



Brownie Shapes in Nature 1

Activity 1—Arrival and Opening Ceremony

- Nutritious snack items such as: fruit, granola bars, carrot sticks, graham crackers, sliced cucumber and yogurt dip, or juice and crackers (Check for food allergies or dietary restrictions in advance.)
- Paper
- Colored pencils, crayons, or markers
- **Girl Scout Promise and Law**

Activity 2—Step 1: Track natural objects (choose one)

Choice 1: Go on a Scavenger Hunt

- **How to Make a Foldable**
- Access to outdoor area
- Sample foldable
- Paper
- Pencils
- Safety scissors
- Chart paper or whiteboard and marker

Choice 2: Search for Many Kinds of a Natural Object

- **How to Make a Foldable**
- Access to outdoor area OR nature book, video, livestream, or animal website
- Sample foldable
- Paper
- Pencils
- Safety scissors
- Chart paper or whiteboard and marker

Choice 3: Find Nature Beyond your Neighborhood

- **How to Make a Foldable**
- Nature book, nature video, livestream, or animal website
- Sample foldable
- Paper
- Pencils
- Safety scissors
- Chart paper or whiteboard and marker

Activity 3—Step 2: Graph natural objects (choose one)

Choice 1: Make a Bar Graph

- Chart paper or whiteboard and marker
- Blank bar graph (with the y-axis “Number of Brownies” and the x-axis “Favorite Animal”)
- Foldables from Step 1
- Pencils
- Paper
- Markers, crayons, or colored pencils
- Rulers
- Graph paper (optional)

Choice 2: Make a Pie Chart

- Chart paper or whiteboard and marker
- Blank pie chart (titled “Our Troop’s Favorite Animals”)
- Foldables from Step 1
- Pencils
- Paper
- Markers, crayons, or colored pencils
- Small bowls
- Rulers

Choice 3: Make a Word Cloud

- Sample blank word cloud
- Chart paper or whiteboard and marker
- Foldables from Step 1
- Pencils
- Paper
- Markers, crayons, or colored pencils



Activity 4—Step 3: Make a spiderweb with symmetry (choose one)

Choice 1: Make a Spiderweb with Yarn and Sticks

- **The Shape of Spiderwebs**
- 2-4 skewers for each Brownie
- 1 yard of string or yarn for each Brownie
- Photos and videos of spiders and their webs (optional)

Choice 2: Make a Giant Spiderweb

- **The Shape of Spiderwebs**
- Ball of yarn
- Safety scissors
- Photos and videos of spiders and their webs (optional)

Choice 3: Make a Spiderweb with Glue

- **The Shape of Spiderwebs**
- Paper
- White glue
- Paint and brushes OR markers
- Photos and videos of spiders and their webs (optional)

Brownie Shapes in Nature 2

Activity 1—Arrival and Opening Ceremony

- Nutritious snack items such as: fruit, granola bars, carrot sticks, graham crackers, sliced cucumber and yogurt dip, or juice and crackers (Check for food allergies or dietary restrictions in advance.)
- **Photos of Tessellations** (meeting aid)
- Paper
- Crayons, markers, or colored pencils
- **Girl Scout Promise and Law**

Activity 2—Step 4: Explore tessellations (choose one)

Choice 1: Draw a Leaf Tessellation

- **Photos of Tessellations**
- Leaf for each Brownie OR access to collect leaves
- Paper
- Pencils
- Markers, crayons, or colored pencils
- Photos and videos of natural tessellations (optional)

Choice 2: Search for Tessellations

- **Photos of Tessellations**
- Access to a space with tessellations (such as a kitchen, your meeting space, indoors, outdoors, or somewhere like a grocery store, garden center, or farmer's market) OR additional photos and/or videos of tessellations
- Paper
- Pencils
- Markers, crayons, or colored pencils

Choice 3: Make a Tessellation Quilt

- **Photos of Tessellations**
- Quilt or photo of quilt
- Safety scissors
- Rulers
- Paper
- Pencils
- For paper quilts: construction paper, large sheets of paper, markers, and glue
- For fabric quilts: fabric and sewing supplies
- Photos and videos of natural tessellations (optional)



Activity 3—Step 5: Collect data about birds (choose one)

