



## Printable Teacher Guide Grades 3-5

### Standards:

The elementary materials correlate with the following McRel Content Standards:

#### Science:

- Understands how species depend on one another and on the environment for survival

#### Geography:

- Understands the characteristics of ecosystems on Earth's surface
- Understands how human actions modify the physical environment
- Understands the changes that occur in the meaning, use, distribution, and importance of resources
- Understands global development and environmental issues

### General Information:

The grade levels identified for this section are approximate. Third grade students will need parent/teacher support in working through the materials. Fifth graders should be able to work fairly independently.

As with most curricular materials, there are many ways to individualize and adapt to your students, your child, your group, your area, your interests, your time, your family... the list goes on!

For more hands-on and field trip options or to find locate a classroom speaker, contact an NCTA member near you. An online search for growers in your area can be found at <http://www.realchristmastrees.org/search.html> or <http://www.realchristmastrees.org/teachers.html>.

The site is organized by grade level and lesson. Each lesson contains informational/instructional text and vocabulary (*Words to Learn*). In addition, students may find one or more of the following elements:

- Link Up! – Internet links for digging deeper and learning more about the topic
- Think Tank – Journal pages, short tasks, and activities designed for guided practice
- Fast Facts! – interesting facts about REAL TREES and/or the topic at hand
- Quick Crafts – environmentally friendly crafts

At these grade levels, suggested book titles for further reading are included in their own section.

### *Words to Know on the Menu Page:*

- conifer: A conifer is a needle-leaved or scale-leaved tree or shrub that produces cones. Conifers are a type of plant called a gymnosperm.
- species: a kind, variety, or type of organism
- terminal buds: the undeveloped shoot growing at the end of a stem, branch, or stalk

### *Fast Facts on the Menu Page:*

- Trees grow from the top. Each spring new growth (height) is added from terminal buds that are located in the topmost parts of the tree.



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**Quick Crafts on the Menu Page:**

- Popcorn Wreaths  
Sew popcorn, grapes, and pretzels on a pipe cleaner. Twist the ends to form a circle and hang on the tree.

Thanks to Linda Franz for this cool idea!



## Conifer Class

### When students finish working through this section:

1. They will have a basic understanding of how trees can be classified.
2. They will be able to identify characteristics of conifer trees.
3. They will have completed a graphic organizer detailing how trees can be organized (with examples).

Trees, like people, have characteristics that allow them to be classified in many ways. This section uses size, age, seed location, leaf type, and leaf cycle to begin to differentiate REAL TREES (conifers) from other types of trees.

It is likely that students at this age are familiar with grouping/classifying objects by characteristic. Visual observation is a very big part of the process. However, the scientific classification of trees also depends on an understanding of how they work.

This is also a great place to point out that some of the common terms and ideas we use aren't always scientifically accurate. For example:

- Not all evergreen trees are conifers and not all conifers are evergreen.
- Deciduous is not the opposite of coniferous. Deciduous refers to a cyclical pattern of leaf production. Coniferous is an adjective that means cone-bearing and deals with seed production.

### Possible Discussion Points/Activities:

- Ask students to brainstorm or free write (depending on age/ability) the purpose and importance of classifying organisms. This can be a whole class, in small groups, or as an individual activity. If done individually or in small groups, bring students together as a whole group to discuss their thoughts.
- If location and time of year permit, students can be asked to observe, dissect, and describe the parts of a tree mentioned in this lesson: broad-leaves/needles and cones/fruits. Bring in samples of each to show and share.
- Take a science walk. Ask students to classify what they see. How many trees with needles? How many with broad-leaves? How many with cones? As they go, consider asking them to sketch the trees they see and write down where each tree was found.
- Ask students to print and complete the *Think Tank* assignment. This can be done as a whole class, in small groups, or as an individual activity. Discuss.

It's important for students to understand that there are no correct answers. Scientists often disagree about how to classify things because of differences of opinion. The material presented in this lesson is what scientists agree on ... there is much that they are still studying!



***Words to Know*** in this Section:

- adaptation: the way a plant or animal becomes better able to live in its environment
- biologist: a scientist who studies living things
- botanist: a scientist who studies plants and plant life
- cone: the cone-shaped fruit of a conifer tree (pine, fir, spruce, etc.)
- deciduous: falling off at a particular time or season
- evaporation: to take moisture from leaving the dry portion; to change into a vapor

***Link Up!*** in this Section:

- How Christmas Tress Work - <http://www.howstuffworks.com/christmas-tree.htm>

***Fast Facts*** in this Section:

- Evergreen trees are not really EVER green. The needles of coniferous trees don't stay on forever. As the needles become older, they drop off the tree to make room for new needles!

