

Sheltered by Nature

Grade 3 - 6

Students step into the role of engineers and builders as they design and construct small-scale shelters using only natural materials. Inspired by the traditional knowledge of First Nations and Inuit peoples, this hands-on activity blends science, social studies, and teamwork while encouraging reflection on what makes a structure strong, comfortable, and sustainable — then and now.

<p>Learning Objectives</p>	<p>By the end of the activity, students will:</p> <ul style="list-style-type: none"> • Use natural materials to design and construct a simple shelter. • Explore how Indigenous peoples (First Nations and Inuit) used local resources to build homes. • Compare natural shelters with modern buildings. • Reflect on the qualities of strength, comfort, and sustainability in building design. • Practice teamwork, problem-solving, and creative thinking.
<p>Curriculum Connections</p>	<p>Science</p> <ul style="list-style-type: none"> • Understanding structures and mechanisms: Forces Acting on Structures (Gr. 3-5) • Properties of Materials (Gr 2-4) <p>Social Studies</p> <ul style="list-style-type: none"> • Heritage and Identity: Communities in Canada, Past and Present (Gr. 3). • Indigenous Perspectives: Exploring traditional housing (wigwams, longhouses, igloos, tipis). <p>Math</p> <ul style="list-style-type: none"> • Measurement and Spatial Sense: Using shape, size, and balance in construction. <p>Language</p> <ul style="list-style-type: none"> • Oral communication: explaining design decisions, reflection.
<p>Materials</p>	<ul style="list-style-type: none"> • Natural objects: branches, sticks, leaves, bark, pine needles, stones. • Optional: string, twine, or rope for tying. • Clipboards/paper for sketching design ideas (optional).
<p>Prep/Pre Set-up required</p>	<ul style="list-style-type: none"> • Identify a safe collection area for natural materials (avoid pulling live branches). • Mark a building area for shelters (flat ground, open space). • Provide clear instructions about respecting nature and sharing materials. • Print shelter fact sheets (Appendix B)
<p>Introduction</p>	<p>Imagine you had to live outside, with no store to buy supplies and no tools except what you could find around you. How would you stay warm and dry?</p> <p>Today, you're going to become builders. Your challenge is to use branches, leaves, and other natural objects to create a small shelter. As you build, think about how</p>

	<p>First Nations and Inuit peoples used what was around them to design strong, smart homes like wigwams, longhouses, igloos, and tipis (see attached chart for types of shelters).</p> <p>Afterward, we'll compare your shelters to the houses we live in today.</p> <p>Ask yourself: <i>What makes a good shelter strong? What makes it comfortable? How could you improve your design?</i></p> <p>Just like engineers, you'll be using teamwork, creativity, and problem-solving — but with the same resources people had hundreds of years ago: nature itself.</p>
<p>Main Activities</p>	<p>“Build a simple shelter using natural materials.”</p> <ul style="list-style-type: none"> • Working in teams, have students choose one of the shelter types from the attached list (appendix A). • Students gather branches, leaves, and other found materials and they build a small-scale shelter (big enough to protect a stuffed toy, backpack, or small object). • While building, encourage students to think like early First Nations and Inuit communities, who used only what was available in their environment. • Once shelters are built, compare them to modern homes — roofs, walls, insulation, waterproofing. • Reflection: <i>“What would make your shelter stronger or more comfortable?”</i> <p>Prompt Questions:</p> <ul style="list-style-type: none"> • Which materials worked best for building? • How did Indigenous peoples use nature to design homes? • What parts of your shelter are like modern houses? • What would you add to make it sturdier or more waterproof?
<p>Free/Inquiry Play Focus</p>	<ul style="list-style-type: none"> • Students may choose to extend their shelters, decorate them, or test them against challenges (wind test, light rain, or adding weight).
<p>Closing and Wrap-up</p>	<ul style="list-style-type: none"> • Circle discussion: Share design successes and challenges. • Highlight how Indigenous knowledge of nature inspired sustainable, resilient housing. • Reflect on how modern architecture can still learn from natural and traditional building methods.
<p>Social/Emotional Skills Targeted</p>	<p>Leadership, Cooperation, Teamwork, Communication</p> <ul style="list-style-type: none"> • Teamwork and negotiation while building. • Communication and creativity in design choices. <p>Resiliency, Accountability, Adaptability</p> <ul style="list-style-type: none"> • Resilience and adaptability when structures collapse or need redesign.
<p>Application Next Steps, Connections, applications, variations, extensions</p>	<p>Science</p> <ul style="list-style-type: none"> • Test shelters against wind (fan or students fanning) or rain (watering can) to see how well they hold up. • Connect to animal shelters (beaver lodges, bird nests, spider webs) — compare how humans and animals use natural materials for protection.

