A Time for All Seasons – Summer (Part I)

Grade Level: 2nd Grade
Written by: Jeri Bisbee and Jan Polzin, Lincoln Academy Charter School, Arvada, Colorado
Length of Unit: Four separate seasonal units; each one is five days in length

I. ABSTRACT

This 2nd grade science unit expands on the concepts of seasons and the reason for them. Each of the four weeklong sub-units addresses the appropriate concepts as noted in the Core Knowledge Sequence, and reinforces basic concepts taught in Kindergarten. Included is a variety of rich literature and opportunities of learning for the auditory, visual and kinesthetic learner. Projects, demonstrations, plays, music, a series of observations, note-taking, writing, group discussions, and multiple assessments assist the teacher and the learner by fostering an increased level of understanding throughout the unit. *(Note: This is Part I of a IV-Part unit. Parts I & II are presented in 2002; Parts III & IV will be presented in 2003.)*

II. OVERVIEW

A. Concept Objectives
   1. Students will understand that most things are in the process of change and that there are patterns to these changes. **(Jefferson County Science Standard 1.2)**
   2. Students will understand the motion of the Earth in relation to the sun. (**Jefferson County Science Standard 4.4B)**
   3. Students will recognize how our daily activities are affected by the weather. (**Jefferson County Science Standard 4.2B)**

B. Content from the *Core Knowledge Sequence*
   Seasonal Cycles
   1. The four seasons and Earth's orbit around the sun (one year)
   2. Seasons and Life Processes
      a. Spring: sprouting, sap flow in plants, mating and hatching
      b. Summer: growth
      c. Fall: ripening, migration
      d. Winter: plant dormancy, animal hibernation

C. Skill Objectives
   1. Students will explain how the earth's revolution around the sun in 365 days and the fact its axis is tilted causes the seasons.
   2. Students will demonstrate how the rotation of the earth on its axis in a 24-hour period causes day and night.
   3. Students will identify how various animals change each season and the reasons for those changes.
   4. Students will identify how plants change throughout each season and the reasons for those changes.
   5. Students will investigate seasonal activities and discover why they are appropriate for that season.

III. BACKGROUND KNOWLEDGE

A. For Teachers
   1. Branley, Franklyn M. *Sunshine Makes the Seasons.* New York: Harper Collins Publishers, 1985. ISBN: 0-690-04482-8

2. Burton, Jane and Taylor, Kim. *The Nature and Science of Summer/Autumn/Winter/Spring* (series). Milwaukee: Gareth Stevens Publishing, 1999.

ISBN: 0-8368-2189-0
ISBN: 0-8368-2190-4
ISBN: 0-8368-2191-2
ISBN: 0-8368-2188-2

3. Gibbons, Gail. *The Reasons for the Seasons.* New York: Holiday House, 1995. ISBN 0-8234-1174-5

B. For Students

1. Students need to be familiar with the four seasons, characteristic local weather patterns during the seasons, and the sun as a source of light and warmth from Core Knowledge Kindergarten Science.

IV. RESOURCES

***Note:** Items in **bold** are required for this unit. The others are recommended materials to support/enrich this unit.

A. Ball, Jacqueline A. *What Can It Be? Riddles About the Seasons*. Englewood Cliffs: Silver Press, 1989. LSB: 0-671-68582

B. **Branley, Franklyn M. *Sunshine Makes the Seasons*. New York: Harper Collins Pulishers, 1985. ISBN: 0-690-04482-8**

C. Buchman, Rachel, *Sing a song of seasons* (sound recording) Cambridge: Rounder Records Corp, 1997. ISBN: 1-886767-97-1

D. **Burton, Jane and Taylor, Kim. *The Nature and Science of Summer.* Milwaukee: Gareth Stevens, Inc., 1999. ISBN: 0-8368-2189-0**

E. de Paola, Tomie. *Four Stories for Four Seasons.* New York: Prentice-Hall Books for Young Readers, 1977. ISBN: 0-13-330119-2

F. Fowler, Allan. *How Do You Know It's Summer?*. Chicago: Children's Press, 1991. Children's Press; ISBN: 0516449230

G. Gibbons, Gail. *The Reasons For Seasons*. New York: Holiday House, 1995. ISBN: 0-5234-1238-5

H. **Hirschi, Ron. *Summer*. New York: Cobblehill Books, 1991. ISBN: 0-525-65054-7**

I. **Maass, Robert. *When Summer Comes.* New York, Henry Holt and Co., 1993. ISBN: 0-8050-2087-X**

V. LESSONS

Lesson One: Season - Summer

A. *Daily Objectives*

1. Concept Objective(s)
   a. Students will understand that most things are in the process of change and that there are patterns to these changes.
   b. Students will understand the motion of the Earth in relation to the sun.
   c. Students will recognize how our daily activities are affected by the weather
2. Lesson Content
   a. Summer – growth
3. Skill Objective(s)
   a. Students will explain how the earth's revolution around the sun in 365 days and the fact its axis is tilted causes the seasons.

b. Students will demonstrate how the rotation of the earth on its axis in a 24 hours period causes day and night.
c. Students will identify how various animals change each season and the reasons for those changes.
d. Students will identify how plants change throughout each season and the reasons for those changes.
e. Students will investigate seasonal activities and discover why they are appropriate for that season.

