



Daisy Shapes in Nature

Nature is full of beautiful things. You can find rainbows. You can search for flowers. You can look for leaves.

This badge is all about looking carefully at nature. You never know what you'll find!

Steps

1. Search for shapes in nature
2. Find and make patterns
3. Create art inspired by nature

Purpose

When I've earned this badge, I'll know how to identify shapes and patterns in nature. I'll also know how to create my own.



Words To Know

Field notes: Notes or drawings people make when they look at nature.

Mobile: A kind of art that's a moving sculpture.

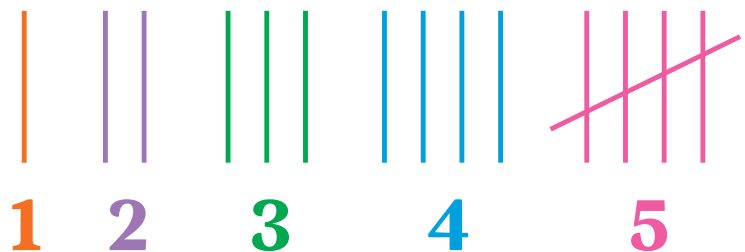
Natural objects: Things that exist without people making them, like plants, animals, mountains, lakes, sand, and rocks.

Non-natural objects: Things that people have made, like clothing, cars, buildings, and roads.

Pattern: When something repeats itself, like a checkerboard, stripes on a tiger, or a song chorus.

Sculpture: A kind of art that people make by carving, modeling, or shaping things, like clay, wood, or metal. Instead of being flat, or two-dimensional, like a drawing or painting, a sculpture is a three-dimensional object.

Tally mark: A line that means 1 and can be used to help you count things.



Step 1: Search for shapes in nature

Shapes are important parts of math. They're everywhere. You can find them in all kinds of things.

Natural objects are things from nature. These are things like plants, animals, mountains, lakes, sand, planets, and rocks.

When people go out in nature, they might write about or draw what they see. These kinds of writing are called **field notes**. You can make **tally marks** or lines to track what you see, too. You can count your tally marks to find out how many natural objects you saw in all.

Choices—do one:

Go on an outdoor scavenger hunt. Go outside. Look for natural objects. Draw each thing you see. What shape is it? Add a tally mark for that shape in the “Shapes Tally Chart” on page 10.

► **For more fun:** Search for shapes on a field trip to the zoo or a park.

Did you know?

Some objects have more than one shape. Think of a flower's stem. From the side, it looks like a rectangle. From the top, it looks like a circle.



Discover nature indoors. Did you know you can find nature indoors? Look around your home. Do you have pets? Houseplants? Does the sun shine through a window? Are there fruits, veggies, or eggs? Search for natural objects indoors. Draw each thing you see. What shape is it? Add a tally mark for that shape in the “Shapes Tally Chart” on page 10.

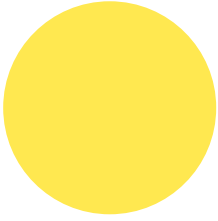
► **For more fun:** Find at least one natural indoor object for each shape.

Watch a nature video. Do you like tigers? Volcanoes? Butterflies? Watch a kid-friendly video about nature. You can watch a zoo’s webcam. You can watch a nature film. Look for natural objects. Draw each thing you see. What shape is it? Add a tally mark for that shape in the “Shapes Tally Chart” on page 10.

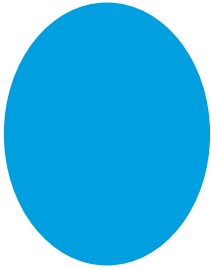
► **For more fun:** Find another video or webcam and play a game of “I spy” using shapes!



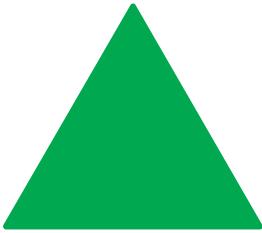
Types of Shapes



A **circle** is a round shape with no points.



An **oval** is a curved shape. It looks like an egg or a squashed circle.



A **triangle** is a shape with three points. It has three sides.



A **square** is a shape with four points or corners. It has four equal sides.



A **rectangle** is a shape with four points. It often has two shorter, equal sides and two longer, equal sides.

► **For more fun:** What other shapes can you find in nature?
Maybe a star? Or a crescent like the moon?

Step 2: Find and make patterns

A **pattern** repeats. Some patterns are shapes. Some patterns are colors. Some are even sounds! Checkerboard is a pattern. Stripes are a pattern. The chorus of a song is a pattern, too.