***Quick Crafts*** in this Section:

- Fluffer Nutter Bagel Ornament  
Spread marshmallow fluff and peanut butter on a bagel. Sprinkle with shelled seeds and raisins. Tie raffia through the bagel hole and hang.

Thanks to Linda Franz for this cool idea!



## Trees on a Farm

### When students finish working through this section:

1. They will be able to describe REAL TREES as a crop comparable to other cultivated crops.
2. They will have discovered facts and figures concerning REAL TREE traditions.

The section deals directly with the concept of growing trees as a managed, sustainable crop. Many students may be unaware that the holiday trees for sale on retail lots come predominately from tree farms rather than forested areas.

REAL TREES are grown as crops much like corn, cotton, soybeans, and wheat. While there are many commonalities, there are also quite a few differences. One of the primary differences is the length of time a crop of trees remains in the field ... 4 to 10 years! Tree growers constantly have a crop in the field regardless of season. They harvest each year and replant to replace what was harvested.

### Possible Discussion Points/Activities:

- Compile a list of all of the crops grown in your community, state, and region. Compare them with crops grown in other areas. Ask students to look at the cause/effect relationship between climate and the types of crops grown in an area.
- Compare and contrast the work required to successfully manage a crop of trees with that of another type of crop. This is a GREAT guest speaker opportunity!
- Ask students to research the organisms that would find a tree farm a suitable habitat. Are other crops habitats for other animals?
- Ask students to print and complete the *Think Tank* assignment. This can be done as a whole class, in small groups, or as an individual activity. Discuss and share!

### Words to Know in this Section:

- cultivate: to grow or take care of a plant or crop ... to help grow
- crop: cultivated plants or agricultural produce, such as grain, vegetables, or fruit, considered as a group
- sapling: a young tree

### Link Up! in this Section:

- Locate a Farm - <http://www.realchristmastrees.org/teachers.html>  
This link has been shorted in this document to make it easier! Enter the link and click on *Find Farms with School Tours*.

### Fast Facts in this Section:

- Today, 98% (98 of every 100) of the trees grown for the holidays are grown on farms.



## Trees on a Farm

### Think Tank: The Hunt!

Test your research skills. Use the Internet and resources from the library to find these fascinating facts!

HINT: Start your search at [www.yahooligans.com](http://www.yahooligans.com) or [www.realchristmastrees.org](http://www.realchristmastrees.org).

- Who was the first US President to have a Christmas tree in the White House?  
Answer: Franklin Pierce (1865)
- When was the first national Christmas tree lit? Who was president?  
Answer: 1923 - Calvin Coolidge
- What are the top Christmas tree producing states in the US?  
Answer: Oregon, Michigan, Wisconsin, Pennsylvania, California, and North Carolina
- How did the tradition of having and decorating a tree for the holidays begin?  
Possible Answer: Martin Luther decorated a tree in the late 16th century to show his children how the stars twinkled on a dark night.
- What are the top selling species of Christmas Trees?  
Answer: balsam fir, Douglas-fir, Fraser fir, noble fir, Scotch pine, Virginia pine, and white pine
- Conifers have been chosen as the state tree for many states. Name 5 of those states and the tree that represents their state.  
Possible Answers: <http://www.usna.usda.gov/Gardens/collections/statetreeflower.html>
- Find the native regions of these Real Tree species. A native region is the place that these species would grow naturally ... without farming.
  - a) balsam-fir - Great Lakes and Eastern United States
  - b) Douglas-fir - Pacific Northwest
  - c) Fraser fir - Eastern United States (Appalachian and Smoky Mountain Areas)
  - d) noble fir - Pacific Northwest
  - e) Scotch pine - Midwest
  - f) Virginia pine - Southeast and Midwest
  - g) White Pine - Eastern and Central United States (Appalachian Mountains)
- How tall was the tallest Christmas Tree ever to be decorated? Where was it located?  
Answer: 221 feet. The tree was a Douglas-Fir and was decorated at the Northgate Shopping Center in Seattle, Washington.



## Get Growing!

When students finish working through this section:

1. They will be able to describe the life cycle of a farm raised REAL TREE.
2. They will have completed a graphic organizer about the life cycle of a REAL TREE.
3. They will have compared the REAL TREE life cycle with the cycle of school years.

Coniferous trees, just like all other living things, grow in a cycle. Tree farms use that cycle to plan a successful harvest – from seed to tree to seed again. *Get Growing!* is about this life cycle. If you have previously studied life cycles, this is a good place to review and compare. If your students are unfamiliar with the idea of life cycles, this is a good place to open the door!