B. *Materials*

1. A large, yellow sun cut from butcher paper to be displayed throughout the unit; 2 colored markers (throughout the unit)
2. *Sunshine Makes the Seasons* by Franklyn M. Branley and/or *The Reasons for Seasons* by Gail Gibbons
3. Globe (day 1)
4. lamp without shade (day 1)
5. Overhead of Appendix A (day 1)
6. Copies of Appendix B, "Earth in Summer" for each student (day 1)
7. 12x18" construction paper, folded in half for each student (day 1)
8. crayons for students (day 1)
9. Poem, "*Bed in Summer"* (day 1); from *What Your 2nd Grader Needs to Know* or listen to it sung on the CD, *Sing a Song of Seasons* by Rachel Buchman
10. *Appendix C – one per student "My Summer Observations Log" (day 1)
11. *Summer* by Ron Hirschi (day 2)
12. Play, "*Animal Seasons Presents Summer: A Time for Growth"* – copies for each participant; Appendix L1-L4 (day 2)
13. Play props – made ahead for participating students (Appendix J & K)
14. Writing paper, one per student (day 2)
15. *Reminder to students to bring leaves for day3!!* (day 2)
16. *The Nature and Science of Summer,* by Jane Burton and Ken Taylor (day 2 and 3)
17. A pre-selected outdoor area with a tree or bush for continued observations throughout each unit of study on seasons. (day 3)
18. Camera – digital if possible (day 3)
19. *Copies of Appendix D, Plants in Summer – one per student (day 3)
20. *Appendix E – place class photo at the top of the page and place as a divider for the "Seasons Book" to be compiled throughout the year during each unit of study.
21. Photosensitive paper (day 3) (see Bibliography for address)
22. leaves from the students (you may bring some or be prepared to let them gather some if they do not have any) (day 3)
23. Items for *dress up* if you're so inclined: summer hat, cool shades, sunscreen, beach ball/towel, etc.) (day 4)
24. "*When Summer Comes"* by Robert Maass (day 4)
25. sunscreen (day 4)
26. UV beads (address) (day 4)
27. sunglasses - a "cheap" pair (no UV protection) – and a quality pair (day 4)
28. Appendix F – ice cream recipe, with all ingredients; you choose quantities based on the number of students served (day 4)

29. Appendix G – Unit Test; one copy per student (day 5)
30. *Appendix H – "Summer Is…" one per student (day 5)
31. *Appendix I : one per student of the Seasonal tree (save in folder for future seasonal additions; one small piece of green construction paper per student for leaves to complete the summer tree (day 5)
32. Glue (day 5)

**** These items will be collected during each unit of study on the seasons, and placed in a bound book at the end of the year. (A manila folder per student may be the best way to keep each of the seasonal items until the end of the fourth season has been studied.)***

C. *Key Vocabulary*

1. *Season* - One of the four natural divisions of the year, spring, summer, fall, and winter. Each season is characterized by specific meteorological or climatic conditions.
2. *Hemisphere* - Either the northern or southern half of the earth as divided by the equator or the eastern or western half as divided by a meridian.
3. *Axis* - A straight line about which a body or geometric object rotates or may be conceived to rotate.
4. *Rotate* - To turn around on an axis or center.
5. *Revolve* - To rotate around a central point.

