the children.

In The Young Child as a Scientist by Christine Chaille and Lory Britain (1991), they sight seven important roles of the teacher when facilitating science. The first of these roles is the presenter. In this role the teacher simply gives the children ideas, activities, and options and then leaves the final choice up to each child. The next role is an observer. The teacher needs to watch the children before, during, and after an activity for any reactions. This observation will also help the teacher find out if the activity was appropriate. In some instances the teacher may want to

write down formal notes when observing. In the third role the teacher is to pose problems and ask questions. The teacher should stimulate curiosity without disturbing the child's activity. The teacher's fourth role is to organize the environment. It should be clean, simple and safe and should not cause the children confusion. The teacher is also a public relations coordinator between parents, administrators and children. This can be important when teaching science because it is a subject where people have diverse views. The sixth role of the teacher is to write down and keep track of the children's learning. A teacher can do this by keeping observation notes and saving samples of the children's work. This is beneficial when meeting with parents and administrators throughout the year. The final role of the teacher is to build theory. The teacher needs to be able to present theoretical ideas to the children while remaining excited and getting the students excited too.

As you can see, the teacher has many roles when facilitating science in the classroom. Most of these roles will come naturally as teachers interact with their students.

The final issue to consider when teaching science in early childhood is that it needs to be integrated with other subject areas. "Research shows that when science is integrated with other subjects, both science and the other subjects are learned more effectively by children" (Carin, 1989). Art, music, language, math, motor skills and snack time can all be easily

integrated with science.

Many things in nature can be used to create art lessons. An example of an art/science lesson could be using a leaf to do leaf rubbings.

When thinking about music there are many songs that deal with science topics. There are times when you can make up a song to a common tune that relates to your topic. Music can also be integrated with science through creative movement. For example you could play The Skater's Waltz and have the children move around the room as if they were skaters. Activities like this also integrate science with motor development.

Language is probably the most important and the easiest subject to integrate with science. When doing a science activity, take time to make labels for all the items. You also need to explain and put words to all the actions you do in an activity. Science can increase reading readiness skills for preschoolers. The easiest activity to integrate science and language is to read a book to the students that is related to your topic. Follow the story with extension activities that enhance your topic.

During snack time you may have to stretch your mind and be creative but there are ways to tie snack time in with science. For instance, if you are talking about birds, you could serve sunflower seeds and tie in the fact that birds eat seeds too.

Finally, math can tie in with science because both subjects often use quantities and numbers. You can compare the length and width of two

different leaves or have the children help measure the ingredients you need for an activity or experiment. Graphs and charts are also very helpful when integrating math and science. You may want to make a bar graph of the temperature each day of the week to see which day was the warmest or coldest at the end of the week.

As you can see it is not nearly as hard to integrate science throughout each school day as it may seem. Just remember to be creative and use the sources already out there.

Science is a very important subject to have in any early childhood classroom. There are so many benefits that it is hard to make an argument against the importance it has in the early childhood classroom. Chaille and Britain have outlined roles for the teacher to follow when teaching science (1991). One of the ways to make science more enjoyable for students and teachers is to integrate it with other subject areas. Science can be positive for all involved if it is simply facilitated naturally from the things going on around us every day.

Introduction Works Cited

Butzow, John W. Science Through Children's Literature. Englewood, Colorado: Teacher Ideas Press, 1989.

Carin, Arthur A., and Robert B. Sund. Teaching Science Through Discovery. Columbus: Merrill Publishing Company, 1989.

Chaille', Christine, and Lory Britain. The Young Child as Scientist: A Constructivist Approach to Early Childhood Science Education. New York: HarperCollins Publishers Inc., 1991.

McIntyre, Margaret. Early Childhood and Science. Washington, D.C.: National Science Teachers Association, 1984.

Neuman, Donald B. Experiences in Science for Young Children. Albany, NY: Delmar Publishers, 1978.

Taylor, Barbara J. A Child Goes Forth: A Curriculum Guide for Preschool Children. 6th ed. New York: MacMillan Publishing Company, 1985.

Ziemer, Maryann. "Science and the Early Childhood Curriculum: One Thing Leads to Another." Young Children. September 1987: 44-51.

Developed Unit Plan

(Winter)

Unit: Winter

Lesson One: How to Dress and Prepare for Winter.

Lesson Activities

Concepts to develop:

1. Clothes you wear in winter (See activity plan in appendix A).
2. What do animals do to dress and prepare for winter?
3. What is frostbite?

Concept Activities:

Music: "Mittens"
Thumb in the thumb place,
Fingers all together.
This is the song we sing in
Mitten weather.

Storytelling:

Warren, Jean. Teeny-Tiny Folktales. "Stone Soup" Everett, WA: Warren Publishing House, Inc., 1987. (flannel board story)

Borden, Louise. Caps, Hats, Socks, and Mittens. New York: Scholastic Inc., 1989.

Cognitive:

Have children classify and sort winter clothes from clothes of other seasons.

Snacks:

Pigs-in-a-Blanket

Fine Motor:

Have the children use yarn to sew together construction paper mittens.

Dramatic Play:

Have winter clothes in the dramatic play center.

Language:

Have the children help you write a Language Experience Story about an animal that is brought in the classroom that has grown it's thick winter coat.

