

Temperate Forest Biomes



Grade Level: 3-5

Time Needed: See procedures (estimates)

Overview:

The deciduous trees are broad-leafed and needled. This is also the biome in which most of us live, and so is the most familiar to your students. If you live in this biome, it is highly recommended to do this lesson in either the autumn or spring, or both, in order to be able to get the students outdoors. Please use whatever is helpful. It isn't necessary to do everything.

Essential Questions:

Why have so many of the world's people chosen to live in this biome?

What environmental problems are caused by the fact that so many people live here?

Standards:

NGSS:

- **LS2.C: Ecosystem Dynamics, Functioning, and Resilience**

When the environment changes in ways that affect a place's physical characteristics, temperature, or availability of resources, some organisms survive and reproduce, others move to new locations, yet others move into the transformed environment, and some die.
(secondary)

- **LS4.D: Biodiversity and Humans**

Populations live in a variety of habitats, and change in those habitats affects the organisms living there.

- **MS-LS2-5 Ecosystems: Interactions, Energy, and Dynamics**

Evaluate competing design solutions for maintaining biodiversity and ecosystem services.

- **MS-ESS3-3 Earth and Human Activity**

Apply scientific principles to design a method for monitoring and minimizing a human impact on the environment.

Common Core:

- Write informative/explanatory texts to examine a topic and convey ideas and information clearly. (3-LS4-4)
- SL.3.4 Report on a topic or text, tell a story, or recount an experience with appropriate facts and relevant, descriptive details, speaking clearly at an understandable pace. (3-LS4-4)

National Council of Social Studies:

- investigate the impact of human activities on the environment. This enables them to acquire a useful basis of knowledge for informed decision-making on issues arising from
- How do people interact with the environment and what are some of the consequences of those interactions?
- D2. Geo.1.6-8: Construct maps to represent and explain the spatial patterns of cultural
 - and environmental characteristics.
- D2. Geo.3.6-8: Use paper-based and electronic mapping and graphing techniques to represent
 - and analyze spatial patterns of different environmental and cultural characteristics.

International Baccalaureate:

- PYP 1: Approaches to teaching 1.1: Teachers use inquiry-based teaching strategies and learning engagements. (0403-01-0100)
- PYP 3: Approaches to teaching 3.1: Teachers ensure that there are clear examples of connections to local and global contexts in the curriculum. (0403-03-0100)

- Approaches to teaching 3.2: Teachers encourage students to transfer their conceptual understandings to unfamiliar contexts. (0403-03-0200)

Objectives:

- Identify the types of trees that live in this biome.
- Identify the types of animals that live in this biome.
- Explain the American indigenous sense of their responsibility to this environment.
- Develop an appreciation for the living things in this biome.

Materials:

Optional for teacher only-go to Cornell All About Birds website and download the Merlin app.
(trying to add it here didn't work)

- <https://www.youtube.com/watch?v=WSEa2RDa7P8> Explore the TEMPERATE FOREST Biome 🍁 Nature Ecology & Environment
- <https://earthobservatory.nasa.gov/biome/biotemperate.php#:~:text=The%20average%20daily%20temperatures%20range,are%20typical%20in%20this%20biome>. Temperate Deciduous Forest
- <https://www.teacherspayteachers.com/Product/Biome-Flipbooks-8993360> Biome Flipbooks
- https://www.ducksters.com/science/ecosystems/temperate_forest_biome.php Biomes: Temperate Forest
- <https://www.activewild.com/temperate-rainforest/> Temperate Rain Forest
- <https://www.elementaryschoolscience.com/ecology-lesson-plan-forest-biomes> Ecology: Trees, Leaves and Cones - A Look at Forest Biomes
- <https://www.activewild.com/forest-animals/> Forest Animals
- <https://www.animalspot.net/wp-content/uploads/2022/12/Temperate-Forest-Animals.jpg> Temperate Forest Animals