D. *Procedures/Activities*

Day 1: Earth in Summer

1. Have a class discussion on what students think seasons are; why we have seasons; what season is it now? What is a seasonal cycle? Does everywhere in the world have four seasons?
2. Prior to the unit, a *large* sun should be cut from butcher paper to display for notes throughout the unit. Pose the question to the class, "What do you think of when you hear the word 'summer'?" Write their responses with one color marker. You will be adding notes *learned* in another color throughout the unit.
3. Demonstrate the earth's rotation each 24 hours with the globe/lamp, and ask if anyone knows what is happening. Write the definition of *rotation* on the board – and explain the concept of day/night. (You may choose to mark your state with a sticky note to draw their attention to where in the world they are!) Explain that the earth *rotates* around the sun every *24 hours.*
4. Now demonstrate that the earth also *revolves* around the sun. Write this definition on the board as well, and demonstrate how the earth orbits the sun. This process of the earth *revolving* around the sun takes *365 days – or one year.*
5. Explain that the earth is tilted on its *axis* (note definition on the board) and show how the globe is tilted at about a 23-degree angle as it rotates around the sun. This is the cause of the seasons – the amount of direct sunlight given to the hemisphere causes the changes we notice at different times of the year. During summer, we observe longer days and shorter nights, as well as warmer temperatures because of this.
6. As you explain, having placed a sticky note or something to draw students' attention to where they live, ask which *hemisphere* (again, note definition) do we live in? As you rotate the globe around the sun, question the students as to what season it is. Ask what time of year do these seasonal changes take place? Explain that June 21/22 is the date in which the sun's direct sunlight reaches its most northern point, causing this to be the longest day of the year. Beyond this day, the actual hours of sunlight will decrease, as we begin to move towards the

fall equinox. (Months of year, with actual dates of seasonal changes may be displayed in a bulletin board format or noted on the board, as an introduction to the unit.)

7. Share, *The Reasons For Seasons* to make their understanding more concrete.
8. Once students demonstrate an understanding of the concept, ask them, "What have we learned today?" Make notes of their responses on the "Summer Knowledge Chart" in a different colored marker.
9. Using an overhead of Appendix A, review the seasonal cycles and the earth's tilt. Discuss that not all places on the earth have four seasons. (Those closer to the poles have only 2)
10. Have students complete "Earth in Summer" worksheet (Appendix B)
11. Hand out a large piece of construction paper to each child to make a folder. Fold in half and label it "Summer", and have them decorate the cover with their favorite activity of summer. Place the worksheet in the folder and collect.
12. Send home the "Observations of Summer" log (Appendix C), to be completed and returned on day 5.
13. Read "*Bed in Summer"* or listen to the CD listed and discuss its meaning.

Day 1: Evaluation and Assessment

1. Worksheet /participation

Day 2: Animals in Summer

1. Read Ron Hirschi's book, *Summer*. Discuss the common thread of *growth* throughout the book.
2. Present the play, "*Animal Seasons Presents Summer: A Time for Growth*"- assigning parts to various students with the teacher reading the part of Dr. Does-a-lot.
3. Pass out writing paper and have the students write 2-3 sentences on how the animal of their choice from the play changed and grew during the summer.
4. Add "new information learned" to the Summer Observation Chart.
5. Read aloud page 26 from *Nature and Science of Summer* by Jane Burton and Ken Taylor
6. In preparation for day three, have the students collect several small leaves for the photosensitive paper activity on Day 3.

Day 2: Evaluation and Assessment

1. Assess writing

Day 3: Plants in Summer

1. Read pages 12-15 in *The Nature and Science of Summer,* by Jane Burton and Ken Taylor
2. Having chosen an outdoor area with a tree or bush to observe during each season, take the class to this area, and take a class photo – preferably with a digital camera if available. (Place a copy of the photo on Appendix E for each student – retain for the end of year, "Seasons" book.)
3. Have a discussion noting all the signs of summer around them – sights, smells, sounds – primarily of the plant life. Have students record their findings on Appendix D, and place in their folders. (Appendix D will be collected for use in the end of year/season's study book – see notes)
4. Make a nature print using photosensitive paper and the leaves the students have brought in. Follow directions on package. Collect and display!
5. Add new knowledge to "Summer Observation Chart".

Day 3: Evaluation and Assessment

1. Notes/nature print

Day 4: Activities of Summer

1. Brainstorm some of the children's favorite activities of summer – and note them on the board. (You may choose to 'dress up' for today – summer hat, cool shades, sunscreen, beach ball/towel…)
2. Read, *When Summer Comes* by Robert Maass.
3. Have a class discussion on some 'summer safety tips' – i.e. sunscreen, sunglasses, etc. Ask, "What are some important things to remember when you're in the sun?" Talk about the harmful rays (UV) that come from the sun, and how sunscreen helps to protect our skin from the harmful rays.
4. Today's activity will demonstrate the UV rays, and how sunscreen and sunglasses help protect us.
   a. Show a sample of the UV beads in the classroom, how they are pale and colorless. (Keep another couple of samples in a brown paper bag or somehow to keep them out of the sun when you go outside) As you show the same sample in the sunlight, watch as they turn bright colors from the UV rays.
   b. Have a 2nd sample with sunscreen applied to them, and compare with those beads without. Observe/discuss the differences. (Try this ahead of time, as we had difficulties in making this one "work")
   c. For a 3rd observation, have some "cheap" sunglasses, and some quality UV sunglasses that you can demonstrate the varying quality of sunglasses, which protect our eyes from the damaging UV rays. Place several beads under the lens of the cheap sunglasses (without allowing them to receive any sunlight), and repeat with more beads under the quality sunglasses. You should observe the quality sunglasses' beads remain pale, in contrast to the "cheap sunglasses'" beads turning colors.
   d. Return to the classroom and record the new knowledge learned on the "Summer Observation Chart".
   e. Have students create a UV bead necklace or bracelet using beads and yarn.
   f. Make homemade ice cream using the recipe on Appendix F. ENJOY!