Finger Plays and Nursery Rhymes:

Read "The Three Little Kittens" to the children. After you have read the story talk about why we need to wear mittens and other winter clothes. This would also be a good time to talk about frost bite.

Art:

Decorate and stuff a set of mittens for each child and attach the mittens with a piece of yarn. (See pattern in appendix B). This can be the same mittens used in the fine motor activity.

Lesson Two: Snow

Lesson Activities

Concepts to Develop:

1. Snow melts into water and it takes a lot of snow to make a little bit of water. (See activity plan in Appendix A).
2. If the snow is dry and hard enough you can make sculptures out of it.
3. Snow is measured in inches and feet.
4. Too much snow can stop activity.
5. No two snowflakes are alike.

Concept Activities:

Art:

Make snow tracks with plaster of paris. You can also have the children bring in other things that leave prints in the snow such as tree branches and leaves.

Torn paper snow man (Warren, Short-Short Stories, 1987).

Poetry:

"What is White" (O'Neill, 1961)?

"Stopping by the Woods on a Snowy Evening" by Jack Frost.

The Snowman's Resolution

The snowman's hat was crooked
and his nose was out of place
and several of his whiskers
had fallen from his face,

But the snowman didn't notice
for he was trying to think
of a New Year's resolution
that wouldn't melt or shrink.

He thought and planned and pondered
with his little snowball head
till his eyes began to glisten
and his toes began to spread;

At last he said, "I've got it!"
I'll make a firm resolve
that no matter WHAT the weather
my smile will not dissolve.

Now the snowman acted wisely
and his resolution won,
for his splinter smile was WOODEN
and it didn't mind the sun.

Aileen Fisher

Storytelling:

Branley F. Snow is Falling. New York: Crowell, 1961.

Keats, Ezra Jack. The Snowy Day. New York: Viking Press, 1962.

Arnee', Marjorie. "The Rabbit Who Ate the Snowman's Nose." Short-Short Stories. Everett, WA: Warren Publishing House Inc., 1987.

Large Muscle Development:

Take the children outside and have them make snow sculptures and snow angles.

Games:

Wolves in the Snow: One person leads and the other children follow in the exact foot steps of the leader. Give each child a chance to lead.

Fox and Geese: Make paths in the school yard for the children to stay in. Have one child be the fox and the other children be the geese. The fox must try to catch the geese and all children should try to stay on the designated paths. Give each child a chance to be the fox.

Snowflake Game: (See Appendix B for directions and patterns).

Math:

With a measuring stick, paper, and pencil go into the school yard and measure the different depths of snow. You can then make a bar graph to show these differences.

Fine Motor:

Cut out snowflakes to hang around the classroom. Stress here that none of the snowflakes are exactly alike.

Snacks:

Snow Sherbert: Take clean snow and sprinkle orange juice powder over it and stir. "WARNING" Make sure you have clean snow! (Sisson, 1982).

Snowman Salad:

Cottage cheese

Raisins

Lettuce leaves

Small carrot sticks

Place lettuce leaves on a plate. Top with a round scoop of cottage cheese. Use raisins for eyes and mouth and the carrot stick for the nose (Warren, Short-Short Stories, 1987).

Music:

The Snowman

Sung to: "The Muffin Man"

Have you seen the snowman,
The snowman, the snowman?
Have you seen the snowman
Who lives in our front yard?

He has two brown potato eyes,
Potato eyes, potato eyes.
He has two brown potato eyes
And lives in our front yard.

He has an orange carrot nose,
Carrot nose, carrot nose.
He has an orange carrot nose
And lives in our front yard.

He has a bright red berry smile,
Berry smile, berry smile.
He has a bright red berry smile
And lives in our front yard.
(Warren, Short-Short Stories, 1987).

Fingerplay:

“Snowflakes”
Snowflakes, snowflakes spinning all around.
(Flutter fingers above head slowly fall to the ground)
Snowflakes, snowflakes falling to the ground.
Snowflakes, snowflakes so cold and white.
Snowflakes, snowflakes, will you stay all night?
(Kingore, 1988).

Lesson Three: Winter Temperature

Lesson Activities

Concepts to Develop:

1. Water expands when it freezes. (See activity plan in Appendix A).
2. Water freezes at 32 degrees Fahrenheit and below.
3. Why can you see your breath outside on a cold day?
4. The temperature changes throughout the day

Concepts Activities:

Cognitive/Language:

Freeze water overnight and watch it's property of expansion. Write a language experience story about what happen with the water on a large piece of butcher paper.

Water table:

Put warm water in the table and gradually add more ice so the children can feel the temperature of the water change.

Math:

Hang thermometers outside in the shade and in the sun and check the temperature throughout the day. Have charts in the classroom for the children to post these temperatures on so they can see the difference.

Hang tin cans outside with a small hole in the bottom of each can. Fill the cans with water and as the water slowly drips out it will form icicles. You may also want to try and add food coloring to the cans of water for an interesting effect. Once the icicles are formed, bring them in the room and quickly compare their lengths. Discuss the words long and short with the children. Have them place the icicles in order from longest to shortest or shortest to longest.