- Explore the concept of forces and loads: Which parts of the shelter support the most weight?

Social Studies

- Compare shelters to traditional Indigenous dwellings (wigwam, tipi, igloo, longhouse).
- Discuss how shelter designs reflect available resources and the environment (snow, trees, grasslands).
- Contrast with modern houses — materials, comfort, energy use, sustainability

Math

- Estimate or measure the height and width of shelters.
- Count the number of sticks or leaves used in construction.
- Explore shapes used for strength (triangles, domes).

Variations

- Build large shelters for students to fit inside.
- Challenge students to build the tallest shelter, the strongest shelter, or the most waterproof shelter.
- Work in pairs vs. larger groups to compare collaboration styles.

Extensions

- Literacy:
 - Write a journal entry or story imagining life inside the shelter.
- Art:
 - Sketch or paint the finished shelters or design an “eco-home” inspired by traditional structures.
- Technology & Engineering:
 - Use string, rope, or simple tools to expand shelter design and connect to engineering principles.
- Sustainability:
 - Compare traditional natural-material homes to modern green building (straw bale homes, earthships, tiny houses).

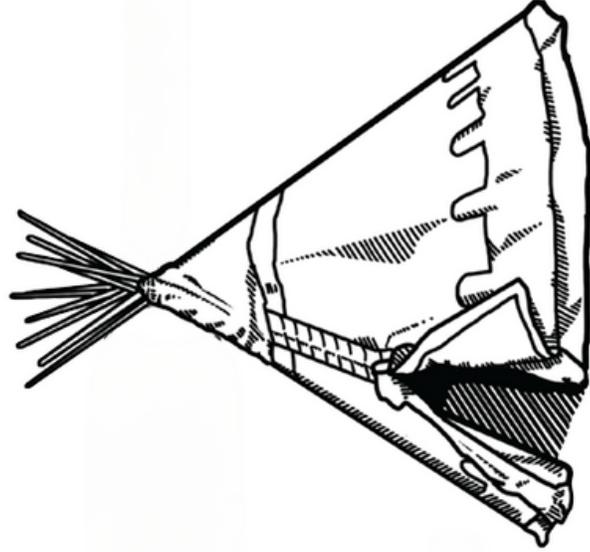
Appendix A

Shelter	Who Used Them	Materials & Why	Benefits
Tipi	Plains First Nations (Cree, Blackfoot, Assiniboine, etc.) – Prairies	Long wooden poles covered with bison hides (later canvas). Bison hides were strong, warm, and plentiful on the Plains.	Portable and quick to set up/take down; strong against prairie winds; adjustable smoke flaps for fires inside.
Wigwam	Eastern Woodlands First Nations (Mi'kmaq, Algonquin, Anishinaabe, etc.) – Forested regions of Ontario, Quebec, Maritimes	Bent saplings for frames, covered with birch bark, cattail mats, or hides. These materials were abundant in the forests.	Dome shape shed rain and snow; insulated for warmth in winter and coolness in summer; semi-permanent, lasting a season.
Wickiup	Some Subarctic and Western Indigenous groups – Interior BC and western Canada	Poles covered with brush, reeds, bark, grass, or hides depending on what was available.	Quick to build; flexible design that could use whatever local resources were on hand; good temporary shelter for hunting trips.
Longhouse	Haudenosaunee (Iroquois Confederacy) – Southern Ontario and along the St. Lawrence	Large sapling frames covered with sheets of elm or other bark. Bark was strong, reusable, and common in forests.	Very large, housing many families; represented community and unity; central fires for warmth and cooking; durable for long-term living.
Igloo	Inuit peoples – Arctic Canada	Blocks of packed snow, because trees and bark weren't available in the tundra. Snow is an excellent insulator.	Surprisingly warm inside (0°C to 15°C when it's –40°C outside); strong dome design; tunnel entrance trapped warm air; quick to build on hunting trips.
Lean-to	Many Indigenous groups across Canada – especially in forests and Subarctic regions	Simple frame of poles covered with bark, branches, brush, or hides. Materials were chosen for speed and availability.	Very fast to build; good for short stays or travel; provided shelter from wind and rain; could be built small or large depending on need.