E. *Day 4: Evaluation and Assessment*
Observations/participation

VI. CULMINATING ACTIVITIES/TEST (Day 5)

(At the beginning of the day, or whenever you collect homework, be sure to get the "My Summer Observations' Log", to be graded as part of their overall score for this unit.)

1. Have a class review prior to the test, reviewing all of the "prior knowledge" and "knowledge learned" during the unit from the Summer Observation Chart.
2. Hand out a copy of the Unit Test to each student. (Appendix G)
3. When students have completed their test, have them complete the "Summer Is…" poem (Appendix H), using their creativity! (You may demonstrate by brainstorming some quality adjectives to go along with the *usual* nouns they will all come up with!)
4. Once the poem is completed/collected, have them draw a *summer* tree, using the ¼ portion of Appendix I, and some small pieces of green construction paper for them to tear pieces off representing leaves, and gluing to their tree.

E. *Evaluation and Assessments:*

1. Unit Test – 100 points
2. Summer Is… poem (Collect for "Seasons Book")
3. Summer tree (Collect for "Seasons Book")
4. Teachers may choose to do a 'unit' grade in addition to the test, based on the appendices graded.

VII. STUDENT WORKSHEETS/HANDOUTS

See Appendices A - L

VIII. BIBLIOGRAPHY

A. Ball, Jacqueline A. *What Can It Be? Riddles About the Seasons*. Englewood Cliffs: Silver Press, 1989. LSB: 0-671-68582

B. Branley, Franklyn M. *Sunshine Makes the Seasons*. New York: Harper Collins Pulishers, 1985. ISBN: 0-690-04482-8

C. Buchman, Rachel, *Sing a Song of Seasons* (sound recording) Cambridge: Rounder Records Corp, 1997. ISBN: 1-886767-97-1

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H. Hirschi, Ron. *Summer*. New York: Cobblehill Books, 1991. ISBN: 0-525-65054-7

I. Maass, Robert. *When Summer Comes.* New York, Henry Holt and Co., 1993. ISBN: 0-8050-2087-X

J. *Nature Print Paper.* PO Box 314, Moraga, CA 94556.

K. Poe, Heather, Ranger, Roxborough State Park, Colorado

L. Whitely, Ken, *All of the Seasons* (sound recording). Toronto: Pyramid Records

M. *World Book Encyclopedia.* Chicago: Field Enterpreses, Inc., 1961. (Books B, D, F, G, H, J, R)

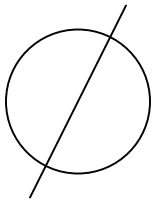
World Wide Web Sites:

www.dictionary.com

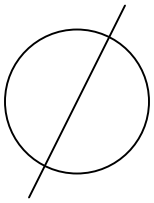
www.janbrett.com/mitten_masks_main.htm

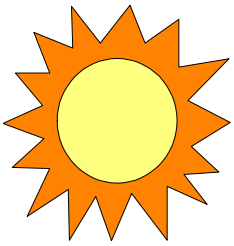
Appendix A

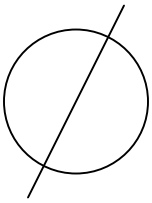
Earth's revolution around the sun, tilted on its axis, is the cause of the seasons. Look at the diagram below, and decide which of the seasons is represented with each phase of the revolution. This process takes 365 days, or one year.



The earth is not tilted
toward or away from the sun
_____

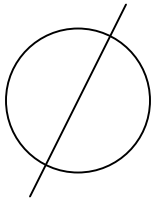






_____
The Northern Hemisphere
is tilted toward the sun.

_____
The Northern Hemisphere
is tilted away from the sun.

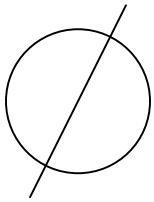


_____
The earth is not tilted
toward or away from the sun.

Appendix B

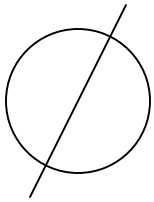
Name: _____

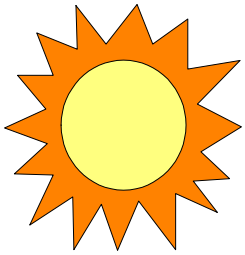
Earth In Summer

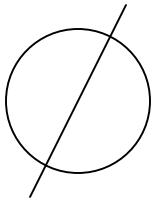


The earth is not tilted
toward or away from the sun.