Choice 1: Create a Data Table

- Access to outdoor area OR video player
- Chart paper or whiteboard and marker
- Blank data table
- Field guides or research on birds you expect to observe, including names, sizes, colors, and songs or calls
- Paper
- Pencils
- Bird identification app and/or binoculars (optional)

Choice 2: Act Out your Observations

- Access to outdoor area or video player
- Chart paper or whiteboard and marker
- Field guides or research on birds you expect to see, including names, shapes, colors, and songs or calls
- Paper
- Pencils
- Bird identification app and binoculars (optional)
- Costumes, props, craft materials, etc. for presentations (optional)
- Video camera (optional)

Choice 3: Count Birds for Citizen Science

- Access to outdoor area
- Chart paper or whiteboard and marker
- Field guides or research on birds you expect to see, including names, shapes, colors, and songs or calls
- Paper
- Pencils
- Citizen science project instructions and any project materials
- Smartphone, tablet, or computer
- Bird identification app and binoculars (optional)

Activity 4—Closing Ceremony

- Shapes in Nature badge for each Brownie

Brownie Numbers in Nature 1

Activity 1—Arrival and Opening Ceremony

- Nutritious snack items such as: fruit, granola bars, carrot sticks, graham crackers, sliced cucumber and yogurt dip, or juice and crackers (Check for food allergies or dietary restrictions in advance.)
- Natural objects, like leaves, rocks, shells, etc.
- Ruler
- Timer
- Thermometer
- **Girl Scout Promise and Law**



Activity 2—Step 1: Explore temperature (choose one)

Choice 1: Measure Temperature with Crickets

- **Cricket Photo**
- Access to outdoor area with crickets (usually a temperature between 55 and 100 degrees Fahrenheit) OR crickets from a pet store OR a recording of cricket chirps
- Thermometer (if measuring with live crickets)
- Timer or stopwatch
- Paper
- Pencils
- Chart paper or whiteboard and marker

Choice 2: Measure Temperature with Water

- Thermometers
- Water
- Glasses, bowls, or jars
- Ice
- Hot water
- Paper
- Pencils
- Freezer (optional)
- Microwave or stove (optional)

Choice 3: Create a Calendar with Nature's Clues

- Local field guide(s) and/or devices with internet access
- Paper
- Pencils
- Markers, crayons, or colored pencils
- Chart paper or whiteboard and marker

Activity 3—Step 2: Measure the length of leaves (choose one)

Choice 1: Measure with a Ruler

- **My Leaf Measurements**
- Leaves OR access to collect
- Chart paper or whiteboard and marker
- Pencils
- Paper
- Rulers
- Crayons (optional)
- Local field guides or devices with tree identification apps (optional)

Choice 2: Measure with your Body

- **My Leaf Measurements**
- Leaves OR access to collect
- Chart paper or whiteboard and marker
- Pencils
- Paper
- Rulers
- Crayons (optional)
- Local field guides or devices with tree identification apps (optional)

Choice 3: Measure with an Object

- **My Leaf Measurements**
- Leaves OR access to collect
- Chart paper or whiteboard and marker
- Pencils
- Paper
- Rulers
- A variety of small natural and non-natural objects, such as leaves, rocks, shells, sticks, paper clips, small sticky notes, coins, etc.
- Crayons (optional)
- Local field guides or devices with tree identification apps (optional)



Activity 4—Step 3: Graph your leaf data (choose one)

Choice 1: Draw a Line Plot

- **Leaf Line Plot**
- Brownies' **My Leaf Measurements** from Step 2
- Chart paper or whiteboard and marker
- Graph paper
- Pencils
- Rulers (optional)

Choice 2: Make a Line Plot with Natural Objects

- **Leaf Line Plot**
- Brownies' **My Leaf Measurements** and leaves from Step 2
- Chart paper or whiteboard and marker
- Sticks OR access to collect
- Seashells or rocks OR access to collect
- Camera (optional)

Choice 3: Make a Human Line Plot

- **Leaf Line Plot**
- Brownies' **My Leaf Measurements** and leaves from Step 2
- Chart paper or whiteboard and marker
- Masking tape
- Rulers
- Paper
- Pencils
- Camera