There are patterns in nature. Plants have patterns. Leaves and pinecones have patterns. Acorns, tree rings, and clovers all have patterns. Animals and insects have patterns, too. Think of a tiger's stripes or the spots and swirls on a butterfly.

You can see some patterns. You can touch some patterns. You can hear some patterns.

Choices—do one:

Find and make patterns with sticks. Sticks are natural objects. You can use them to make shapes and patterns, too. Sort sticks into 3 piles: short, medium, and long. That's a pattern! Make another pattern, like shortest to longest. Then make a shape with your sticks. Can you make a rectangle? A square? What other shapes can you make?

► **For more fun:** Make other shapes with your sticks, like a star, a shape out of two triangles, two rectangles inside a square, and three triangles that all look different.

Find and make patterns with objects. Patterns can be found in nature. They can also be found in things made by people. Go on a search for patterns, indoors or outdoors. Draw field notes about what you see. Look for patterns that are natural and others made by

people. Then use your notes to draw a brand-new pattern.

► **For more fun:** Make patterns with objects made by people, like beads or blocks.

Find and make patterns with sound. Go outside and listen for patterns. Listen for bird calls, dogs barking, crickets chirping, or any other sound that repeats. Draw what you think is making the sound. Go inside and listen for patterns. Do you hear a doorbell? A clock ticking? Draw what you think is making the sound. Look at your drawings. Are all the patterns you heard made by animals or insects? Are they made by people? Cars? Try to repeat the sound patterns you hear. Then create your own!

► **For more fun:** Make your own sound pattern performance. Stomp, clap, dance, or sing—just be sure to repeat!





Step 3: Create art inspired by nature

You can find shapes, patterns, and colors in nature. A ladybug is red and black and looks like an oval. Ladybugs have spots that repeat. That's a pattern!

Art is made with shapes, colors, and patterns. You can mix any color with paint. You can use shapes and patterns. You can make a song with words that repeat. You can use art to show the beauty of nature.

Choices—do one:

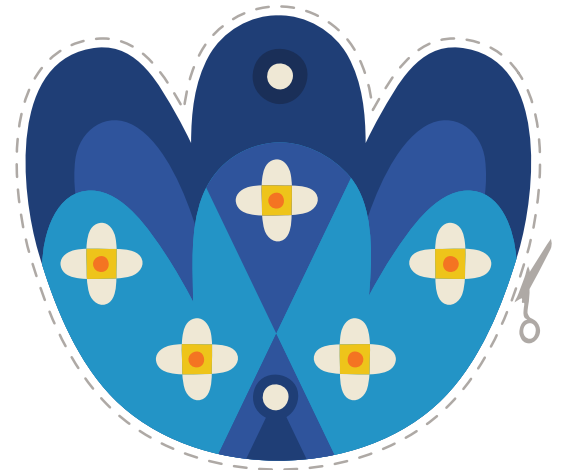
Make a mobile. A mobile is a sculpture that moves. **Sculptures** can be made from clay, wood, or metal. Make yours with paper, string, and a coat hanger. Draw, cut out, and create a pattern with 4 natural objects or shapes. Cut 4 pieces of string. Connect the shapes and the string. Attach the string to a coat hanger.

► **For more fun:** Create a pattern with the length of string, too!

Make a pattern you can touch. You can see and hear patterns. You can touch patterns, too. Make a pattern with raised parts. Use papier mâché, pipe cleaners, and glue. Or collage with found objects, like buttons, string, and bottle caps. Use anything you'd like to make a pattern you can touch. You can even make a pattern with shapes you saw in nature.



Make a song or dance. Music and dances are made up of patterns. Songs have words that repeat. Dance steps can repeat, too. Choose your favorite part of the badge. Maybe you heard a bird call or saw a big tree. Make up a song or dance (or both!) to tell others about it. Make sure to include a pattern.



► **For more fun:** Use your song and dance to teach others about shapes or patterns.








Shapes Tally Chart

A tally mark is a line to help you count.

