

Grade 4

Title: My Name is Evergreen

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Student Learning Objective(s):

- Students will gain a knowledge of evergreen trees
- Students will understand the difference between evergreen trees and deciduous trees.
- Students will learn the climate where evergreen trees grow.
- Students will learn about different types of evergreen trees and compare them to one another.

LA GLE's

Grade: 4: #1: Ask questions about objects and events in the environment (e.g., plants, rocks, storms) (SI-E-A1)

Grade: 4: # 4. Predict and anticipate possible outcomes (SI-E-A2)

Grade: 4 # 48: Classify examples of plants and animals based on a variety of criteria (LS-E-B2)

Grade: 4 # 52: Describe how some plants and animals have adapted to their habitats (LS-E-C2)

Grade: 4 # 53: Identify the habitat in which selected organisms would most likely live and explain how specific structures help organisms to survive (LS-E-C2)

Materials needed:

- Pictures of the six different evergreens (Evergreen information sheets)
- Charts for each activity—prediction sheet (Evergreen Chart) /what I learned chart (KWL Chart)
- Learning logs
- My name is Evergreen story
- Information about six different evergreens
- Document camera—if available
- Pictures and leaves of evergreens
- Butcher paper

Detailed Procedure. Describe what the students will do in each stage. Include guiding questions you might ask to help students.

1. Engage:

Science Process Skills Indicate which science process skills students will develop in this part of the lesson.

- | | | | | | | |
|--|--|---|---|--|--|------------------------------------|
| <input type="checkbox"/> Observation | <input type="checkbox"/> Classification | <input checked="" type="checkbox"/> Communication | <input type="checkbox"/> Measurement | <input type="checkbox"/> Estimation | <input checked="" type="checkbox"/> Prediction | <input type="checkbox"/> Inference |
| <input type="checkbox"/> Identifying Variables | <input type="checkbox"/> Controlling Variables | <input type="checkbox"/> Defining Operationally | <input type="checkbox"/> Forming Hypotheses | <input type="checkbox"/> Experimenting | <input type="checkbox"/> Graphing | <input type="checkbox"/> Modeling |

1. First a question will be given to the students about Evergreen trees. **What is an Evergreen Tree?**
2. Students will respond by writing down in their answers in their journals.
3. They will then write down **Where can you find evergreen trees?**
4. **Then the students will start a KWL chart.** They will write what they know. They will fill it in as we go through the lesson.
5. Then the students will be called upon to share their answers. While they are sharing the teacher will write their responses on a KWL chart on the board or document camera.
6. The teacher will discuss evergreen trees and what it means to them.
7. The students will now write what they want to learn on the KWL chart.
8. The teacher will show the students leaves and pictures of different evergreen trees and the students will be able to touch and see them. (Refer to Evergreen picture sheets)
9. They are also encouraged to ask questions and begin a mini-discussion about what they feel and see.

2. Explore:

Science Process Skills Indicate which science process skills students will develop in this part of the lesson.

- | | | | | | | |
|--|--|---|---|--|--|------------------------------------|
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| <input type="checkbox"/> Identifying Variables | <input type="checkbox"/> Controlling Variables | <input type="checkbox"/> Defining Operationally | <input type="checkbox"/> Forming Hypotheses | <input type="checkbox"/> Experimenting | <input checked="" type="checkbox"/> Graphing | <input type="checkbox"/> Modeling |

1. Now the teacher will have the students get into groups of 4. In their groups they will get responsibilities:
 - 1 recorder
 - 1 speaker
 - 1 noise and task monitor
 - 1 material manager
2. The teacher will explain all of the roles and responsibilities each person has in the group prior to going into the lesson.

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- Next, the students will get a chart (refer to Evergreen Chart). Then they will write their predictions of evergreens. They will write what they think the color, size, climate, if they loose or keep their leaves, location of trees, growth rates of the evergreen trees. They will write this in their charts. Once they complete this the material manager will come and get the My name is Evergreen sheet.
- The speaker will read the sheet aloud in their groups (the noise and task manager will make sure the noise is low and they are all on task). As they are reading (Evergreen information charts) they will be responsible for finding out important information about Evergreen trees (A timer will be set for 15 minutes—at that time they will have to do all of this during that 15 minutes). Each person will be reading along with the speaker and they will be recording things on their sheet as well.

3. Explain:

Outline the line of questioning you will use to assist students in understanding the concept. List at least 5 good questions and identify the question category (Gallagher & Aschner) in which your question falls (see text, Figure 7.6).