Music/Creative Movement:

Play the "Skater's Waltz" and let the children pretend to skate around the room. This would be a fun time to show the section of the movie Bambi where Bambi tries to walk on the pond and Thumper tries to help him.

Snacks:

"Cold Day Cocoa"

1 tbsp. instant cocoa mix
2 tbsp. dry powdered milk or
1 tsp. powdered sugar
3/4 c. hot water

Home made popsicles
Pour fresh juice into popsicle molds and put in the freezer over night.

Storytelling:

Morgan, Allen. Sadie and the Snowman. New York: Scholastic, 1985.

Art:

Shaving Cream Art: Put shaving cream on the tables and have the children make the shaving cream resemble snow and snow storms.

Popcorn Pictures: Pop a batch of popcorn for the children and let them glue the popcorn on to construction paper to resemble a snow storm.

Large Muscle Development:

Take the children outside to play. While they are out, have them stop once in a while and look at their breath. Explain to them that this is tiny droplets of water because cold air does not hold much water.

You can also have the children run around and then have them stand still and ask them when they were the warmest.

Lesson Four: Winter Plants

Lesson Activities

Concepts to Develop:

1. Why are evergreen trees different than other trees during winter? (See Appendix A).
2. Why do most trees lose their leaves before winter?
3. Compare the bare twigs of different trees.
4. How can you tell how old a tree is?
5. What is the color green?

Concept Activities:

Music:

Little Green Tree

Sung to: "I'm a Little Teapot"

I'm a little green tree

By the house.

Here is my trunk,

(Raise arms straight up.)

Here are my boughs.

(Hold arms out to sides.)

Decorate me now with lights so fine,

(Move hands back and forth across body.)

Then plug them in the watch me shine!

(Hold arms out to sides and smile.)

Billie Taylor

Sioux City, IA

(Warren, Short-Short Stories, 1987).

Snacks:

Log Snacks:

Whole-wheat bread slices

peanut butter

Let the children flatten bread slices with a rolling pin. Then have them spread peanut butter on the bread and roll it into a log shape (Warren, Short-Short Stories, 1987).

Storytelling:

Warren, Jean. "Ellie the Evergreen". Short-Short Stories. Everett, WA: Warren Publishing House Inc. , 1987.

Poetry:

"What is Green" (O'Neill, 1961).

Math:

Since winter is a time when many people cut wood this is a good time to bring in a log and let the children count age rings on it. Sanding the log will make the rings show up better (Boulton, 1984).

Art:

Put a dab of blue finger paint in one corner of the paper and a dab of yellow in the other corner. Let the children use their fingers to mix these two colors and make green (Bowden, 1989).

Put yellow and blue tempera paints in a bowl. Let the children stir the colors together with a popsicle stick to make green. Then let them use an evergreen branch to paint with. They will enjoy the thin lines the branch makes on their paper (Kingore, 1988).

Games:

Bean Bag Toss: Toss small bean bags into a tree shape with holes cut into it. This tree could be made to resemble the character from the felt board story "Ellie the Evergreen".

Fine Motor:

Take a large piece of paper and fold it in half. On one half write "Before winter." On the other half write "During winter." Give the children magazines and have them cut out pictures of trees. If the tree still has its leaves they can glue it in the "before winter" column and if it has lost its leaves they can place it in the "during winter" column. It would also be helpful to the children if you could bring in actual leaves from different trees. The pictures of evergreen trees can be set aside and after this lesson you can begin talking about how evergreen trees are different from other trees.

Enrichment Activities:

Pine cone bird feeders: Give each child a pine cone and let them spread peanut butter on it with a plastic knife. Then have them roll the pine cone in bird seed. Tie a string to the pine cones and hang them outside.

Put triangle shaped pieces of paper at the easel with green paint. Discuss with the children that the triangle shape of evergreens helps to keep the heavy snow off them in winter.

Lesson Five: Hibernation

Lesson Activities

Concepts to Develop:

1. There are seven very common hibernators that have many characteristics in common. (See activity plan in Appendix A).
2. The bear is the most common hibernator but it does not really hibernate.
3. During hibernation an animal's heart rate, metabolism and breathing slow down.
4. Some animals hibernate because there is not enough food for them in winter.
5. The number seven
6. The circle.

Concept Activities:

Music:

"The Hibernation Song"
(Tune: Are You Sleeping?)

Are you sleeping? Are you sleeping?
Little bears, little bears,
Winter time has come now , Winter time has come now,
Hibernate. Hibernate. (Kingore, 1988).

Have the children stretch arms as the song begins and end the song by curling up on the floor as if hibernating like little bear cubs.

Games:

Section off a small patch of snow in the play yard and hide some items under the snow. Make sure the children have mittens on and give each child a chance to find an item by digging through the snow. Discuss with the children how hard it is for animals to find food in the winter.

Movement:

“Gray Squirrel”

Gray squirrel, gray squirrel
Swish your bushy tail.
Wrinkle up your little nose,
Hold a nut between your toes.
Gray squirrel, gray squirrel
Swish your bushy tail.

Math:

Work with the number seven as you discuss the seven common hibernators.

Woodchuck	Little Brown Bat
Jumping Mouse	Bear
Chipmunk	Skunk
Raccoon	

Art:

Make a bear out of circle shapes while talking about the properties of a circle (Kingore, 1988).