- <https://www.geekyplanet.com/animals?biome-name=Temperate+Forests> Discover animals in the wild-Temperate Forests
- <https://beavertrust.org/wp-content/uploads/2023/05/Food-energy-matching-game.pdf> Food Energy Matching Game (easy)
- <https://beavertrust.org/wp-content/uploads/2023/05/Species-ID-key.pdf> Species ID Key (more difficult)
- <https://academy.allaboutbirds.org/features/bird-song-hero/bird-song-hero-tutorial> bird song ID game
- <https://www.activewild.com/temperate-rainforest/> Temperate Rainforests
- <https://www.worldometers.info/world-map/> World Map
- https://rainforests.fsnaturelive.org/pdf/Field_trip_ethics.pdf Be Gentle with the Forest...
- <https://www.mbgnet.net/sets/temp/index.htm> Temperate Deciduous Forest
- <https://www.eekwi.org/snug-snow> Snug in the Snow
- https://newengland.com/wp-content/uploads/2012/02/animal_tracks.pdf Animal Tracks (it says New England, but these animals are pretty universal)
- https://dl.allaboutbirds.org/bird-bingo-cards-0?__hstc=161696355.c40aa6f976491e597e10cc0be713bf6c.1730391816682.1730391816682.1730397907008.2&__hssc=161696355.7.1730397907008&__hsfp=2732666087&_gl=1*13h79yp*_gcl_au*MTM4NTA5MTQ2LjE3MzAzOTE4MTM.*_ga*OTEwMDc2MzAuMTczMDM5MTgxMw.*_ga_QR4NVXZ8BM*MTCzMDM5NzkwNC4yLjEuMTczMDM5ODA3MC41OC4wLjA.&_ga=2.125636746.1256447738.1730391813-91007630.1730391813 you need to download for free
- <https://www.teacherspayteachers.com/Product/Migration-of-the-Monarch-Butterfly-Ecology-Activity-Coordinate-Graphing-9246308> Migration of the Monarch Butterfly Ecology Activity Coordinate Graphing

Experiments:

- <https://www.eekwi.org/activities/experiments/staying-warm-winter-experiments> Staying Warm Winter Experiments

- https://www.teachengineering.org/activities/view/cub_lorax_activity1 Engineers Speak for the Trees
- <https://www.globe.gov/web/biosphere/protocols/green-up-green-down> Green Up/Green Down (autumn or spring only)
- https://www.nyrp.org/wp-content/uploads/2021/03/Chlorophyll_Experiment.pdf Chlorophyll Leaf Experiment
- <https://askabiologist.asu.edu/explore/feather-biology> Feather Biology
- <https://academy.allaboutbirds.org/features/bird-song-hero/bird-song-hero-tutorial> Bird Song Hero
- <https://www.almanac.com/10-spring-ephemerals-first-wildflowers> 10 spring flowers (east)
- <https://www.nps.gov/mora/learn/nature/forest-wildflowers-red.htm> spring wildflowers-west
- <https://blog.nwf.org/2014/11/what-to-do-with-fallen-leaves/> NWF fall leaves and wildlife

Games and activities:

- <https://kids.nationalgeographic.com/games/action-adventure/article/beaver-badminton> Beaver Badminton
- <https://rangerrick.org/games/squirrel-vs-bird-feeder/> Squirrel vs. Bird Feeder game

Crafts:

- https://docs.google.com/document/d/13azo66dv1xJ7Jb6Mj89ei_JZJM342gPl/edit Nature Weaving
- <https://www.pbs.org/parents/crafts-and-experiments/make-window-decals-to-help-migrating-birds> Making Window Decals for Migrating Birds
- <https://www.pbs.org/parents/crafts-and-experiments/fall-color-wheel> Make a Fall Leaf Color Wheel Wreath