_____





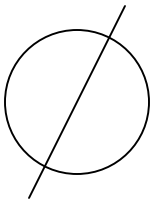


_____

The Northern Hemisphere is tilted
toward the sun.

_____

The Northern Hemisphere is
tilted away from the sun.



The earth is not tilted toward
or away from the sun.

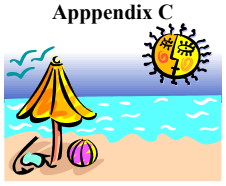
_____

Label the seasons on the lines above. Color the globe showing the season it is now. Use the words in the box below to fill in the blanks.

1. In summer, the Northern Hemisphere tilts _____ the sun.
2. In summer, daytime is _____ than nighttime.
3. In summer, temperatures are _____ than other seasons.
4. The earth rotates once on its axis every _____ hours.
5. The earth revolves around the sun once every _____ .
6. One year is _____ days.
7. Summer starts around _____.

June 21	colder	365	year	day	away from	24
longer	towards	12	June 1	warmer	160	shorter

Apppendix C



Name: _____

My Summer Observations Log

Fill in this page writing in complete sentences. See how many things you can observe this week in your surroundings that relate to summer!

	CHANGES I SEE: SEEN:	DATE
PLANTS	_____	_____
	_____	
	_____	
ANIMALS	_____	_____
	_____	
	_____	
WEATHER	_____	_____
	_____	
	_____	
CLOTHING	_____	_____
	_____	
	_____	
OUTDOOR ACTIVITIES	_____	_____
	_____	
	_____	

*Name:*_____

Plants in Summer

Please record your observations of the signs of summer
as we observe this area today.

The trees _____

_____.

The grass _____

_____.

The flowers _____

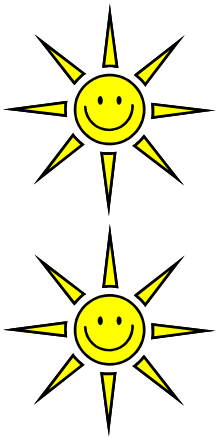
_____.

Answer in a complete sentence.

Why is summer the best season for plants to grow? _____

_____.

Appendix E



Place class photo here.

Duplicate one for each student as the 'divider' for each section of their Seasons Book, to be compiled at the end of the unit of study.

Summer

Appendix F

Homemade Ice Cream

Ingredients:
(per group of 2-3 students)

1/2 cup whole milk
1 Tbsp. Sugar
½ tsp. Vanilla
party ice
salt
dish towel
quart-size freezer bag
gallon-size freezer bag

Directions:
Pour into a quart-size re-sealable freezer bag. Seal the bag.

Place each group's bag of mix in the center of a gallon-size re-sealable freezer bag. Fill the larger bag half full of party ice, and add six tablespoons of salt, then seal the bag and lay it on a dish towel.

Have the members of each group take turns shaking the bag of ice for the next 5-10 minutes. (Have students use the towel to hold the bag, as it becomes quite cold.)

Serve up with plastic spoons, and enjoy!

Name: _____

Summer Test

Choose your answers from the box below.

longer	warmer	365	shorter	toward	12
colder	grow bigger	24	away from	165	hibernate

1. In the summer, daytime is _____ and nighttime is _____.
2. In the summer, temperatures are _____ than any other time of the year.
3. In the summer, the Northern Hemisphere tilts _____ the sun.
4. The earth rotates on its axis every _____ hours.
5. It takes _____ days for the earth to travel around the sun.
6. In summer, plants and animals _____.

Extra Credit: The first day of summer is June _____.
(Hint: the answer is not in the box.)