Five tally marks look like this:



Shape	Draw what you saw	Tally what you saw
 Circle		
 Oval		
 Triangle		
 Square		
 Rectangle		

When you're done, count up the tally marks: _____

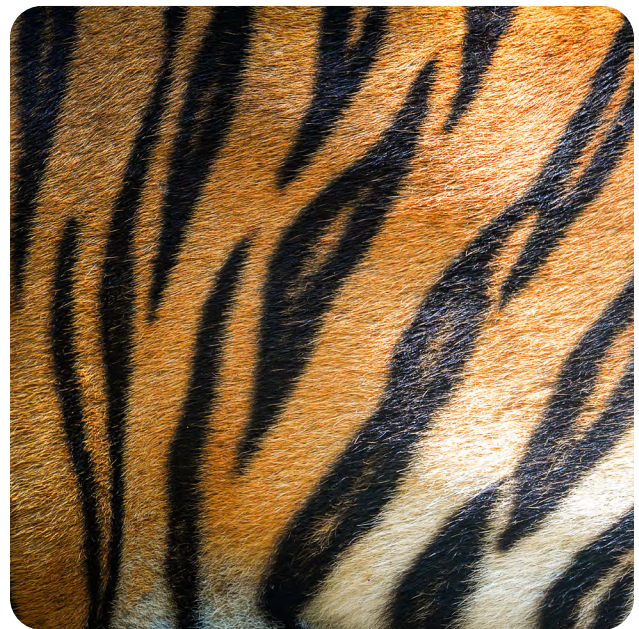
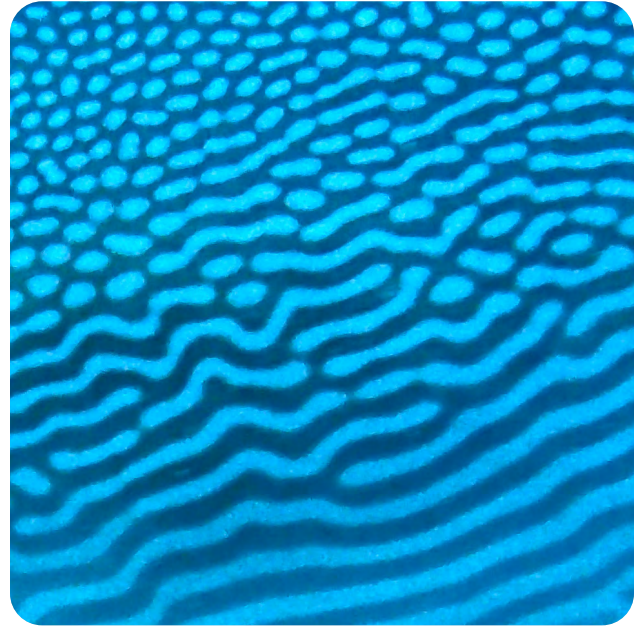
Which shape did you find the most of? _____

Which shape did you find the fewest of? _____

Did you find any other shapes? _____

Animal Patterns

These are animal patterns. Can you guess which animals have these patterns?



Answer Key: zebra, fish, peacock, tiger



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Volunteer's Guide to Daisy Shapes in Nature*

Tips and ideas to help guide your troop through this badge. *This is the first badge in the Math in Nature badge series. The order of the Math in Nature badges is: 1) Shapes in Nature, 2) Numbers in Nature, and 3) Design with Nature.*

STEP 1: Search for shapes in nature • 25–35 minutes

Ask: What's your favorite thing to do outdoors or in nature?

Share: Nature is full of beautiful things, like rainbows, flowers, and leaves. **Natural objects** are things from nature. These are things like plants, animals, mountains, lakes, sand, planets, and rocks.

Do: Go over “Types of Shapes” in the Daisy Booklet. Explain, “Shapes are important parts of math that you can find everywhere, including in nature. Some objects have more than one shape. It depends on how you look at them. From the side, the stem of a plant looks like a rectangle. It looks like a circle from the top.” Show Daisies photos or videos of natural objects and ask them to point out any shapes they see. Ask, “What's your favorite natural object? What shape is it?” Explain that, next, Daisies will look for shapes in nature! They can draw **field notes** and use **tally marks** or lines to track what they see. Show Daisies how to tally objects.

Materials: *Photos and/or videos of nature; poster board or whiteboard; marker*

Choices—do one:

- **Go on an outdoor scavenger hunt.** Take Daisies outside or have them go to a nearby window to work individually or in pairs to find, draw, and tally shapes in natural objects on the “Shapes Tally Chart” on page 10 in the Daisy Booklet. After 15 minutes, ask Daisies to share the natural objects they found and count the number of tally marks they made for each shape. List all the Daisies' answers on a poster board or whiteboard to create one big tally chart for the troop. Let Daisies practice counting the tally marks as you add them to the troop's chart or let them add their own tally marks to the poster. **For more fun:** Have Daisies search for shapes on a field trip to the zoo or a park.