- <https://www.pbs.org/parents/crafts-and-experiments/woodland-creature-ornament> How to Make Woodland Creature Ornaments
- <https://www.mbgnet.net/sets/temp/index.htm> Autumn Leaves Scrapbook
- <https://alphamom.com/family-fun/holidays/woodland-creature-masks-diy/> Woodland Creature Masks

People:

- <https://www.youtube.com/watch?v=kxieioAOq-4> Eastern Woodland Native Americans
- http://www.bigorrin.org/iroquois_kids.htm#google_vignette Iroquois Confederacy
- <https://www.pbs.org/native-america/blog/how-the-iroquois-great-law-of-peace-shaped-u-s-democracy> How the Iroquois Great Law of Peace Shaped U.S. Democracy
- <http://www.native-languages.org/iroquois-legends.htm> Iroquois Legends
- <https://web.archive.org/web/20061218084346/http://www.oneida-nation.net/Mosquitoes.html> The Origin of Mosquitos
- <https://www.youtube.com/watch?v=D0elAQYLdfc> Haudenosaunee's Legendary Founding | Native America | Sacred Stories | PBS
- https://www.youtube.com/watch?v=zb_mAB5LxiY Natural Resources & Native Americans
- http://www.bigorrin.org/choctaw_kids.htm The Cherokee
- <https://kids.britannica.com/kids/article/Wilma-Mankiller/623405> Wilma Mankiller
- <https://www.youtube.com/watch?v=YLOb1XWJg7U> The Legend Of The Cedar Tree
- http://www.bigorrin.org/choctaw_kids.htm The Choctaw
- https://web.archive.org/web/20120118062426/http://www.turtletrack.org/Issues01/CO_11032001/CO_11032001_Grandmother_Spider.htm Grandmother Spider Steals the Fire
- <https://www.woodlandindianart.com/artistofmonth-dec.html> eastern woodland art
- <https://www.youtube.com/watch?v=N5YXCAsIM1A> Council of the Trees | Native American Stories

- <https://www.youtube.com/watch?v=ZH-Il00cUpQ> Why cedar is sacred to Pacific Northwest tribes
 - <https://www.youtube.com/watch?v=hK1AFOD7SUE> Totem Poles | Native America |

PBS:

- <https://www.youtube.com/watch?v=CGmdllaDpbw&t=3s> Potlatch
- <https://cedarhilllonghouse.ca/gallery/> western woodland art
- <https://www.un.org/en/development/desa/population/images/events/other/aWorldOfCities.jpg>
- <https://www.youtube.com/watch?v=Reb4JAB2f5w> Importance Of Forests To Our Health
- <https://www.teacherspayteachers.com/Product/Climate-Change-Activism-FREEBIE-for-grades-2-5-Teach-civic-engagement-6739954?st=44f012d7f7938796b851c3ed2dedaab3> Climate Change Activism FREEBIE for grades 2-5! Teach civic engagement!

Hook:

Regardless of what biome you live in, take your students outdoors for about 15 minutes and tell them to collect any natural items that they think illustrate your particular biome, but not to destroy anything in the process-like pulling up plants. To save time, you could put them into groups and then ask each group to display what they found and explain why it fits into your biome.

Procedure 1.

- Explain that you are now going to study the Temperate Forest Biome. Show the video: <https://www.youtube.com/watch?v=WSEa2RDa7P8> Explore the TEMPERATE FOREST Biome 🍁 Nature Ecology & Environment
- Distribute a copy of the Temperate forest Flipbook to each student. Be sure then put their names on their copy.
<https://www.teacherspayteachers.com/Product/Biome-Flipbooks-8993360>