Sponge paint with circle sponges, white paint, and blue paper.

Snack:

Teddy Grahams Crackers with milk

Enrichment:

Have a zoo keeper or veterinarian come in to visit and talk about animals that hibernate.

Storytelling:

Bancroft, H. and VanGelder, R. Animals in Winter. New York: Crowell, 1963.

Miller, Edna. Mousekin's Woodland Sleepers. Englewood Cliffs, N.J.: Prentice-Hall, 1970.

Elkin, Benjamin. "The Three Sleepers." Highlights for Children. Jan. 1987. (p. 38-39).

Poems:

"Woodchuck"

Woodchuck, woodchuck

you're a puzzle:

All through winter months

you nuzzle in your bed inside your burrow.

As a sleeper

you are thorough.

Month by month

the snow drifts past you.

Where do you get

Dreams to last you?

Aileen Fisher

Appendix A

(Activity Plans)

Activity Plan One

Area: Cognitive, Classification

Title: What do you wear in winter?

Materials Needed:

1. An assortment of clothes from all four seasons
2. A piece of chart paper and a marker
3. Pictures of people in winter clothes.

Objectives:

The children will be able to discriminate and classify winter clothes from clothes worn in spring, summer and fall.

Description of the Lesson:

You will begin by asking the children whether it is hot or cold outside. (This should be taught in December, January, or February so it should be cold.) Then tell the children that you will be talking with them about what kind of clothes you should wear in cold weather. Begin by asking them for ideas and write their ideas down on the chart paper. Tell them that you have clothes in your sack and you need their help finding the winter clothes. Once they recognize a winter item, write it on another piece of chart paper. Have the children help you compare their list of ideas with the list of items they discovered in your sack. You can then look at pictures of people in winter clothes. You can enhance this lesson by coming in dressed in clothes from all seasons and have the children tell you what is wrong with your outfit. For example, you could wear a sweater, shorts, mittens, scarf, sandals, and a sock cap.

Open Ended Questions:

1. What kind of clothes do you think we should wear in winter?
2. As you pull items from your sack ask why or why not these are proper clothes to wear in winter.
3. If you dress up, ask the children what is wrong with your outfit.

Evaluative Questions:

Were the children able to classify between winter clothes and clothes worn in the other three seasons?

Comments:

Activity Plan Two

Area: Math

Title: How much snow does it take to make 1/2 cup of water?

Materials Needed:

1. Two liquid measuring cups
2. A small bucket (2 gallon)
3. Small sauce pan
4. Some source of low heat
5. Chart paper and a marker

Objectives:

1. The children will be able to measure snow before and after it is melted.
2. The children will be able to compare the snow before and after it is melted and see that the largest measure is the unmelted snow.

Description of the Lesson:

When the children are ready to come back inside from play time have them help you fill a two gallon bucket with snow. As the children are putting their coats away, get out two liquid measuring cups and a small pan. You will also want to get the chart paper and a marker. Have the children gather around a table and tell them that you are going to see how much snow it takes to make 1/2 cup of water when the snow is melted. Put a piece of tape by the 1/2 cup mark on one of the measuring cups. Ask the children for their guesses on how much snow it will take and write them down on a piece of the chart paper. Make another piece of chart paper into a bar graph with two columns. One column should be labeled "cups of snow" and the other column "cups of water". You can go ahead and have one of the children fill in the water column up to the 1/2 cup line and explain that that is how much water you want to get. Have one child dip the second measuring cup into the bucket and pour the snow into a small pan. You can have three or four children do this. Once you have snow in the pan, set it over low heat, (if you have a heat register in your classroom it will work fine). Have children count the cups of snow as you

put them in and mark it in the "snow" column or your graph. Once the snow has melted, pour it into the measuring cup with the tape marking to see how close you are to the 1/2 cup mark. Once this is finished sit down with the children and look at the chart to see how much snow it took to make 1/2 cup of water.

Open Ended Questions:

1. How much snow do you think it will take to make a 1/2 cup of water?
2. What can you tell me about the chart we have made?

Evaluative Questions:

1. Were the children able to compare the snow before and after it was melted?
2. Were the children able to help construct the bar graph?

Comments:

Activity Plan Three

Area: Cognitive, Language

Title: What happens when water expands?
(Two day lesson)

Materials Needed:

1. A small plastic milk jug.
2. A freezer
3. Chart paper and a marker.

Objectives:

The children will be able to talk about what happened to the jug of water when it was frozen.

Description of the Lesson:

On day one fill the plastic jug completely to the top and show it to the children. Tell them that you are going to put it in the freezer and you will look at it again on day two. If you have filled the jug up enough it should break when the water freezes. If it is going to be extremely cold outside that night you may be able to set it outside too. You can also fill up two jugs and set one outside and one in the freezer so the children can compare the jugs and see if the same thing happened to both jugs.

On day two show the jug with the ice in it to the children and have them describe to you what happened. Write all these comments down on the chart paper and read it back to the children. You can then introduce the word expansion to the children and have them say it with you and by themselves.