Materials: *Access to an outdoor area; pencils; poster board or whiteboard; marker*

- **Discover nature indoors.** Ask Daisies “Where can you find nature indoors? Do you see pets, houseplants, or sunshine through a window? Are there fruits, veggies, or eggs in the kitchen?” Have Daisies search their indoor space in pairs or with a family member (if meeting virtually) for natural objects. They can draw and tally shapes they see in natural objects on the “Shapes Tally Chart” on page 10 of the Daisy Booklet. After 15 minutes, ask Daisies to share the natural objects they found and count the number of tally marks they made for each shape. List all the Daisies' answers on a poster board or whiteboard to create one big tally chart for the troop. Let Daisies practice counting the tally marks as you add them to the troop's chart or let them add their own tally marks to the poster. **For more fun:** Challenge the Daisies to find at least one natural object indoors for each shape on the “Shapes Tally Chart.”

Materials: *Access to an indoor area with natural objects; pencils; poster board or whiteboard; marker*

- **Watch a nature video.** Ask Daisies, “Do you like tigers? Volcanoes? Butterflies? What things in nature are interesting to you?” Show Daisies a nature video or zoo or park webcam. Ask them to draw and tally shapes they see in natural objects on the “Shapes Tally Chart” on page 10 of the Daisy Booklet. After 15 minutes, ask Daisies to share the natural objects they found and count the number of tally marks they made for each shape. List all the Daisies' answers on a poster board or whiteboard to create one big tally chart for the troop. Let Daisies practice counting the tally marks as you add them to the troop's chart or let them add their own tally marks to the poster. **For more fun:** Switch to another video or webcam and play a game of “I Spy” using shapes!

Materials: *Nature video or livestream; pencils; poster board or whiteboard; marker*

For more fun: Challenge Daisies to search for other shapes in nature. Ask Daisies, “What other shapes can you find in nature? Maybe a star? Or a crescent like the moon?”

*Detailed choice activities, meeting tools, and additional resources and materials can be found within the Volunteer Toolkit on my.girlscouts.org.

STEP 2: Find and make patterns •

20–30 minutes

Ask: On your scavenger hunt, did you see any shapes or hear any sounds that repeated?

Share: A **pattern** is when something repeats itself, like a shape, color, or sound. In nature, plants, leaves, acorns, tree rings, and clovers all have patterns. Animals and insects have patterns, too. Think of a tiger’s stripes or the spots and swirls on a butterfly. You can see, touch, and hear patterns.

Do: Show the “Animal Patterns” on page 11 of the Daisy Booklet and have Daisies identify the animals and point out any patterns they see, like colors or shapes. Then create a sound pattern with Daisies by clapping and stomping. For example, clap your hands twice, stomp your foot once, and repeat (Clap, clap, stomp. Clap, clap, stomp.). Have Daisies repeat the sound pattern. Then ask them to create other sound patterns for the troop to repeat.

Choices—do one:

● **Find and make patterns with sticks.** If you’re outside, have Daisies gather sticks that have fallen on the ground (do not break off branches of plants or trees). Ask them to work together to sort the sticks into piles of different lengths—short, medium, and long. Tell them that when they sort the sticks by size, they’re making a pattern. Next ask Daisies to pair up, each with ten sticks of different lengths. Have Daisies create a pattern with their sticks, such as short, long, short, long OR short, short, long, long. Ask them to arrange their sticks into other patterns, such as: shortest to longest, longest to shortest, a pattern with thick and thin sticks, and a pattern with sticks going sideways and up and down. Finally, ask Daisies to make shapes with their sticks, such as: a rectangle, two squares inside the rectangle, and four triangles inside one of the squares. Make sure Daisies (or you) return the sticks to the place you found them. **For more fun:** Have Daisies make other shapes with their sticks, such as: a star, a shape out of two triangles, two rectangles inside a square, and three triangles that all look different.

Materials: 10 sticks for each Daisy OR access to collect sticks (if you don’t have sticks, use skewers, dowels, straws, or toothpicks)

● **Find and make patterns with objects.** Ask Daisies, “We looked at patterns in natural objects, but what are some patterns not from nature?” Explain that non-natural objects, like buildings, beds, and buses, are made by people. Have Daisies go on a search for patterns indoors or outdoors and draw field notes about what they see. Encourage them to look both for patterns that are natural and others made by people. Once they’ve found some patterns, have them use their notes to inspire a drawing of a brand-new pattern with colored shapes. After, have Daisies share and compare their field notes and patterns.