- Explain that these will be collected when finished and graded.
- Split the students into 4 groups:
 - <https://www.elementaryschoolscience.com/ecology-lesson-plan-forest-biomes> activity: “guess the leaf” Identify ones that are in their own local biome and add them a few interesting facts in their biome flipbook.(**needs prep before using activity**)
 - <https://earthobservatory.nasa.gov/biome/biotemperate.php#:~:text=The%20average%20daily%20temperatures%20range,are%20typical%20in%20this%20biome> Use the biome map and <https://www.worldometers.info/world-map/> the world map to fill in the map in the flipbook:
 - Color in the areas where the temperate forest biome exists.
 - Add major cities of the world that are in this biome.
- Use the following websites:
 - <https://www.activewild.com/forest-animals/>
 - <https://www.geekyplanet.com/animals?biome-name=Temperate+Forests>
 - Identify animals in their local region, write their names and a few interesting facts about them in their biome flipbook.
- Do the following activities (you may only want to choose one of them, depending on time.)
 - <https://beavertrust.org/wp-content/uploads/2023/05/Food-energy-matching-game.pdf> (**needs prep before using activity**)
 - <https://beavertrust.org/wp-content/uploads/2023/05/Species-ID-key.pdf> (**be careful not to give them the answer key.**)
 - As they finish their first activity, they should move on to the next group in the following order.

1. Leaf ID	2.mapping population	3. Animal ID	4. Species ID
2. Mapping population	3. Animal ID	4. Species	1. Leaf ID
3. Animal ID	4. Species	1. Leaf ID	2. Mapping
4. Species ID Key	1. Leaf ID	2. Mapping	3. Animal ID

- If they finish an activity before their next activity is available, you can offer them the following:
 - <https://kids.nationalgeographic.com/games/action-adventure/article/beaver-badminton> Beaver Badminton game
 - <https://rangerrick.org/games/squirrel-vs-bird-feeder/> Squirrel vs. Bird Feeder game

Procedure 2. If you live in a temperate forest biome...

If you live in a temperate forest biome, take your students outdoors, preferably in the fall or spring. Here are a few activities you can do:

- Read: <https://www.activewild.com/temperate-rainforest/> Temperate Rain Forest
 - Do you live in a temperate rainforest? How does it compare to an average temperate forest?
 - Use a 2 circle Venn Diagram to compare them: <https://www.teacherspayteachers.com/Product/Venn-Diagram-2-Circles-4611860>
- https://rainforests.fsnaturelive.org/pdf/Field_trip_ethics.pdf Be Gentle with the Forest...a guide to how to behave in the outdoors so as to do as little damage as possible.
- https://dl.allaboutbirds.org/bird-bingo-cards-0?__hstc=161696355.c40aa6f976491e597e10cc0be713bf6c.1730391816682.1730391816682.1730397907008.2&__hssc=161696355.7.1730397907008&__hsfp=2732666087&_gl=1*13h79yp*_gcl_au*MTM4NTA5MTQ2LjE3MzAzOTE4MTM.*_ga*OTEwMDc2MzAuMTczMDM5MTgxMw..*_ga_QR4NVXZ8BM*MTczMDM5NzkwNC4yLjEuMTczMDM5ODA3MC41OC4wLjA.&_ga=2.125636746.1256447738.1730391813-91007630.1730391813 Outdoor scavenger hunt-you need to download for free
- <https://www.globe.gov/web/biosphere/protocols/green-up-green-down> Green Up/Green Down (autumn or spring only) These activities require weekly or more observations of specific trees which you observe and they either change color and finally fall in autumn, or as they undergo budburst in the spring. It only takes a few minutes each time you go outdoors for the observations.

- <https://www.almanac.com/10-spring-ephemerals-first-wildflowers> 10 spring flowers (east)
- <https://www.nps.gov/mora/learn/nature/forest-wildflowers-red.htm> spring wildflowers-west

(Both of these activities would work best if you make a few copies and laminate them; you can divide the class into groups and give each group a page to identify spring flowers)

- If you have downloaded Merlin, you can listen for bird songs and identify the birds. Ask the students to keep track of the number of birds you have identified.
- If you want to try a winter hike, you can look for animal tracks:
https://newengland.com/wp-content/uploads/2012/02/animal_tracks.pdf
Animal Tracks (it says New England, but these animals are pretty universal)