Tipi



- Tipis were the homes of many Plains First Nations peoples in the prairies of Canada, such as the Cree and Blackfoot.
- They were made from long wooden poles covered with bison hides which were strong, warm and plentiful on the prairies.
- The cone shape made tipis strong against prairie winds and easy to warm with a small fire.
- Tipis could be set up or taken down in less than an hour, which was important for people who moved often to follow bison herds.
- A smoke hole at the top let out fire smoke and could be adjusted like a vent.
- Many tipis were painted with symbols or patterns that told stories about the family who lived there.



Wigwam

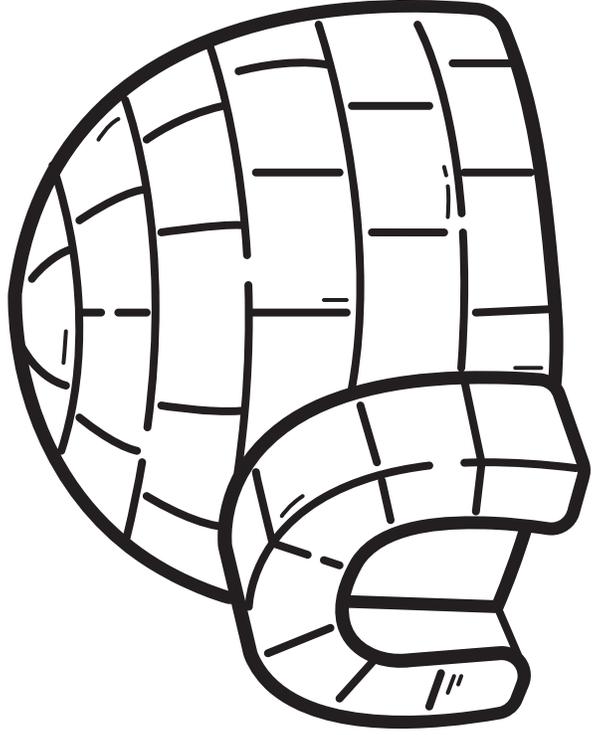


- Wigwams were used by many First Nations in the Eastern Woodlands of Canada (forested regions of Ontario, Quebec and Maritimes), including the Mi'kmaq, Algonquin, and Anishinaabe.
- The word wigwam comes from an Algonquian language and means “house” or “dwelling.”
- Builders used young tree saplings for the frame and covered them with birch bark, mats made from cattail mats, or animal hides.
- Their rounded dome shape made them strong and able to shed rain and snow — perfect for Canada’s changing seasons.
- Wigwams were usually seasonal homes: smaller and lighter in summer, stronger and more insulated in winter.
- A fire in the centre kept the wigwam warm and allowed cooking inside, with smoke escaping through a hole in the roof.

