

# FOREST LITERACY BY GRADE LEVEL

## GRADES 6-8

Middle school students are gaining a deeper sense of themselves as members of communities, including human and natural communities. They are becoming aware of how people's actions impact others. Friends and relationships consume a lot of their thoughts and energy.

Students this age understand that problems have multiple solutions, and are able to see different perspectives on an issue. They should also be able to back personal opinions with evidence and to distinguish between opinion and fact. Forest literacy activities at the middle school level may focus on the following concepts:

- What social, economic and environmental benefits do forests provide?
- How do we sustain forests and preserve the benefits they provide?
- What can individuals do to ensure the well-being of our forests?

Forests can become a meaningful context for middle schoolers to design and conduct investigations, use evidence to analyze results, and examine issues from various perspectives. Activities such as these will help students gain a deeper appreciation of the interconnected relationships between people and the environment.

**This is also a great age to start exploring green career opportunities!**



# KEY FOREST LITERACY PLAN CONCEPTS FOR GRADES 6-8



The following concepts from the Forest Literacy Framework have direct connections to Next Generation Science Standards (NGSS) in the United States, to provincial science standards in Canada and to Social Studies standards in both countries. Note that many concepts also support English Language Arts, and Mathematics standards as well.

<i>Forest Literacy Framework Concept</i>	<b>Subject</b>	<b>Topic</b>	<b>Core Idea</b>	<b>Standard (If Applicable)</b>
Theme 1, C.1	Science	Interdependent Relationships in Ecosystems	Organisms, and populations of organisms, are dependent on their environmental interactions both with other living things and with nonliving factors.	NGSS: <b><u>MS-LS2-1</u></b>
Theme 1, C.3	Science	Organization for Matter and Energy Flow in Organisms	Plants, algae, and many microorganisms use the energy from light to make sugars through the process of photosynthesis.	NGSS: <b><u>MS-LS1-6</u></b>
Theme 1, C.5	Science	Ecosystem Dynamics, Function, and Resilience	Ecosystems are dynamic in nature; their characteristics can vary over time.	NGSS: <b><u>MS-LS2-4</u></b>
Theme 2, A.4	Science	The Roles of Water in Earth's Surface Processes	Water continually cycles between land, ocean, and atmosphere via transpiration, evaporation, condensation, and precipitation.	NGSS: <b><u>MS-ESS2-4</u></b>
Theme 2, C.6	Social Studies	Economics: Economic Decision Making	Economic decisions affect the well-being of individuals, businesses, and society.	See local standards
Theme 3, C.1	Social Studies	Civics: Processes, Rules, and Laws	Rules and laws are a means of addressing public problems.	See local standards
Theme 3, E.4	Science	Developing Possible Solutions	There are systematic processes for evaluating solutions with respect to how well they meet the criteria and constraints of a problem.	NGSS: <b><u>MS-LS2-5</u></b>

# SAMPLE FOREST LITERACY ACTIVITIES

# GRADES 6-8

1. Guide students to select a tree native to their region and write a research report about it. Encourage students to use field guides to find a specimen of the tree in their neighborhood or a nearby forest and map its location. The report should also include a description of environmental conditions where the tree grows, the tree's growth habit, animals that use the tree, and any commercial uses of the tree. [Theme 1, B. Trees as Part of the Forest]
2. Lead students on a field study of three different environments, such as a lawn, a stand of trees, and a pond or creek. Direct students to measure the level of sunlight, soil moisture, temperature, wind, water flow, and numbers of plants and animals in each environment, and observe how nonliving elements affect living elements in an ecosystem. See the activity **"Adopt a Tree"** from PLT Canada's [\*Free Digital and Printable Worksheets\*](#). [Theme 1, C. Forests as Ecosystems]
3. Share with students a podcast, video, or journal article describing a scientific study on the effects of climate change on forests. Ask students what conclusions they might draw from the study and whether they notice any weaknesses in the study. Invite students to design an infographic that shows how forests are impacted by climate change and what role forests can play to mitigate or lessen it. [Theme 2, A. Environmental Importance]
4. Challenge students to design an app, digital game, or board game that details the steps involved in bringing a favorite tree product to market. Suggest that they base their creation on a familiar app or game, such as The Game of Life. For inspiration, you might first read excerpts from ***Chocolate: Sweet Science & Dark Secrets of the World's Favorite Treat*** by Kay Frydenborg. [Theme 2, C. Economic Importance]
5. Present a hypothetical scenario in which a community acquires a 100-acre parcel of forest land and challenge students to develop a plan for it that balances the environmental, economic, and social uses of the forest. To begin, brainstorm as a group a list of ways that the community might use the forest (for example, for clean water and air, hiking, camping, or tourism), and then have teams create visual representations of their plans based on the list. For more information, see the **"A Guide To Green Jobs In Canada: Voices Of Indigenous Professionals"** from PLT Canada's [\*Store and Resource Library\*](#). [Theme 3, B. Forest Management]
6. Direct students to conduct an inventory of the trees on the school property and create a detailed map showing each tree's location and scientific name. Invite students to make a recommendation to the school council or principal based on their findings, such as where more shade is needed or where more trees could be planted. For details, see PLT Canada's [\*Teaching with i-Tree\*](#), available at [pltcanada.org](http://pltcanada.org). [Theme 3, C. Forest Management Policy]
7. Invite students to develop a survey to find out what people think about the trees in their community. For example, students might ask how people interact with the street trees in the neighborhood, how the trees make them feel, or how they believe they benefit from the trees. Encourage students to analyze the data and share their findings with their city's urban forester or others. [Theme 4, A. Our Connection to Our Forests]
8. Take students to a nearby forest or park to look for evidence of human impact. Discuss what students could do to reduce any negative impacts they observe, and then assist them in developing a service-learning project around one of the ideas. For example, the group might partner with a local organization to plant trees, remove invasive species, collect litter, repair trails, or create interpretive signs. [Theme 4, B. Working for the Future of Our Forests]



# REAL WORLD CONNECTIONS

Ground classroom work and discussions in real world conservation projects. Check out these articles that make great connections between forestry and related elements like water and wildlife:

## [The Health of the Fraser River](#)

(Canadian Geographic)

## [Working Forests at Work for Birds](#)

(ABC/SFI collaboration)

## [Conservation Through Forest Certification to Help Species at Risk](#)

(SFI)

## [The Power of Sustainable Forests](#)

(TED Talk by Kathy Abusow, SFI)



# FOREST LITERACY BY GRADE LEVEL

## GRADES 9-12

High school students are able to use sophisticated reasoning with difficult concepts, particularly when the learning context is familiar to them. Using forests as a context for learning is beneficial for students this age, as it provides them with a real-world basis for applying new knowledge.

Many high school students still have difficulty proposing explanations based on logic and evidence instead of on their prior conceptions of the natural world. Providing opportunities to collect evidence and develop explanations based on that evidence can help them develop this skill. Forest literacy activities at the high school level may explore:

- What factors contribute to the biodiversity of different types of forests?
- How do people manage forests to achieve desired forest outcomes and ensure the sustainability of our forests?
- What role do foresters and natural resource professionals, governments, private companies, and individuals play in managing and sustaining our forests locally and globally?
- What career opportunities are available in the forest and conservation sector?

At this level, forests can become the focus of more and more sophisticated research, in which students use data to drive their decisions. Forests can also provide a meaningful context for high school students to examine the implications of issues on a variety of levels, locally and globally.