Indoor Activities that require outdoor collecting:

- https://docs.google.com/document/d/13azo66dv1xJ7Jb6Mj89ei_JZJM342gPl/edit Nature Weaving (do not collect feathers because of bird flu potential)
- <https://www.pbs.org/parents/crafts-and-experiments/fall-color-wheel> Make a Fall Leaf Color Wheel Wreath
- <https://www.mbgnet.net/sets/temp/index.htm> Autumn Leaves Scrapbook (use this as a model before you go outdoors)

Procedure 3. If you do NOT live in a temperate forest biome cannot go outdoors:

Here are some activities about this biome you can do indoors, but might require that they be done in a specific season.

- Read: <https://www.activewild.com/temperate-rainforest/> Temperate Rain Forest
 - Do you live in a temperate rainforest? How does it compare to an average temperate forest?

- Use a 2 circle Venn Diagram to compare them: <https://www.teacherspayteachers.com/Product/Venn-Diagram-2-Circles-4611860>
- Read: <https://www.eekwi.org/snug-snow> Snug in the Snow about how animals survive in winter.
 - <https://www.eekwi.org/activities/experiments/staying-warm-winter-experiments> Staying Warm Winter Experiments
- https://www.teachengineering.org/activities/view/cub_lorax_activity1 Engineers Speak for the Trees
- https://www.nyrp.org/wp-content/uploads/2021/03/Chlorophyll_Experiment.pdf Chlorophyll Leaf Experiment (need green leaves for this)
- <https://askabiologist.asu.edu/explore/feather-biology> Feather Biology (use store bought feathers rather than collecting them because of bird flu)
- <https://academy.allaboutbirds.org/features/bird-song-hero/bird-song-hero-tutorial> Bird Song Hero
- <https://www.teacherspayteachers.com/Product/Migration-of-the-Monarch-Butterfly-Ecology-Activity-Coordinate-Graphing-9246308> Migration of the Monarch Butterfly Ecology Activity Coordinate Graphing

Indoor Activities:

- <https://www.pbs.org/parents/crafts-and-experiments/make-window-decals-to-help-migrating-birds> Making Window Decals for Migrating Birds
- <https://www.pbs.org/parents/crafts-and-experiments/fall-color-wheel> use photos instead of real leaves or fake ones from a craft store
- <https://www.pbs.org/parents/crafts-and-experiments/woodland-creature-ornament> How to Make Woodland Creature Ornaments
- <https://alphamom.com/family-fun/holidays/woodland-creature-masks-diy/> Woodland Creature Masks

Procedure 4. People

There are many indigenous tribes in the temperate forest biome. In the Northeast, the Haudenosaunee, also called the Iroquois Confederacy created a federal form of government used as a model by the Founders who wrote the Constitution of the United States. In the South, the Five Civilized Tribes tried to accommodate the new settlers from Europe, and ended up on the Trail of Tears. There were attempts at rebellion in the Midwest, and the Northwest tribes also felt the disruption caused by European settlers. Whether you choose to get into the history of Native America is up to you and your state standards. Below are some stories from indigenous communities about their relationship with their environment. Choose what works for you.

The Iroquois.

- <https://www.youtube.com/watch?v=kxieioAOq-4> Eastern Woodland Native Americans
- http://www.bigorrin.org/iroquois_kids.htm#google_vignette Iroquois Confederacy-reading describing Iroquoian life
- Iroquois governing:
 - <https://www.pbs.org/native-america/blog/how-the-iroquois-great-law-of-peace-shaped-us-democracy> How the Iroquois Great Law of Peace Shaped U.S. Democracy
 - Be sure to show the video about the making of wampum belts.
 - <https://www.youtube.com/watch?v=D0elAQYLdfc> Haudenosaunee's Legendary Founding | Native America | Sacred Stories | PBS
 - What do you think of the Great Law of Peace?
 - In Iroquoian cultures, the women decided if the men could go to war. What do you think of that?
- Iroquois story:
<https://web.archive.org/web/20061218084346/http://www.oneida-nation.net/Mosquitoes.html> The Origin of Mosquitos

