Grade 6 Teacher's Guide



Investigation 02: Forest Layers

Companion to Explore the Habitats and Wildlife of Nova Scotia

Book pages: 18–31 | Suggested duration: Two 45–60-minute classes | Nova Scotia Science 6 — Diversity of Life

Central question: How do the different layers of a forest provide habitats for different organisms?

1. Lesson overview

Building on Investigation 01, students examine the forest as a habitat made up of connected layers: canopy, understory, and forest floor. They predict how conditions and organisms differ between layers, investigate representative species and their needs, draw a labelled forest cross-section, and explain how decomposition connects the layers. The emphasis is on evidence, relationships and accurate diagrams—not artistic skill.

2. Learning outcomes and success criteria

- Identify and describe the canopy, understory and forest floor.
- Compare light, moisture, shelter and organisms across forest layers.
- Match forest organisms to a layer and explain why they use it.
- Draw a labelled forest cross-section with organisms and at least two relationship arrows.
- Explain how a fallen log and decomposers help recycle nutrients in a forest.

I can… name the three forest layers; describe how conditions differ; explain where organisms find resources; label a forest diagram; and use evidence to describe decomposition.

3. Materials and preparation

Materials: Book pp. 18–31; Investigation 02 worksheet; pencils and coloured pencils; optional photographs of Nova Scotia forests, leaves, bark or a fallen log. Optional outdoor observation requires normal school safety procedures.

Before class: Review pp. 18–31 and choose images of a mature forest with visible canopy, smaller shrubs/saplings and leaf litter. Prepare one example organism for each layer. Explain that forests vary and some organisms use more than one layer.

4. Teaching sequence

Part A — Engage: A forest has layers (10 minutes)

Ask: "If you stood in a forest and looked from the treetops to the ground, would you find the same light, shelter and organisms everywhere?" Recall from Lesson 01 that habitats must meet organisms' needs.

Introduce canopy (upper tree crowns), understory (smaller trees and shrubs below), and forest floor (soil surface, leaf litter, deadwood, logs and low plants). Clarify that these are useful descriptions, not rigid boundaries.

Part B — Think and Predict (Worksheet 1A–1C; 15 minutes)

1A: Students recall what they know about forests and name an organism they have seen or learned about. 1B: Students predict which layer receives the most sunlight and where they might find the most decaying leaves and logs; they explain their reasoning.

Keep predictions visible without marking them correct immediately. After the reading, students complete 1C by revisiting one prediction and naming one new observation.

Part C — Read and compare (15 minutes)

Read or assign book pp. 18–31. Discuss how conditions change vertically and why different organisms use different layers. Use this illustrative comparison; accept reasonable local variations.

Layer	Typical conditions	Possible organisms / resources
Canopy	More direct sunlight; leaves and branches	Birds, insects; leaves, seeds, perches
Understory	Often shaded; shrubs and saplings	Songbirds, insects; berries, cover
Forest floor	Leaf litter, soil, deadwood, logs; often moist	Fungi, millipedes, salamanders; shelter and decaying material

Part D — Investigate forest residents (Worksheet 2; 15 minutes)

Students choose one organism for each layer, record its likely resource (food, shelter or moisture), and explain why that layer suits it. Examples: canopy—warbler uses branches for perching or nesting; understory—shrub provides berries and cover for birds; forest floor—fungi grow on decaying wood.

Ask: "Can a bird use more than one layer?" Yes. Placement should reflect a supported use of a layer, not imply an organism never moves.

Part E — Sketch and label a forest cross-section (Worksheet 3; 20 minutes)

Students draw a vertical cross-section showing canopy, understory and forest floor. Require: three labelled layers; at least one organism in each; one non-living factor (e.g., sunlight or soil moisture); a fallen log; and two arrows labelled with relationships, such as "sunlight reaches leaves" and "fungi break down dead wood."

Students write two sentences explaining how different layers provide different resources. Assess clarity and scientific accuracy rather than drawing talent.

Part F — Explain with evidence: The fallen log (Worksheet 4; 15 minutes)

Ask: "A tree falls in a forest. Is it still important to the habitat?" Discuss how a log provides shelter, retains moisture, and is broken down by fungi and other decomposers. Nutrients become available in soil and may be taken up by plants.

Students describe this sequence using a specific example and cite the book, an observation or class investigation. Closing question: "How could removing every fallen log affect forest biodiversity?"

5. Assessment and marking guidance

Worksheet section	Look for	Points
1. Think and predict	Reasonable prior knowledge, supported prediction and reflection	2
2. Investigate	Three layer-organism matches with explanations	2
3. Sketch and label	Three layers, organisms, log, abiotic factor and two meaningful arrows	3
4. Explain with evidence	Clear role of fallen log, decomposers and nutrient cycling; evidence source	3
Total		10

Use primarily as formative assessment. Accept alternative correct organisms and acknowledge that forest structure and species differ among sites.

6. Sample responses and answer guidance

1A: “Forests have trees, shrubs, mosses and animals.” 1B: “The canopy may receive the most direct sunlight because it is above the other layers.” 1C: Students compare their prediction with what they learned; incorrect predictions can still show good reasoning.

2: Canopy—an insect feeds on leaves; understory—a bird shelters in shrubs; forest floor—a salamander shelters under damp logs. These are examples, not exclusive layer assignments.

3: Look for a vertical diagram with layers and arrows that describe real interactions, not just arrows pointing to labels.

4: “A fallen log offers shelter to small organisms. Fungi and other decomposers break down the dead wood, helping return nutrients to the soil where plants can use them.” Evidence can come from book pp. 18–31, class discussion or observation.

7. Differentiation and extension

Support: Supply a partly labelled forest outline or word bank (canopy, understory, forest floor, decomposer, sunlight, shelter, nutrients). Allow paired discussion before writing. Extension: Compare a young forest with an older forest, or predict how removing fallen logs might affect organisms and nutrient cycling. Optional field task: Observe a schoolyard tree and record evidence of multiple vertical layers without disturbing wildlife.

8. Teacher reflection

Can students explain why different layers support different organisms? Are they using evidence rather than simply naming species? Do they recognize fallen logs as habitat and part of nutrient cycling? Use these observations to prepare for Investigation 03: Forest Detectives.