- What trends do we see with each of the evergreen trees?**
- Where is the best place to grow evergreen trees?**
- How tall do evergreens typically get?**
- Do evergreen trees require more or less work? Why?**
- What type of fruit do the evergreens make? Does every evergreen grow fruit and what is the fruit?**

After the 15 minutes is over the class will come back to order and the speakers from each group will tell what each group recorded in their charts. They will discuss their predictions and what they read (found out in the reading). We will discuss what evergreens are and what they read in the story about the evergreens. We will discuss:

- Typical size
- Where they are typically located
- Color
- Climate
- What are they good for
- What hurts them, etc.

4. Expand:

Science Process Skills *Indicate which science process skills students will develop in this part of the lesson.*

- | | | | | | | |
|--|--|---|---|-------------------------------------|-------------------------------------|------------------------------------|
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| <input type="checkbox"/> Identifying Variables | <input type="checkbox"/> Controlling Variables | <input type="checkbox"/> Defining Operationally | <input type="checkbox"/> Forming Hypotheses | | | |
| <input type="checkbox"/> Experimenting | <input checked="" type="checkbox"/> Graphing | <input type="checkbox"/> Modeling | | | | |

- Finally they will each get an evergreen tree that they must find out information and fill out another chart with information.

Types of Evergreen Trees:

-American Arborvitae

-Austrian Pine

-Black Hills Spruce

-Dawn Redwood

-Magnolia Grandflora

-White Spruce

All information and pictures of each tree can be found at <http://www.hort.uconn.edu/Plants/index.html>

- Each person is responsible for getting the information and writing it down in their chart. After 15-20 minutes each group will come up and share their findings about the tree and will record them on a chart. We will discuss the similarities and differences in each evergreen tree. See the trends in the trees.
- The students will complete the KWL chart. They will fill in what they have learned. Students will keep information, because the will use the information for the next lesson.

5. Evaluate:

What exactly will you do, or what evidence/data will you collect, to ascertain whether the students can achieve the objectives you listed at the top of this lesson?

Engage: The teacher will pick up their completed journals with their responses to What is an Evergreen Tree?

Explore: The teacher will grade the Evergreen Chart to see if they have completed all required fields correctly

Explain: The teacher will evaluate the student's predictions while discussing with them.
Extend: The teacher will pick up their Evergreen Charts and KWL charts to grade them.

Brain Compatible Learning Strategies Used in This Lesson:

- Brainstorming/Discussion
- Drawing and Artwork
- Field Trips
- Games
- Graphic Organizers
- Humor
- Manipulatives, Experiments, Labs, Models
- Metaphors, Analogies, and Similes
- Mnemonic Devices
- Movement
- Music, Rhythm, Rhyme, and Rap
- Project/Problem-Based Instruction
- Reciprocal Teaching, Cooperative Learning
- Role Plays, Drama, Pantomimes
- Storytelling
- Technology (student use)
- Visualization/Guided Imagery
- Visuals
- Writing/Journals

Lesson Source:

UConn Plant Database webpage. <http://www.hort.uconn.edu/Plants/index.html>. March 31, 2009.

WiseGEEK. What Are Evergreen Trees? <http://www.wisegeek.com/what-are-evergreen-trees.htm>. March 31, 2009.

American Arborvitae

Habitat

native to northeastern North America

zone 3

Size of tree

a scale-leaved evergreen
medium-sized tree
30' to 50' tall and 10' to 15' wide
landscape plants mostly seen in the 20' to 30' size range
conical shape
dense and compact
can be single-or multi-trunked

Summer Plants

leaves are small and scale-like (2mm long)
scale-like leaves overlap forming flattened, rope-like shoots
each leaf has a small resinous gland on the back
color is green to dark green
branchlets in horizontal planes or sprays
crushed foliage emits a distinct tansy-like odor

Autumn Plants

foliage discolors to yellowish-green and even somewhat brown at times
winter color is considered ugly by some and cultivars have been selected for green winter foliage color

Flowers

not of any ornamental significance
monoecious
at the branch tips
borne singly

Fruit

small cones with thin, overlapping scales
brown to tan
0.33" to 0.5" long
not particularly noticeable except when there is heavy cone set

Bark

bark is gray on the surface and reddish-brown in the furrows

furrowed into relatively narrow strips
reasonably ornamental when visible on older specimens

Culture

easily transplanted from containers and B&B
likes moist air
prefers moist, deep, loamy soil

tolerant of acidic and alkaline soils
generally quite adaptable and tolerant once established
can be sheared to maintain shape and size
full sun; partial shade is tolerated but plants become thin, open and much less appealing
tolerant of somewhat wet soils