Appendix H

Summer Is…

The sound of

_____

_____

The smell of

_____

_____

The sight of

_____

_____

The taste of

_____

_____

The feel of

_____

_____

Appendix I

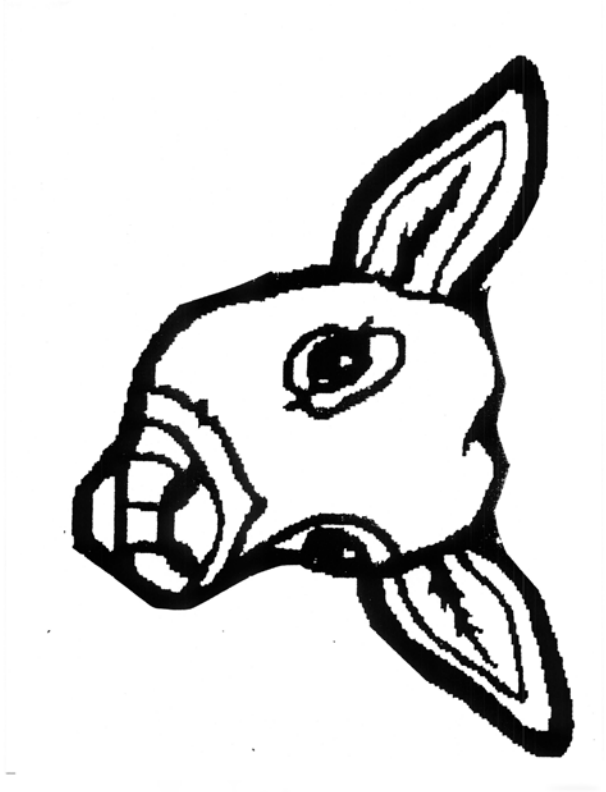
Summer Tree

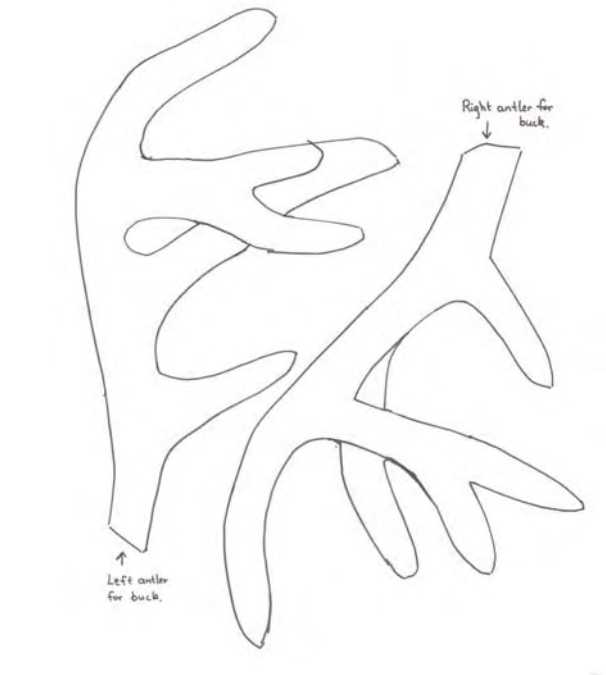
Fall Tree

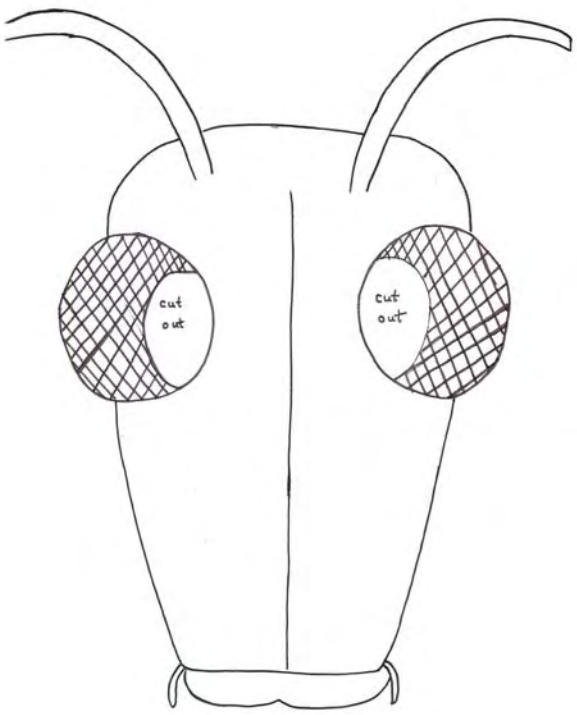
Spring Tree

Winter Tree

Appendix J



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out
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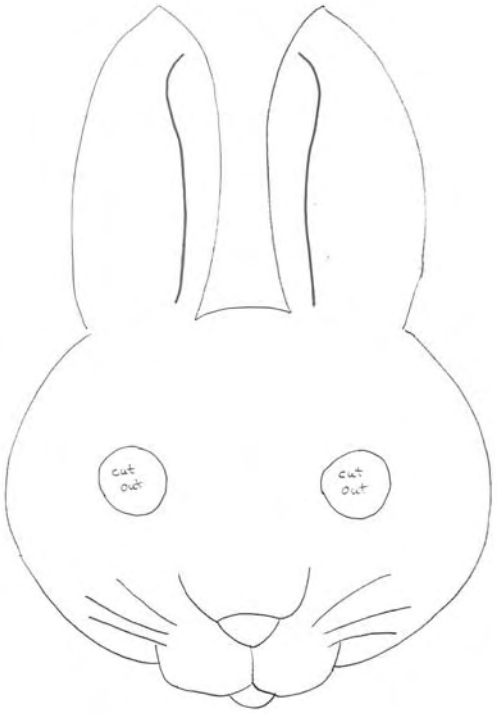
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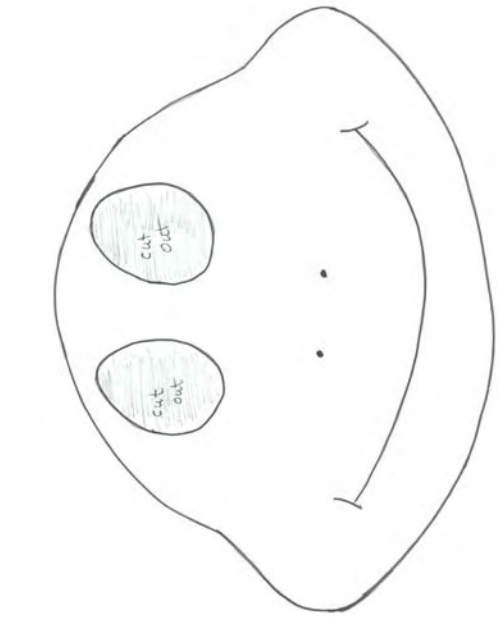
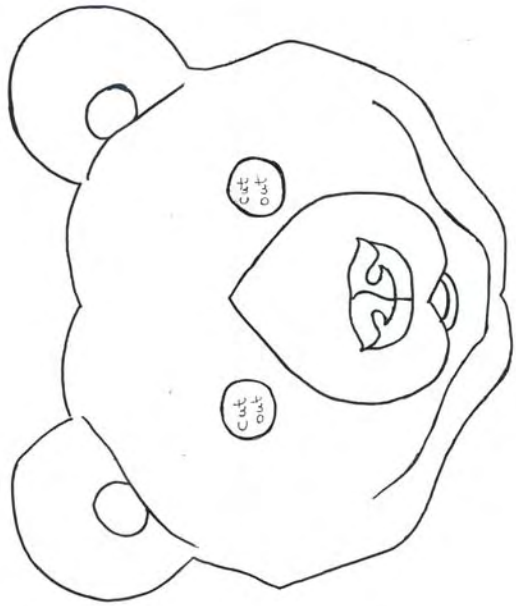
Appendix K





This play is divided into four parts, one for each season. It is designed to be done as a Readers' Theater. Each member of the cast should have a copy of the script with their part highlighted. Designate one part of the room as the studio, one part as the meadow, one part as the creek, and one part as the forest. Each animal should have a mask (Appendix U1-U7) the teacher should play the part of Dr. Does-a-lot andmay choose to dress in seasonally appropriate outdoor clothing. Dr. Does-a-lot will move from one area to another to talk to the various animals.

Animal Seasons Presents "Summer: A Time for Growth"

Cast

Dr. Does-a-lot	Mrs. Doe	Mr. Mallard	Frog	Mr. Buck
Ms. Grasshopper	Jackrabbit	Mrs. Mallard	Mrs. Bear	