- Is there a lesson in this story? Who learned a lesson, the people or the mosquitos
- Native uses of the environment.
https://www.youtube.com/watch?v=zb_mAB5LxiY Natural Resources & Native Americans

Southeast Tribes

- http://www.bigorrin.org/cherokee_kids.htm The Cherokee
 - <https://kids.britannica.com/kids/article/Wilma-Mankiller/623405> Wilma Mankiller
 - What did Chief Mankiller do for the environment?
- <https://www.youtube.com/watch?v=YLOb1XWJg7U> Legend Of The Cedar Tree
 - What is the lesson for people in this story?
 - How important were trees to the people who created this story?
- http://www.bigorrin.org/choctaw_kids.htm The Choctaw
- https://web.archive.org/web/20120118062426/http://www.turtletrack.org/Issues01/Co11032001/CO_11032001_Grandmother_Spider.htm Grandmother

Spider Steals the Fire

- What was the lesson in this story?
- <https://www.woodlandindianart.com/artistofmonth-dec.html> eastern woodland art (click through other pages)
- <https://www.mfa.org/collections/art-americas/of-this-land> Of This Land: Native American Woodlands Art
 - What subjects do you see in this art in both sites?
 - What materials did the artist use?
- Midwest: <https://www.youtube.com/watch?v=N5YXCAsIM1A> Council of the Trees | Native American Stories
 - How do modern indigenous people regard their environment?

Pacific Northwest:

- <https://www.youtube.com/watch?v=ZH-Il00cUpQ> Why cedar is sacred to Pacific Northwest tribes
 - Why is the cedar tree so important to the people living in the temperate rainforest biome?
- <https://www.youtube.com/watch?v=hK1AFOD7SUE> Totem Poles | Native America | PBS
 - What are totem poles used for?
 - <https://www.youtube.com/watch?v=CGmdllaDpbw&t=3s> Potlatch
 - How does the Potlatch concept of wealth differ from the way most people think of it?
- <https://cedarhilllonghouse.ca/gallery/> western woodland art
 - How does this art differ from eastern woodland art?
 - What are the subjects of this art?
- Using materials collected on walks, plus materials brought from home and school art materials, Ask each student to create an original work of art about some aspect of the temperate woodland biome. (Can be homework)

Procedure 5. Temperate Biome Population

- Ask the students to get out their biome flip books and look at the map they created of the temperate forest biomes and the cities that are in it.
- Show them this image:
<https://www.un.org/en/development/desa/population/images/events/other/aWorldOfCities.jpg>
- Make sure they understand what the colors mean in terms of number of people.
 - What portion of the world's people live in the temperate forest biomes? (If they haven't learned about fractions or percentages yet, you can accept "a lot, most, etc.")

- Show the video: <https://www.youtube.com/watch?v=Reb4JAB2f5w> Importance Of Forests To Our Health. Ask the following questions:
 - As the world's population grows, primarily in the temperate forest zones, how are we affecting this biome?
 - What specific things are we doing to hurt this biome and its inhabitants?
 - What happens in the other biomes if we hurt this biome?
 - What can we as a community do to help this biome and its inhabitants?
 - What can you, as an individual do to help this biome, especially if you live in it?
 - Go to the last page of this document for places to send letters:
<https://www.teacherspayteachers.com/Product/Climate-Change-Activism-FREEBIE-for-grades-2-5-Teach-civic-engagement-6739954?st=44f012d7f7938796b851c3ed2dedaab3> Climate Change Activism FREEBIE for grades 2-5! Teach civic engagement!
- Final Product: ask students to write about their thoughts about the temperate forest biome in the final section of their flip book. You can add extra pages if you wish.
 - WritingRubricandStudentResponseSheet-1.pdf