For more fun: Have Daisies make patterns with objects made by people, like beads or blocks.

Materials: Paper; pencils; clipboards, crayons, and markers (optional)

● **Find and make patterns with sound.** Ask Daisies, “What is your favorite Girl Scout song?” Have the Daisies sing a Girl Scout song and point out that the chorus is a sound pattern. Explain that sound patterns can also come from people, machines, and nature, like birds or crickets. Take Daisies outside or near a window to listen for patterns like bird calls, dogs barking, crickets chirping, and other sounds that repeat. Ask Daisies to draw what they think is making the sound and if it is natural or made by people. Then go inside and listen for more patterns, like a clock ticking or footsteps. Again, ask Daisies to draw what they think is making the sound and if it is natural or made by people. Ask Daisies to look at their drawings and notice: are the patterns made by animals, insects, people, cars, or something else? Ask them to repeat the sound patterns they heard. Finally, ask Daisies to create their own sound pattern to share with the troop. **For more fun:** Help Daisies to team up to create sound pattern performances, repeating lyrics, actions, or anything else!

Materials: Paper; pencils; clipboards, crayons, and markers (optional)

STEP 3: Create art inspired by nature •

20–30 minutes

Ask: What’s your favorite thing you’ve seen in nature? How can you use it to make a piece of artwork or performance?

Share: You can find shapes, patterns, and colors in nature. A ladybug is red and black and looks like an oval. Ladybugs have a spotted pattern. Art is also made with shapes, colors, and patterns. You can mix any color with paint. You can use shapes and patterns. You can make a song with words that repeat. You can use art to show the beauty of nature.

Choices—do one:

● **Make a mobile.** Ask Daisies, “Have you ever seen art that moves with wind?” Explain that a **sculpture** is art made by carving, modeling, or shaping things like clay, wood, or metal. Instead of being flat, or two dimensional, like a drawing or painting, a sculpture is a three-dimensional object. A **mobile** is a moving sculpture. Show Daisies photos and videos of mobiles to see how they use wind to move. Then ask Daisies to think about the natural objects and patterns they saw in Steps 1 and 2 and to draw four of the shapes or objects. For example, if they saw a triangle in a pine cone, they can draw a pine cone or a triangle. Help Daisies to cut out their shapes (or have Daisies draw on small pieces of paper and not cut them out). Next, have Daisies make a pattern, drawing more shapes or objects as needed. Help them to punch a hole in (or tape string to) each shape, and attach the strings to a coat hanger, in the correct pattern order, to

create a mobile. **For more fun:** Help Daisies to create a pattern with the length of string, too.

Materials: *Photos and videos of mobiles; paper; coat hangers; twine, string, or ribbon; tape or hole punch; safety scissors; markers or crayons*

- **Make a pattern you can touch.** Ask Daisies, “What kinds of patterns can you see or hear? Can you think of any patterns you could touch? What about the bumps on a strawberry? Or the keys on a piano?” Share objects with patterned textures for Daisies to touch. Then invite Daisies to make a pattern with raised parts using papier mâché or found objects. Encourage them to make a pattern inspired by the shapes and objects they saw in nature. When the papier mâché or collage is dry, Daisies can add color with markers or paints. Then ask Daisies to share their patterns with the troop.

Materials: *Textured objects with a pattern, like a pinecone, a fork, corduroy fabric, or a muffin tin; supplies for glue-based papier mâché (newspaper or colored tissue paper cut into strips or small pieces, white craft or wood glue, water, bowls) OR pipe cleaners and found objects, like buttons, string, and bottle caps and glue; card stock or cardboard; paints or markers*

- **Make a song or dance.** Ask Daisies, “What kind of music or dances can you find in nature?” Show Daisies examples of mating dances and play some examples of repetitive animal calls. Explain that music and dances are made up of patterns with words and movements that repeat. Ask Daisies to work in pairs or small groups. Have each team choose their favorite part of the badge so far, like a bird call, a big tree, or beautiful leaves. Invite them to make up a song, dance, or both to tell others about it. Remind them to include a pattern that repeats. Have the Daisies perform their song or dance for the troop. **For more fun:** Challenge Daisies to use their performance to teach others about shapes or patterns.

Materials: *Video and audio examples of mating dances and repetitive animal calls; video- or audio-recording device to record the Daisies’ songs and dances (optional)*

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