### Possible Discussion Points/Activities:

- Have students dramatize the life cycle of a tree. Set the parameters and brainstorm ahead of time!
- Use picture cards to illustrate the life cycle of a conifer. Ask students to put them "in order" and write a short summary of the cycle itself.
- Ask students to print and complete the *Think Tank* assignment. This can be done as a whole class, in small groups, or as an individual activity. Discuss and share!
  - Ask students to complete the graphic organizer showing what they know about the life cycle of a conifer. (Page 1)
  - Have students compare the life cycle of a tree with their own life cycle. (Page 2)

### Words to Know in this Section:

- fertilize: to add something to the soil to make it more fertile (better for growing plants)
- nutrients: a substance necessary for a plant or animal to grow
- pollen: the part of a plant that allows for fertilization (the ability to create a seed)
- pollination: when pollen from the male cone comes in contact with the ovule of a female cone
- pruning: cutting off undesired twigs, branches, or roots
- seedlings: a plant or tree grown from a seed; any young plant
- scales: small, thin, usually dry, parts of a plant
- shear: to cut or remove by cutting
- ovules: the structure of a seed plant that develops into a seed after fertilization; a small egg
- seed coat: the outer protective covering of a seed
- life cycle: the progression through a series of different stages of development

### Fast Facts in this Section:

- One acre of Real Trees on a farm makes enough oxygen for 18 people.



## Tree Types

When students finish working through this section:

1. They will have read about species of conifer trees that are commonly sold as holiday trees.

This purpose of this section is to provide information about the conifer species typically used/sold as holiday trees. It is intended as an introduction to the tree types and can be used as a resource throughout the study.

**Possible Discussion Points/Activities:**

- Have students use a Venn diagram or other graphic organizer to compare and contrast the tree species. Students could select based on the trees available locally or by interest. This can be done as a whole class, in small groups, or as an individual activity. Discuss and share!
- Ask students to build a graph showing the cost per foot of REAL TREES over the past several years.

### Great Graphs!

Sales Figures		Possible Questions
Year	Retail Cost Per Foot	What do you know about the cost of Real Trees after reading the table?
1993	\$3.00 - \$5.65	Possible Answer: The cost has slowly (and slightly) increased.
1994	\$3.10 - \$5.65	
1995	\$3.10 - \$5.65	Make a prediction about the retail (cost for you) cost of Real Trees for upcoming years.
1996	\$3.10 - \$5.65	
1997	\$3.10 - \$5.65	<i>Possible Answer: It will continue to increase slightly each year.</i>
1998	\$3.34 - \$6.30	
1999	\$3.96 - \$7.23	
2000	\$4.23 - \$7.73	

**Link Up! in this Section:**

- White House Tree Traditions - <http://www.whitehouse.gov/president/holiday/whtree/>

**Fast Facts in this Section:**

- The Christmas tree for the White House has to be exactly 18 1/2 feet tall and look great with the decorations chosen by the First Lady.

In October or November, the Head Usher of the White House visits the farm of the National Christmas Tree Association's Grand Champion grower for the year to select the perfect tree.



## Recycle

**When students finish working through this section:**

1. They will be able to describe several ways to recycle a REAL TREE after the holidays.
2. They will be able to identify and explain the benefits of recycling REAL TREES.
3. They will have located a recycling program in their area.
4. They will have brainstormed multiple ways to recycle a REAL TREE.

The topic of recycling (and biodegradability) is one that can continue all year! Humans are finding new ways to recycle materials that we hadn't recycled before. This section provides information on some of the ways REAL TREES are recycled and asks students to think of their own creative ways!

**Possible Discussion Points/Activities:**

- Invite a guest speaker to speak to the group about the benefits of recycling (make sure he/she talks about the costs as well).
- Invite students to play detective. Ask them to compile a list of 10 items they use daily that come from recycled materials.
- Provide a list of 20 objects. Ask students to categorize them as biodegradable objects or non-biodegradable objects. Discuss why it is important to be able to identify if a product is biodegradable.
- Ask students to print and complete the *Think Tank* assignment. This can be done as a whole class, in small groups, or as an individual activity. Discuss and share!
- Set aside bulletin board space for students. Have them design and create a bulletin board highlighting the many ways Real Trees are recycled. Have them use only recycled materials in the design!

**Words to Know in this Section:**

- biodegradable: able to be broken down naturally by bacteria
- erosion: the gradual wearing away of soil (or other substance) by wind or water
- mulch: a protective covering spread on the ground especially to reduce evaporation and control weeds
- recycle: to process something so it can be used again

**Link Up! in this Section:**

- Earth 911 - <http://www.earth911.org>

**Fast Facts in this Section:**

- Holiday trees were once used by Chimney Sweeps to clean the soot out of dirty chimneys!



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**Quick Crafts in this Section:**

- Soft Suet Ornaments

1 cup peanut butter  
1 cup shortening  
3 cups cornmeal

Combine ingredients to form a paste. Mold into a cookie cutter.

Thanks to Linda Franz for this cool idea!