Open Ended Questions:

1. What do you think will happen when the water freezes in the jug?
2. What did happen to the jug when the water froze?

Evaluative Questions:

1. Were the children able to talk about what happened to the jug of water after it was placed in the freezer?

2. Did the children participate when you talked about expansion?

Comments:

Activity Plan Four

Area: Art (The color green)

Title: Evergreen trees are different than other kinds of trees.

Materials Needed:

1. Evergreen branches
2. Large pieces of paper
3. Blue tempera paint
4. Yellow tempera paint
5. Stirring stick

Objectives:

1. The children will be able to mix yellow and blue paint to make green.
2. The children will use pine branches to paint pictures with the green paint

Description of the Lesson:

Give each child a little bit of blue and yellow paint and let them mix the colors together to make green. (Popsicle sticks work well to mix the paint). Once they have the paint mixed, have them paint pictures using evergreen branches instead of paint brushes. Talk about the thin lines the branch makes. While the children are painting you can talk to them about what makes evergreen trees different from other trees. During this discussion you can include that evergreens have a waxy covering to hold in moisture, thick bark to withstand harsh weather, and a triangular shape to shed extra snow. When the children are done with their pictures, set them on a shelf to dry and hang them around the classroom when they are dry.

Open Ended Questions:

1. I did not put green paint on your tables. Can you tell me what you did to get green paint?
2. Can you tell me about your picture?
3. What do you think makes evergreens different from other trees?
(This may be a good time to show the children leaves from other types of trees).

Evaluative Questions:

1. Did the children help mix the yellow and blue paint?
2. Did the children paint pictures with their evergreen branches?
3. Were the children able to point out some things that make evergreens different from other trees.

Comments:

Activity Plan Five

Area: Math, Dramatic Play

Title: The Seven Hibernators

Materials Needed:

Pictures of a woodchuck, brown bat, jumping mouse, bear, chipmunk, skunk and a raccoon.

Objectives:

The children will become familiar with the number seven while learning about the most common hibernators.

Description of the Lesson:

Begin by showing the children the pictures you have brought in of the hibernators. It would be good to number each picture from one to seven. As you show the pictures say "picture number one is a woodchuck" and so on down the list. Once the children have seen all the pictures, divide them into seven groups of two or three children per group. You can do this by saying "I would like for Bob, Susie, and Jim to hold picture number one of the woodchuck." You can then have each group pretend to be that animal when it curls up to hibernate. You can then have the groups trade pictures so they can be different numbers and different animals. You may then want to go through the numbers one to seven and have each group stand up when their number is called and tell what animal they are.

Open Ended Questions:

1. How does it feel to curl up in a ball like you are going to hibernate.

Evaluative Questions:

1. Did each child participate when going through the numbers and pictures?
2. Did the children pretend to be like the hibernating animals?

Comments:

Appendix B

(Patterns)