Igloo



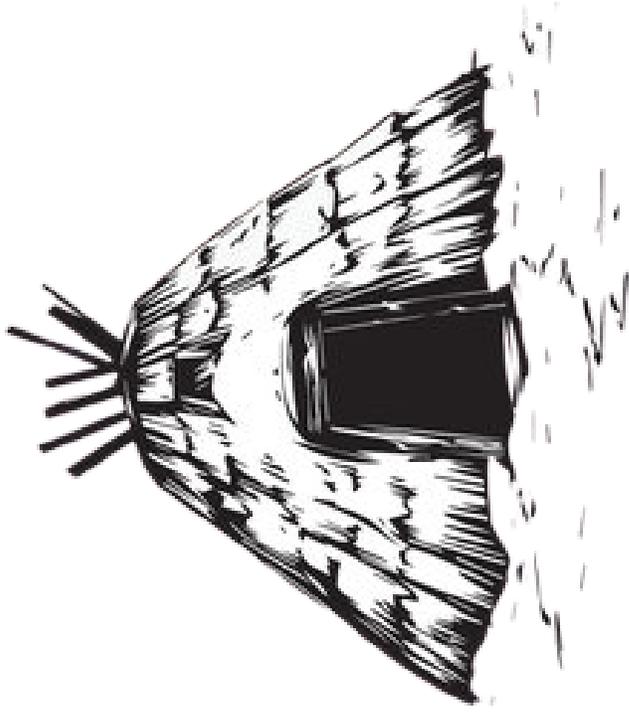
- Igloos were built by the Inuit peoples of the Arctic regions of Canada, where there are no trees for wood.
- They are made from blocks of packed snow, which is a great insulator that traps body heat inside sometimes reaching 0°C to 15°C when it's -40°C outside!
- Igloos are built in a spiral pattern, with each block leaning slightly inward to form a strong dome.
- A tunnel-like entrance kept cold air out and warm air inside.
- Small igloos were often built for temporary shelters on hunting trips, while larger ones could house families or serve as community gathering spaces.



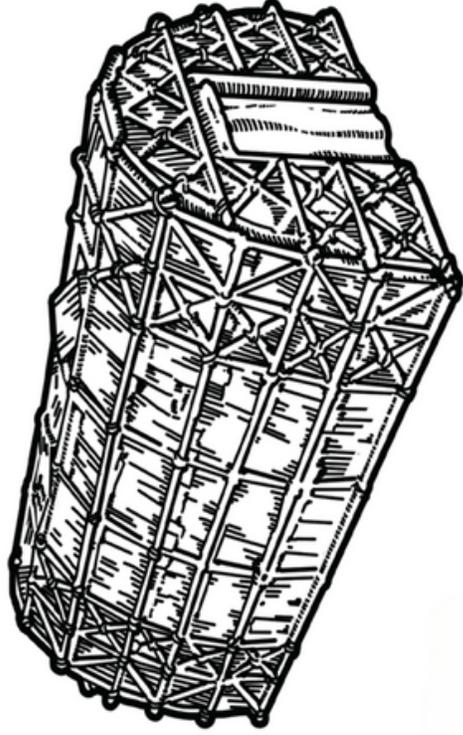
Wickiup



- Wickiups were used by some Indigenous peoples in western and northern Canada, especially in regions with fewer trees and harsher climates, like parts of the Subarctic.
- A wickiup is a cone-shaped or dome-shaped shelter, a bit like a wigwam, but usually covered with brush, grass, reeds, or bark instead of birch bark.
- Because they used whatever local materials were available, no two wickiups looked exactly alike.
- Like wigwams and tipis, wickiups had a fire in the middle with a hole at the top for smoke to escape.
- They were often temporary homes, built quickly during hunting or fishing trips.



Longhouse



- Longhouses were the traditional homes of the Haudenosaunee (Iroquois Confederacy) and some other Indigenous peoples in eastern Canada (Southern Ontario and along the St Lawrence).
- They were long, rectangular buildings, sometimes over 30 metres (100 feet) in length!
- Built with wooden frames from young trees, then covered with large sheets of bark.
- Fires ran down the centre with smoke holes in the roof above each fire.
- Doors were covered with animal hides to help keep warmth in during the winter.
- Each longhouse could hold many families, often from the same clan, making them like apartment buildings of the past.

Lean-to



- Lean-tos were used by many Indigenous peoples in Canada as temporary shelters.
- They were made by leaning branches or poles against a ridgepole, then covering the frame with bark, brush, or animal hides.
- They could be made quickly and were perfect for overnight stays.
- Because they used local materials, they looked different depending on the region — bark in forests, hides on the Plains, or spruce boughs in the North.
- Lean-tos were usually small and simple, but could be built larger for a family or group.
- They provided good protection from wind and rain, especially when built against a natural feature like a rock wall.