Brownie Numbers in Nature 2

Activity 1—Arrival and Opening Ceremony

- Nutritious fruit or vegetable snack items to act as a conversation starter for the gardening activities in this meeting. Suggested items include: apple or orange slices, raisins, carrot sticks, sliced cucumber and yogurt dip, etc. (Check for food allergies or dietary restrictions in advance.)
- **Girl Scout Promise and Law**

Activity 2—Step 4: Find space to grow (choose one)

Choice 1: Plot an Edible Garden

- **My Square-foot Diagram**
- Index cards
- Pencils
- Masking tape
- Ruler or tape measure

Choice 2: Plot a Forest

- **My Square-foot Diagram**
- Index cards
- Pencils
- Masking tape
- Ruler or tape measure

Choice 3: Plot a Flower Garden

- **My Square-foot Diagram**
- Index cards
- Pencils
- Masking tape
- Ruler or tape measure



Activity 3—Step 5: Plot and plant a garden (choose one)

Choice 1: Plant an Herb Garden

- **Plot My Garden**
- Foil baking trays
- Potting soil
- Scoops or paper cups
- Rulers
- Pencils
- Tape
- String
- Wooden craft sticks
- Markers
- Variety of herb seed packets or plants
- Scissors
- Fresh herbs (optional)
- Clear tray lids (optional)

Choice 2: Plant an Outdoor Garden

- **Plot My Garden**
- Access to a 3 feet by 2 feet space to plant a garden (with permission)
- Rulers or tape measures
- Pencils
- String
- Scissors
- Wooden craft sticks
- Markers
- Variety of seed packets or plants
- Gardening tools, like shovels, spades, gloves, etc. (optional)

Choice 3: Plant a Container Garden

- **Plot My Garden**
- Variety of clean and empty rectangular or square containers with holes for drainage
- Potting soil
- Scoops or paper cups
- Rulers
- Pencils
- Masking tape
- Wooden craft sticks
- Markers
- Variety of seed packets or plants

Activity 4—Closing Ceremony

- Numbers in Nature badge for each Brownie

Brownie Design with Nature 1

Activity 1—Arrival and Opening Ceremony

- Nutritious snack items such as: fruit, granola bars, carrot sticks, graham crackers, sliced cucumber and yogurt dip, or juice and crackers (Check for food allergies or dietary restrictions in advance.)
- A puzzle, ideally with a picture of natural objects, like trees, snakes, cats, dogs, bees, or flowers
- **Girl Scout Promise and Law**



Activity 2—Step 1: Calculate the age of natural objects (choose one)

Choice 1: Calculate the Age of a Tree

- Tree cross section with rings: tree stump OR tree cookie (slices of tree trunks, can be found at craft stores or online) OR Tree Cookie Photo
- Chart paper or whiteboard and marker
- Paper
- Pencils

Choice 2: Calculate a Pet's Age in Pet Years

- Field guides, books, or online research about the aging rate of cats and dogs
- Chart paper or whiteboard and marker
- Paper
- Pencils

Choice 3: Calculate the Age of a Snake

- **How Old Am I?**
- Field guides, books, or online research about snakes, including the green tree python, milk snake, and rosy boa
- Rulers or tape measures
- Pencils
- 3 pieces of string (8.5 inches, 3 feet, and 6 feet long) for each pair of Brownies

Activity 3—Step 2: Explore the shape of beehives (choose one)

Choice 1: Create a Beehive to Fit You

- **Honeycomb Photo**
- Area large enough to make a human-sized honeycomb
- Chart paper or whiteboard and marker
- Rulers
- Paper
- Pencils
- 75 x 1-foot lengths of balsa wood, dowels, sticks, strips of paper, or masking tape
- Honey, honeycomb, and/or beeswax (optional)
- Fruit snack (optional)

Choice 2: Build a Bee Hotel

- **Honeycomb Photo**
- **Bee Hotel Photo**
- Chart paper or whiteboard and marker
- Box for each hotel frame
- Bamboo, paper straws, or rolled paper
- Glue
- Packing tape
- Rulers
- Paper
- Pencils
- Honey, honeycomb, and/or beeswax (optional)