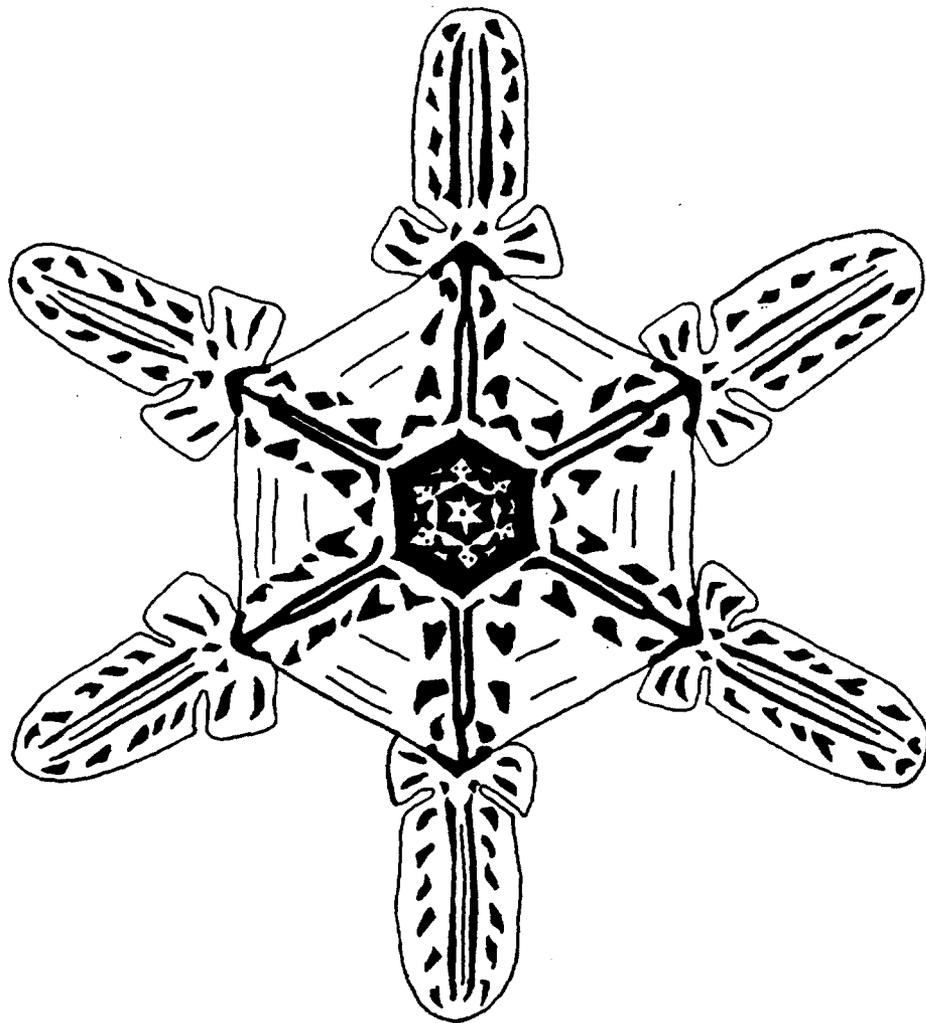
Mitten Pattern

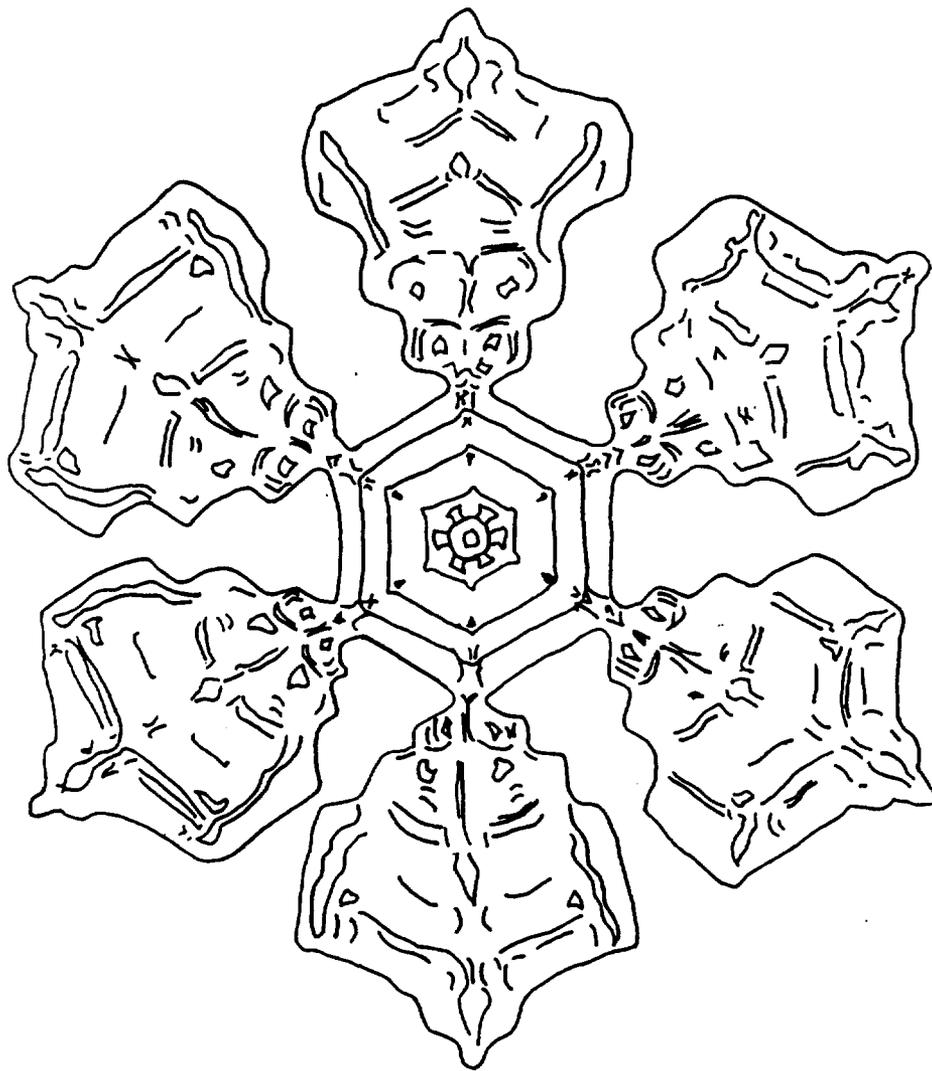