Dr. Does-a-lot: Good afternoon and welcome to the summer edition of *Animal Seasons.* I am your host and animal expert Dr. Colorado Does-a-lot, but my friends call me "Collie", for short because I can talk to animals. Today I will be showing film of my interviews with some animals as we discuss the important subject of summer. The word for summer is *growth*. Watch and see what I mean.

(Roll tape.)

Dr. D: It's a beautiful summer afternoon here in a meadow in the Colorado foothills. I'm looking for some animals to talk with. Oh, I see a likely candidate. (Walks toward grasshopper.) Here we have a grasshopper. Excuse me, Ms. Grasshopper, could you tell us what you do in summer?

Ms. Grasshopper: Well actually, I'm not a grasshopper yet. I'm still a nymph.

Dr. D: I see. Oh no! What is happening to your skin?

Ms. Grasshopper: I'm molting. You see we grasshoppers don't have bones that grow bigger like you do. We grow by shedding our exo-skeleton which is the hard covering over our skin.

Dr. D: How many times do you molt?

Ms. Grasshopper: In the 90 days after I hatch, I molt five times. This is my fourth time. Next time I molt I will have wings and then I'll be an adult grasshopper.

Dr. D: So you are growing this summer. Thank you very much but I must move on. (Walks towards mother deer.) Oh, I see a mule deer over in the trees. Good

afternoon Mrs. Doe.

Mrs. Doe: Careful, you nearly stepped on my fawn!

Dr. D: So sorry. I didn't see him lying there in the grass.

Mrs. Doe: That's how he stays safe. See he has spots on his body to blend in with the grass and he knows to stay perfectly still so predators can't find him.

Dr. D: Will he always have those spots? You don't.