## Hands ON!

### When students finish working through this section:

1. They will have researched the needs of conifers.
2. They will have observed and documented the growth of a conifer.
3. They will have summarized what they have learned.

This particular growth cycle is a long one ... years. In order to explore the growth process in "classroom time," you may choose to use a plant that moves through the growth process at a faster rate. Doing this would allow your students to compare the plants (conifer and the plant of your choice).

This is a great culminating activity for your unit of study ... and a plus for your school and the environment.

If your students are planting their seedling(s) on school grounds, be sure to protect it from the mowers!

### Possible Discussion Points/Activities:

- Ask students to create a list of questions they have (beginning with the questions in the lesson). Have them report those answers in a newscast, press release, poem, book, video, website, or other presentation.
- Depending on your focus, you may want to:
  - review/introduce the scientific process.
  - ask students to design a protocol (question, hypothesis, etc.).
  - have students predict the amount of growth they expect to see per week/per month.
  - have students predict changes based on the growing cycle.

### Materials Needed:

- a conifer seedling
- planting space
- peat moss
- a small shovel
- water
- a notebook (Students may use the journal pages in the Think Tank section.)

### Words to Know in this Section:

- peat moss: dark brown, partly decayed plant matter

### Fast Facts in this Section:

- Real Trees help filter dust and smog from the air AND they help stop erosion by holding soil in place!



**Quick Crafts in this Section:**

▪ **Pine Scented Ornaments**

1. Cut out shapes of trees from construction paper.
2. Put a few drops of scented pine oil in a small dish with 4 tablespoons of Elmer's glue.
3. Mix with cotton swab and spread scented glue on paper shape.
4. Sprinkle pine needles on the mixture and decorate with sparkles.
5. Punch a hole at top of shape and poke a pipe cleaner through hole to hang in a car as an air freshener or use as a scented gift tag.

Thanks to Linda Franz for this cool idea!

**Student Directions:**

It's time to put all that you have learned about Real Trees to work!

*Hey Kids!* You will need an adult's permission and help to do the first part of this project ... be sure to ask!

Materials: a conifer seedling, planting space, **peat moss**, a small shovel, water, and a notebook (or the journal page in *Think Tank*)

Take some time to learn about the conifers in your area. Remember that plants and animals grow and develop a way that works in their environment.

Check with a REAL TREE grower or a nursery in your community to see what kind of conifers live in your area. Ask lots of questions!

- Where is the best place to plant them?
- What time of year do they grow best?
- How do I plant the seedling so that it will be healthy?
- How do I keep the seedling healthy after I plant it?
- How much water does it need?

Once you have all of your answers and materials, you are ready to plant. Use a notebook to keep track of what you do.

- Carefully measure the height of your seedling.
- Record the number of branches it has.
- Count the number of needles on each branch and describe how they feel ... be careful not to harm the needles!

Care for your seedling using the tips from your local grower or nursery. Then, every week, take your notebook with you when you check on your tree. Take and record the same measurements you did when you planted the seedling. Are there any changes? Write a short summary of the changes you see!



## Read On!

### When students finish working through this section:

1. They will have read and reviewed several books dealing with plant growth and development.

This purpose of this section is to provide a list of books for further study on the topic of plant growth and development.

### Possible Discussion Points/Activities:

- Ask students to print and complete the *Think Tank* assignment. This can be done as a whole class, in small groups, or as an individual activity. Discuss and share!

### Books:

- Seeds and Seedlings  
Elaine Pascoe, Dwight Kuhn, and Nicole Bowman
- Plants of the Forest  
Andreu Llamas, Miquel Ferron, and B. Marvis
- The Magic School Bus Plants Seeds  
Joanna Cole and Bruce Degan
- 3D Eyewitness: Plant  
Eyewitness Books Series
- Plants Feed on Sunlight: And Other Facts About Things That Grow  
Helen Taylor and Stephen Sweet
- Green Plants (Our Living World)  
Jenny E. Tesar, Wendy Smith-Griswold, and John L. Behler
- Tell Me Tree: All About Trees for Kids  
Gail Gibbons

If you have some favorite tree or plant books you'd like to share with other visitors to REAL TREES 4 Kids!, tell us what they are! E-mail us at [design@realtrees4kids.org](mailto:design@realtrees4kids.org).\*

\*Please note: *REAL TREES 4 Kids!* does not collect names or email addresses for any purpose. Please read our privacy policy for more information (<http://www.realtrees4kids.org/privacy.htm>).



***Words to Know*** in this Section:

- The *Words to Know* area in this lesson contains a *Map It! Activity* (with directions). The word list includes all vocabulary words located in the grades 3-5 materials. Teacher directions can be found on the teacher page in the right menu bar.

***Link Up!*** in this Section:

- Tree Care Tips - <http://www.realchristmastrees.org/treecare.html>