Choice 3: Calculate How Much Honey a Beehive Might Hold

- **Honeycomb Photo**
- **Honeybox Photo**
- Chart paper or whiteboard and marker
- 150 small objects (like beads, stickers, or paper clips)
- 6 cups
- Masking tape
- Rulers
- Paper
- Pencils
- Honey, honeycomb, and/or beeswax (optional)
- Calculators (optional)

Brownie Design with Nature 2

Activity 1—Arrival and Opening Ceremony

- Nutritious snack items such as: fruit, granola bars, carrot sticks, graham crackers, sliced cucumber and yogurt dip, or juice and crackers (Check for food allergies or dietary restrictions in advance.)
- Large sheets of paper or chart paper
- Markers
- **Girl Scout Promise and Law**



Activity 2—Step 3: Measure and build a bird feeder (choose one)

Choice 1: Build a Seed Feeder

- **How to Build a Seed Feeder**
- Liquid measuring cup
- Water
- Dry measuring cups
- Birdseed or dry goods
- Clean and empty paper milk or juice carton for each feeder
- Dowels
- Rulers or tape measures
- Twine or yarn
- Packing tape
- Paper
- Pencils
- Scissors
- Hot glue gun (for you)

Choice 2: Build a Nectar Feeder

- **How to Build a Nectar Feeder**
- Liquid measuring cups
- Water
- Dry measuring cup
- Birdseed or dry goods
- Clean and empty spice or other jar with holes in the lid (or make holes in advance) for each feeder
- Red craft foam OR waterproof red markers
- Markers
- Scissors
- Twine or yarn
- Hot glue gun (for you)
- Screwdriver (optional to create holes in lids)

Choice 3: Build a Feeder for Unusual Food

- **How to Build an Unusual Bird Feeder**
- Liquid measuring cup
- Water
- Dry measuring cups
- Birdseed or dry goods
- DIY feeder materials, like pipe cleaners, ice cream cones, citrus rinds, cans, paper plates cartons, etc.
- Other materials to build and decorate feeders
- Paper
- Pencils
- Twine or yarn
- Packing tape
- Scissors
- Hot glue gun (for you)



Activity 3—Step 4: Use ratios to make bird food (choose one)

Choice 1: Create your own Bird Seed Recipe

- Birdseed feeders and volume measurements from Step 3-Activity Choice 1 or 3
- Field guides or information about local birds and what they eat
- Birdseed, seed butter, and other foods that are safe and nontoxic for local birds
- Chart paper or whiteboard and marker
- Spoons and measuring cups
- Mixing bowls
- Funnel
- Paper
- Pencils

Choice 2: Follow a Nectar Recipe

- **How to Build a Nectar Feeder**
- Nectar feeders and volume measurements from Step 3-Activity Choice 2 or 3
- Chart paper or whiteboard and marker
- Extra-fine or superfine white granulated sugar
- Water
- Tablespoons
- 1 cup liquid measuring cups
- Mixing bowls
- Pitcher
- Funnel
- Pot and stove, microwave, or hot plate (optional)

Choice 3: Multiply the Recipe

- Feeders and volume measurements from Step 3
- Chart paper or whiteboard and marker
- Tablespoons
- 1 cup measuring cups
- Mixing bowls
- Pitcher
- Funnel
- For birdseed: Field guides or information about local birds and what they eat, variety of seeds, seed butter, and other foods that are safe and nontoxic for local birds
- For nectar: Extra-fine or superfine white granulated sugar; water; pot and stove, microwave, or hot plate (optional)

Activity 4—Step 5: Graph data about birds (choose one)

Choice 1: Graph Data from your Bird Feeder

- **My Bird Data**
- **Sample Nectar Feeder Data**
- Feeders from Step 3
- Chart paper or whiteboard and marker
- Pencils
- Rulers (optional)

Choice 2: Go Bird-Watching and Graph Birds you See

- **My Bird Data**
- Feeders from Step 3
- Field guides or research on local birds
- Access to outdoor area or video player with videos of birds
- Chart paper or whiteboard and marker
- Pencils
- Colored pencils
- Rulers (optional)

Choice 3: Find the Best Place for your Feeder

- **My Bird Data**
- Feeders from Step 3
- Chart paper or whiteboard and marker
- Pencils
- Rulers (optional)

Activity 5—Closing Ceremony

- Design in Nature badge for each Brownie