Mrs. Doe: No by fall he will have his adult hair and he'll have grown enough that he can escape from danger by running away.

Dr. D: So he's growing also. Will he be an adult in the fall?

Mrs. Doe: No it will take him two years to become an adult.

Dr. D: Where is his father, Mr. Buck?

Mrs. Doe: He doesn't stay with us in the summer. He's off with the other bucks and will be gone until fall.

Dr. D: Well, I wish your fawn good health as he is growing this summer. Goodbye. (Walks off.) Let's see if there are any other animals in the meadow. (Walks toward jackrabbit.) Look at those big brown ears. It must be the jackrabbit. Don't go racing off my speedy friend. I want to find out how you are spending your summer.

Jackrabbit: In a word growing. Would you believe I was born this spring but by fall I'll be all grown up. Right now I'm playing hide-and-seek with my brothers and sisters.

Dr. D: That sounds like fun.

Jackrabbit: Oh, it is, but it's also important practice for hiding from predators.

Dr. D: Oh yes, I saw the deer's fawn doing that also.

Jackrabbit: Playing is our way of learning how to be safe by running away or hiding.

Dr. D: Thank you so much for telling us about how you're growing. Sshh. I see one of your brothers looking for you. I must be off. (Tiptoes away.) (Whispering) Let's head down by this creek and see what we can find. Oh look! It's Mr. and Mrs. Mallard and 1-2-3-4-5-6 ducklings. Mrs. Mallard, I want to ask you about summer.

Mrs. Mallard: Children stop here a minute. Don't paddle too far away. There's a big fish over there who wants some dinner. My goodness, it is a constant job taking care of these ducklings. Thank goodness by next week their wings will have grown enough feathers that they can fly from danger.

Dr. D: They can't fly now?

Mrs. Mallard: No. Just five weeks ago my little downy babies hatched. My, they grow so fast.

Mr. Mallard: It's all those water plants and insects they've been eating.

Mrs. Mallard: Yes dear. Well, I must be off Dr. Does-a-lot. Children come back! Stay close to mother. (Dr. Does-a-lot walks off.)

Frog: Ribbit.

Dr. D: What was that?

Frog: Ribbit.

Dr. D: Why look down here. It's a little tiny frog, no bigger than my thumbnail. Hey, little frog, why do you have a tail?

Frog: Well it hasn't been that long since I was a tadpole. First I grew back legs. Then I grew front legs and soon my body will absorb my tail.

Dr. D: Sounds like you've really been growing.

Frog: Yeah and I'm not done yet. By fall I'll be an adult frog 2 inches long.

Dr. D: Wow! Well I hope you find many insects to help you grow. So long. (Walking along.) We've seen how baby animals in the meadow and creek are spending their summer growing. Let's go up this hill into the forest and see what we can find. What is that I see up in that tree? It's two bear cubs and there's their mother looking for ants in that rotten log. Hello, Mrs. Bear.

Mrs. Bear: Hello, Dr. Does-a-lot. What brings you here on this wonderful summer afternoon?

Dr. D: I've been interviewing animals to see how they spend their summers.

Mrs. Bear: Well with those two cubs to watch, I've been busy. They eat all the time. Can you believe that when they were born last winter they weighed half a

pound? They had almost no hair and their eyes didn't open for a month. By the end of the summer, they'll weigh 40 pounds.

Dr. D: That's a lot of berries, grubs, and roots.

Mrs. Bear: Yes it is. I'm teaching them how to find food for themselves.

Dr. D: I see the cubs have climbed down from the tree and are wrestling? Won't they hurt each other with those sharp claws?

Mrs. Bear: No. Actually they are exercising and building their muscles. They also practice chasing and catching each other because that is how they catch mice and fish for food.

Dr. D: Sounds like a big job. Will they be grown by fall?
Mrs. Bear: Oh no, it will be another year before they're on their own.

Dr. D: Well good hunting. (Walks on.) I believe I see—yes it is—hello Mr. Buck.

Mr. Buck: Hi, Dr. D.

Dr. D: I ran into Mrs. Doe down in the meadow. That's a fine looking fawn you have there. (Looks startled.) Good grief! What's wrong with your antlers? They're all fuzzy.

Mr. Buck: Yes, I know. I grow new antlers every year. They grow in soft and covered with this brown fuzzy stuff that looks like cloth. That is why they say they are "in the velvet". By fall they will be hard and shiny.

Dr. D: Very interesting. Well, it's been good talking to you. (Leaves. Film stops. Back in studio.)

Dr. D: As you can see, summer is the time for growing. Baby animals that were born in spring, spend their summer growing to or toward adulthood. They go through a lot of change in a rather short amount of time. That's all for now everyone. I'll see you in the fall on *Animal Seasons.*