

## Photo Description



This image shows thorns growing on a tree branch in a forest. The thorns are long, sharp, pointy growths that stick out from the brown bark of the tree. You can see several thorns branching off from the main branch, and the forest floor and other trees are blurred in the background.

## Scientific Phenomena

Anchoring Phenomenon: Why do some plants have thorns?

Plants develop thorns as a protective adaptation—a special feature that helps them survive. Thorns are sharp, pointy structures that grow on stems and branches to keep animals from eating the plant's leaves and bark. When animals learn that a plant has thorns, they avoid eating it because the thorns hurt them. Over many years, plants with thorns were more likely to survive and have baby plants, so more plants developed this helpful protection.

## Core Science Concepts

- \* Adaptations: Special features that help living things survive in their environment. Thorns help plants by protecting them from being eaten.
- \* Protection: Plants have different ways to protect themselves. Some plants use thorns, spines, or prickles to stay safe from hungry animals.
- \* Cause and Effect: Thorns exist because they help plants survive. Animals that might eat the plant learn to stay away from the thorns.
- \* Variation in Plants: Not all plants look the same. Some plants have thorns, some have smooth bark, and some have leaves that taste bad—all different ways to protect themselves.

### Pedagogical Tip:

For Second Grade, avoid using the word "predator." Instead, use simpler language like "animals that want to eat the plant" or "hungry animals." This makes the concept more concrete and relatable to their everyday experiences.

### UDL Suggestions:

Provide multiple ways for students to engage with this content: Allow students to observe real thorny plants (like roses or hawthorn branches) in a safe, supervised setting; use tactile experiences like feeling the difference between smooth and bumpy bark (without touching actual thorns); and create a visual anchor chart showing different plant protections (thorns, thick bark, bitter taste) using pictures and simple drawings.

### Discussion Questions

1. Why do you think this plant has thorns? (Bloom's: Analyze | DOK: 2)
2. What do you think would happen if an animal tried to eat this plant? (Bloom's: Predict | DOK: 2)
3. Can you think of other ways that plants protect themselves besides having thorns? (Bloom's: Create | DOK: 3)
4. If you were a hungry animal in the forest, would you try to eat this plant? Why or why not? (Bloom's: Evaluate | DOK: 3)

### Extension Activities

- \* Thorn Exploration Walk: Take students on a supervised nature walk around the school grounds to find plants with thorns, bumpy bark, or other protective features. Have them draw or photograph what they find and create a class poster titled "How Plants Protect Themselves."
- \* Safe Touch and Feel Station: Set up a table with safe items representing different plant protections: rose stems with thorns (kept behind plastic or handled with adult guidance), bumpy tree bark rubbings, pictures of spiky plants, and smooth leaf samples. Students can feel and compare the textures while discussing why these differences help plants.
- \* Plant Protection Sorting Game: Give students pictures of different plants (roses with thorns, cacti, smooth-barked trees, plants with bitter tastes) and have them sort them by protection type. Then discuss how each protection helps the plant survive.

### NGSS Connections

Performance Expectation: K-LS1-1: Use observations to describe patterns of what plants need to grow.

Related DCIs:

- K-LS1.C (Organization for matter and energy flow in organisms)
- 3-LS3.B (Variation of traits)
- 3-LS4.C (Adaptation)

Related CCCs:

- Patterns (Thorns follow a pattern—they grow in certain places to protect the plant)
- Cause and Effect (Thorns exist because they protect plants from being eaten)

### Science Vocabulary

- \* Adaptation: A special feature that helps a living thing survive in its home.
- \* Thorns: Sharp, pointy parts that grow on plants to protect them from being eaten.
- \* Protect: To keep something safe from harm or danger.
- \* Survival: Staying alive and healthy by having what you need.
- \* Environment: The place where a plant or animal lives, including things like weather and other living things.

### External Resources

Children's Books:

Plants Can't Sit Still\* by Rebecca Hirsch (explores plant movements and adaptations)

What Do Roots Do?\* by Kathleen V. Kudlinski (introduces plant structures and their purposes)

Seed Folks\* by Paul Fleischman (celebrates plant growth and care)

YouTube Videos:

\* "How Plants Protect Themselves" - Crash Course Kids | 4:32 | <https://www.youtube.com/watch?v=qzr61Pz1A2w> (Explains different plant defense strategies including thorns in an engaging, animated format)

\* "Why Do Plants Have Thorns?" - National Geographic Kids | 2:45 | [https://www.youtube.com/watch?v=\\_TBa0k7YdPE](https://www.youtube.com/watch?v=_TBa0k7YdPE)  
(Short, colorful explanation of plant adaptations with real-world examples)