Landscape Uses

for hedges
for screens
windbreaks
good in cold climates
foundation plant (small cultivar)
cultivar selected for green winter foliage should be used in place of species

Tree Features

conical shape
dense, compact evergreen foliage
scale-like leaves
tansy-like odor emitted from crushed foliage
branchlets held in horizontal planes
small woody cone
often with multiple trunks

Propagation- How they are spread

by seed
cultivars by cuttings

Austrian Pine

Habitat

control and southern Europe; nearby Asia
zones 4-7

Habit and Form

evergreen needle conifer tree, medium to large size
generally 50' to 70', 20' to 40' wide
pyramidal and dense when young (to 30' tall)
with age becoming flat-topped, with spreading branches and umbrella shape

Summer Plants

needles in twos
color in dark army green
needles 4" to 6" long, persist 3 to 4 years
persistent leaf bases visible after needles fall, leaving stems rough
candles (buds) 0.5 to 1" long, light brown, resinous

Autumn Plants

same as summer foliage

Flowers

male flowers yellowish, in clusters

female flowers yellow-green

Fruit

cones shiny yellow-brown

2 to 3" long, approximately 2" wide

persists for 2 years

Bark

on mature trees its very striking

thick, irregular, gray-brown to silvery plates

deep furrows dark brown

Landscape Uses

as a specimen

as a windbreak or screen

as trees open up with maturity, their usefulness as a screen diminishes

mass plantings

highway and seaside planting for salt-tolerance

urban plantings

Tree Features

long needles in twos

needles do not readily break when bent back on themselves

needles sharp

often confused with P. resinosa whose needles snap readily and are not especially sharp to the touch

thick, blocky, gray and brown bark

Propagation—spreading of trees

seed germinates without pretreatment

cultivars grafted

Black Hills Spruce

Habitat

native to northeastern United States down through Texas
hardy to zone 4

Size and shape

a large deciduous tree
30' to 50' tall
20' to 30' wide
pyramidal in youth maturing to a flat-topped crown
horizontal branches sometimes pendulous
medium texture
slow growth rate

Summer Plants

alternate leaf arrangement
simple, ovate leaves
3" to 6" long
1.5" to 3" wide
serrated leaf margins
dark green leaf color

Autumn Plants

florescent yellow to orange to red or purple colors
very showy

Flowers

not ornamentally significant

Fruit

bluish-black drupes
0.5' long
ripens in late September

birds eat fruit
female trees only

Bark

dark gray brown bark color
bark has irregular ridges, block-like

Landscape Use

specimen
street tree
lawn tree
for fall foliage

Tree Features

dark blue fruit on female trees only
imbricate large, buds that or slightly downy
alternate leaf arrangement
leathery, elliptical leaves
slender, reddish brown stems
branches at a stiff 90 degree angle
distinctive leaf scar

Propagation- Spreading

by seed
by cuttings

Dawn Redwood

Habitat

native to China
first described from fossil records in 1941
live plants were then discovered in the same year
seeds were collected in the mid 1940's by the Arnold Arboretum and brought back to the United States
zone 4

Size and Shape

a deciduous, coniferous , large tree
uniform conical habit
horizontal branching
typically reaches 75' to 100' tall
growth rate is fast
texture is fine and airy in leaf

Summer Plants

leaves are deciduous
opposite arrangement on branchlets
0.5" long, linear, flat leaves
stems are either persistent or deciduous
deciduous stems are green and are held on brown, persistent stems
deciduous stems, have needles, but do not have buds
persistent stems hold deciduous stems, some needles and oppositely-arranged buds
deciduous stems drop in the fall with the needles
foliage is medium to bright green

Autumn Plants

turns a unique pinkish tan to reddish bronze before dropping in the fall

Flowers

monoecious with male and female flowers
male flowers in clusters
female flowers solitary
not ornamentally important

Fruit

elongated or rounded cones
0.5" to 1" long
bloomy blue when young
brown or dark brown when mature

Bark

shredded reddish brown bark
attractive
develops an interesting buttressed trunk
trunk base is tapered and exhibits a braided, fluted structure

Landscape Use

as a specimen
as a lawn tree to provide shade
for golf courses
campuses
needs space to develop
uniform conical habit can be useful where regularity is needed in landscape designs
for screening