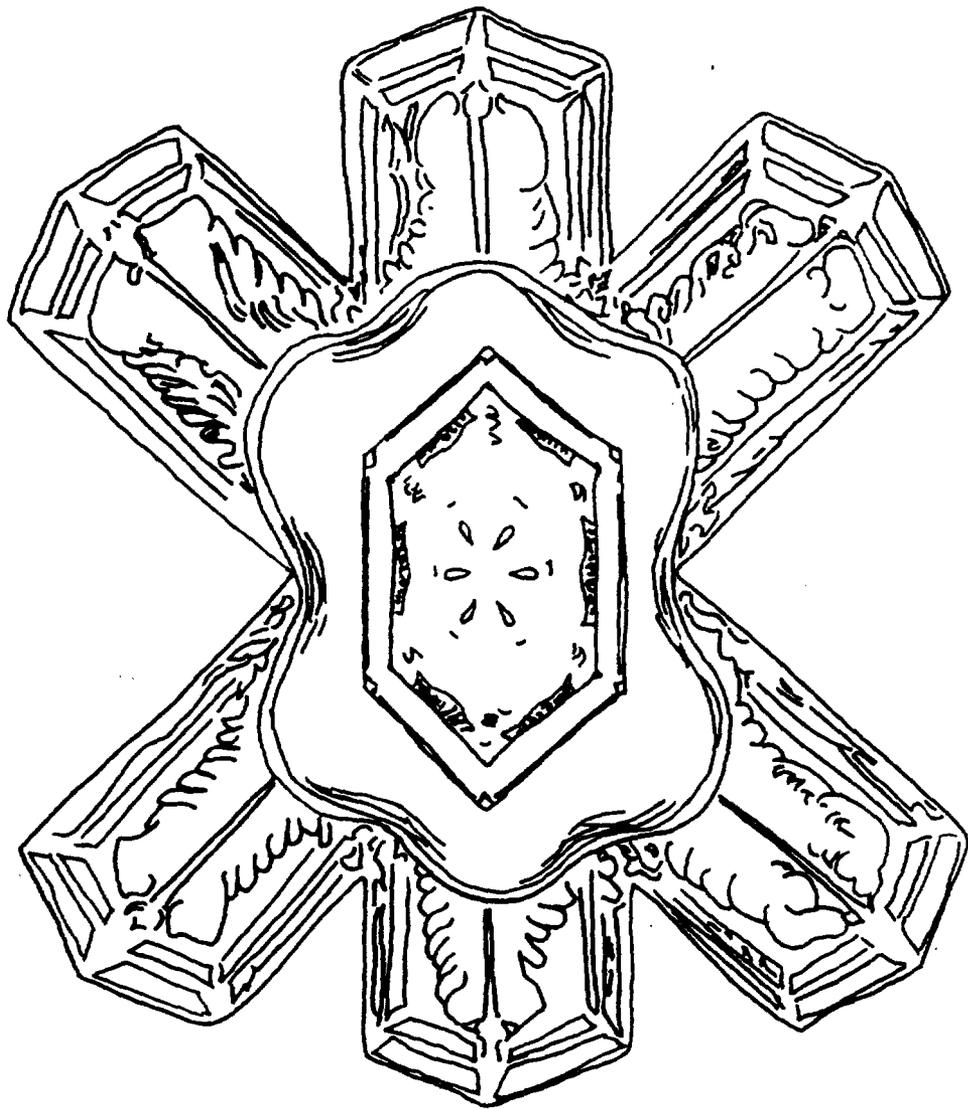
Snowflake Patterns (Bowden, 1989).

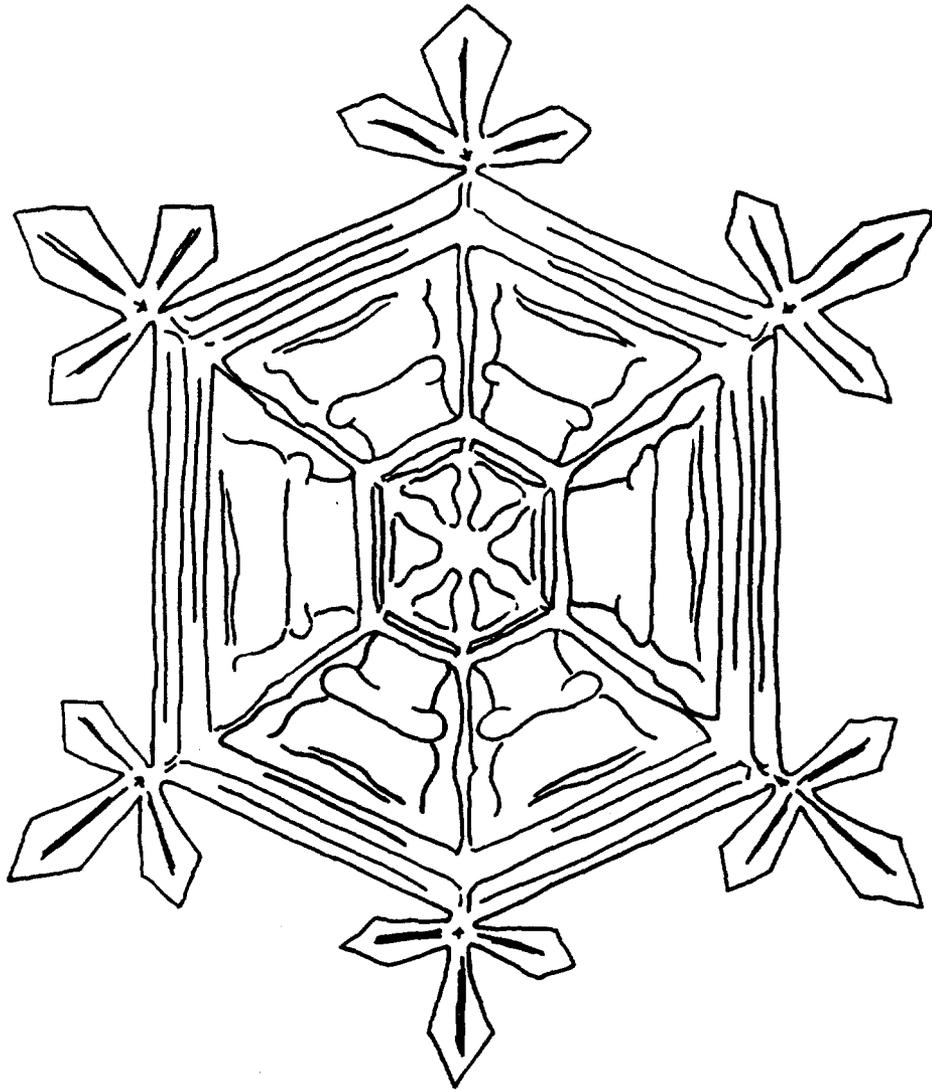
Snowflake Game

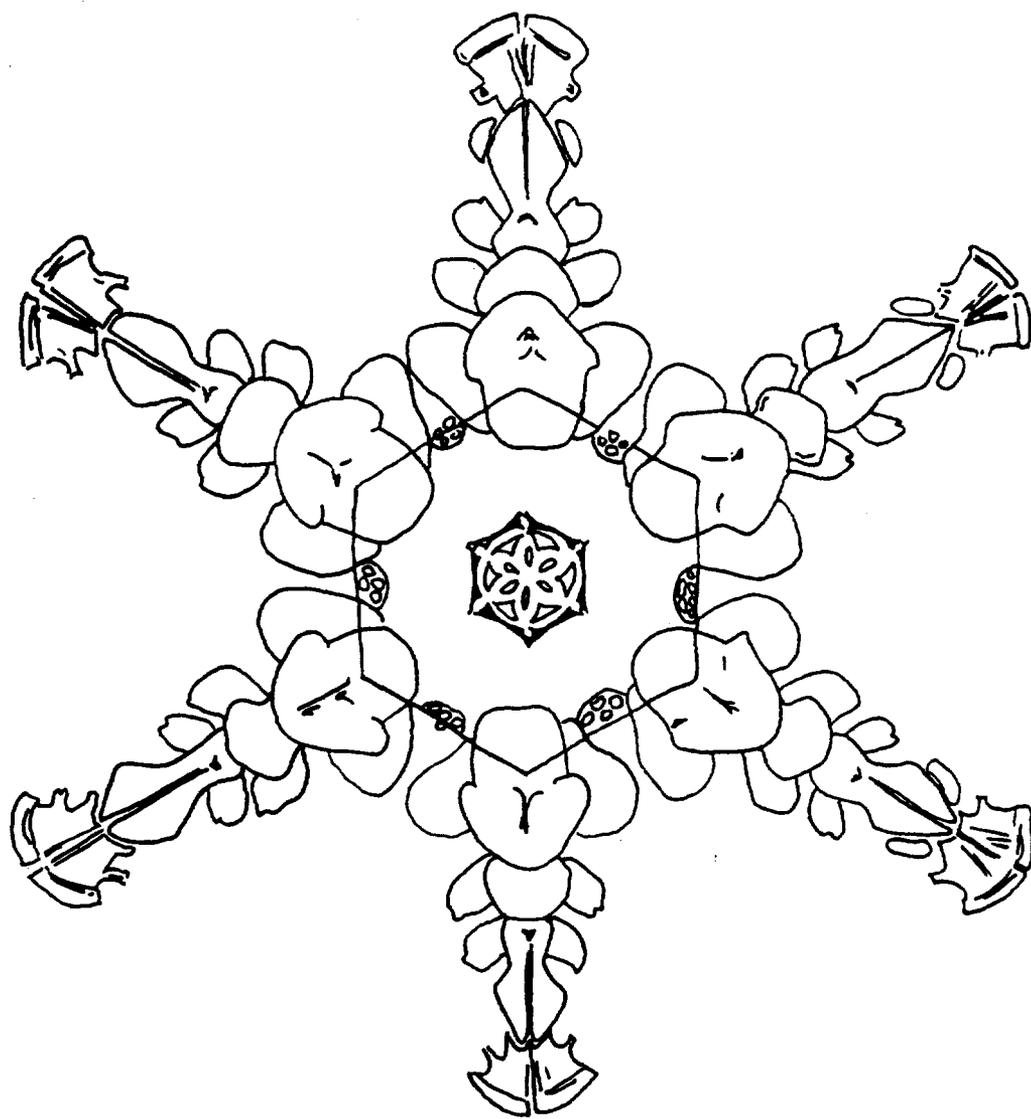
1. Photocopy or trace the snowflakes.
2. Glue onto cardboard.
3. Cut each snowflake in half; laminate each half.
4. Mix up the halves and have the children find the matching halves.











Appendix C

(Other Unit Ideas)

Volcanoes
Tornadoes
Earthquakes
Air
Water
Wind
Clouds
Day and Night
Photosynthesis
Metamorphosis
Float and Sink
Steam
Hot and Cold
Rain
Snow
Seasons
Rocks and Soil
Recycling
Planets
Stars
Solids and Liquids
Gravity
Glaciers

Appendix D

(Science Materials)

measuring cups and spoons
weights and scales
old rags
rubber tubing
stirring sticks
construction paper
cans
hot pads
magnets
string
filter paper
magnifying glasses
scissors
boxes
seeds
soil
tape
egg cartons
cork
tools
glue
rubber bands
paper clips
clothes pins
prisms
needles
paints
rocks
fish or gerbil
tongs
eye droppers
yarn
spoons
cotton balls
sand paper
pencils
thermometers

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