ID Features

conical, uniform habit
deciduous needles and stems
opposite buds on persistent stems separate it from *Taxodium distichum* (Common Baldcypress)
buttresses trunk with braided character and shredded red-brown bark

Propagation- Spreading of tree

by seed following stratification
by cuttings; softwood or hardwood

White Spruce

Habitat

native to northwestern North American
zone 2

Size and Shape

evergreen tree
narrow conical form
branches held horizontally
40' to 60' tall and 10' to 20' wide
medium growth rate
medium texture

dense when young, becoming more loose and open with age

Summer Plants

needles that persist for 3 to 4 years
needles are crowned on upper-side of branch
needles are stiff and pointed, approximately 0.5" to 0.75' long
needles are quadrangular in cross section
needles are pointed
2 to 5 stomatal bands on both sides of needles
glaucous, medium green in color
crushed needles have a smell often described as "skunky" or somewhat like cat urine

Autumn Plants

no fall color, evergreen

Flowers

monoecious
not ornamentally significant

Fruit

cones found towards the ends of branches
cones are 1" to 2.5' long
cone scales are thin rounded and have smooth margins
light green color turning to a light brown at maturity

Bark

young stems are glaucous and dark yellowish brown or gray in color
older bark is light brown, flaking off, exposing a silvery color

Landscape Use

specimen
mass plantings
hedge
windbreak
screen
often used as a Christmas tree
useful along the seashore due to salt tolerance

Tree Features

evergreen conical tree
small cylindrical cones with rounded smooth margin scales
adelgid galls
needles leave petiole on stem when pulled off
short, stiff, pointed needles
branches held horizontally

distinct "skunky" odor from crushed needles

Propagation- Spreading of trees

by seed
cultivars by grafting or cuttings

Magnolia Grandlora

Habitat

native to North Carolina and across through Florida
hardy to zone 6

Size and Shape

a large evergreen tree
pyramidal to oval growth habit
low branching and dense
60' to 80' tall
30' to 50' wide
coarse texture
moderate growth rate

Summer Plants

alternate leaf arrangement
simple, evergreen leaves
elliptic leaf shape
5" to 10" long
2" to 5" wide
entire leaf margins
dense, brown pubescence on underside
thick and leathery
leaf color is dark green

Autumn Plants

no fall color

Flowers

white flowers
blooms in spring and sporadically throughout season
fragrant
up to 12" in diameter
saucer shaped
found singly

Fruit

elongated aggregate of follicles, 3" to 8" long
red seeds
showy
persistent
attracts birds
matures in September

Bark

smooth gray bark
large scaly plates develop on mature trees
stems are green and pubescent
lenticels, small and gray-brown
lemon scent when branch crushed or bruised

Landscape Use

espalier
buffer
screen
for flowers and fruit
for fragrance
as a specimen
shade tree
street tree
golf courses
park tree

Tree Features

wooly, brown pubescence on terminal buds
terminal buds are 0.75" to 1.25" long
valvate, appressed and small lateral buds
ash-gray, smooth bark
emits citrus odor when branch bruised
red seeds
large, white flowers

Propagation- Spreading of trees

by seed
by tissue culture
by budding and grafting
by cuttings

My Name is Evergreen

My name is evergreen; I slowly grow leaves throughout the year. I constantly shed a small part of my older leaves and I replace them with new leaves. There are two types of my type of trees: needle leaf trees that have tough and narrow leaves and are mostly conifers. I also have broadleaf angiosperm trees. I am found in tropical areas, but I can be found in temperate areas as well. I conserve energy very well and I love sunlight. I can live in cold areas, but it is very rare. I am very independent and I don't require much maintenance. I am found all around Louisiana and you may know me by another name: Magnolia. Yes, the Louisiana state flower grows on one of my trees—the Magnolia Tree.

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Evergreen Chart

Tree fields	Information about tree Tree Name _____
Habitat	
Size and Shape	

Summer plants	
Autumn Plants	
Flowers	
Fruit	
Bark	
Landscape Use	
Tree Features	
Propagation- Spreading of trees	

Name _____

Date _____

Predictions

What did I find?



American Arborvitae



Austrian Pin





Black Hills Spruce



Dawn Redwood



Magnolia Grandiflora



White Spruce

Name _____

My Name is Evergreen

Evergreen Tree Name _____

Field Name	What I have found
Habitat	
Size of Tree	
Summer Plants	
Summer Plants	
Autumn Plants	
Flowers	
Fruit	
Bark	
Landscape Use (how it can be used outside)	
Tree Features	
Propagation- How they are spread	