

## Brownie Bugs Badge – STEM

**Goal:** Explore the world of bugs and learn more about these little creatures that do so much.

**Notes:** Though many people call all insects and spiders “bugs,” a bug is actually an insect that has a mouth shaped like a straw that it uses to suck nectar from plants or blood from other insects or animals (like us). In this badge we call all our insect friends bugs. Before we get started, let’s watch this video about 10 different types of insects. You may recognize some of them! <https://www.youtube.com/watch?v=uiqDniB8T6A>

*To complete the entire badge, gather these supplies ahead of time:*

- Poster board or large paper
- Crayons or markers
- Recycled cardboard, toilet paper rolls, paper, shoe box, paper plates
- Coffee filter
- Plastic bottle caps, twist ties, clothes pins, pipe cleaners
- Glue, glitter, buttons, googly eyes
- Cardboard box like a shoebox
- Scissors or box cutter (and a parent to help!)
- Plastic wrap
- Tape
- Sharp pencil or other sharp tool
- Twigs, grass, leaves
- Paper
- Pencil for drawing
- Magnifying glass (optional)
- Assorted snacks (for you, not the bugs)

### Step 1: Draw a Bug Poster

*What I’ll do:* Draw a bug poster.

*What I’ll need:*

- Poster board or large paper
- Crayons or markers

*How I’ll do it:*

- First, go online to look at different types of bugs, then choose one that you find interesting. Look online at up-close pictures of your bug so you can see all its parts (search the [www.inaturalist.org](http://www.inaturalist.org) site), and find a video of your bug so you can see how it moves.
- Now draw a diagram of your bug (a picture with labels) and label its parts (wings, antennae, legs, etc.). Be sure to answer the following questions:

- Where does your bug live?
- How long does it live?
- What does it eat?
- What is good about this bug?
- Is it harmful to people or plants?
- Who are its enemies?
- Name something special about your bug.

## **Step 2: Try a Bug Craft**

*What I'll do:* Make my own bug

*What I'll need:*

- Recycled cardboard, toilet paper rolls, paper, shoe box, paper plates
- Coffee filter
- Plastic bottle caps, twist ties, clothes pins, pipe cleaners
- Glue, glitter, buttons, googly eyes

*How I'll do it:*

- Using recycled materials, create an insect or a spider. A few questions to help you get started:
  - What is one difference between an insect and a spider? Not sure? Find a photo to help you. This will help you tell the difference: <https://www.americanpest.net/blog/post/what-s-a-bug>.
  - How about the differences between a moth and a butterfly? Check them out here: <https://www.youtube.com/watch?v=iblveeTDkXQ>
- Now that you have the body, make it colorful! What do you have at home that you can use? Crayons, markers, glitter, pipe cleaners---any or all of these might work.
- Do you see any bugs in nature that are as colorful as yours? Why do you think some bugs are brightly colored and some are not?
- Some insects work hard all day long. Ants are one of those <https://pestworldforkids.org/pest-guide/ants/>. Here is a famous poem by American poet Robert Frost about ants and how each ant has its own job in the ant colony:

## **Departmental**

An ant on the tablecloth  
 Ran into a dormant moth  
 Of many times his size.  
 He showed not the least surprise.  
 His business wasn't with such.  
 He gave it scarcely a touch,

And was off on his duty run.  
 Yet if he encountered one  
 Of the hive's enquiry squad  
 Whose work is to find out God  
 And the nature of time and space,  
 He would put him onto the case.  
 Ants are a curious race;  
 One crossing with hurried tread  
 The body of one of their dead  
 Isn't given a moment's arrest-  
 Seems not even impressed.  
 But he no doubt reports to any  
 With whom he crosses antennae,  
 And they no doubt report  
 To the higher-up at court.  
 Then word goes forth in Formic: (The scientific name for ants is formicidae, so the poet pretends their language is Formic.)  
 "Death's come to Jerry McCormic,  
 Our selfless forager Jerry. (A forager is a hunter.)  
 Will the special Janizary  
 Whose office it is to bury  
 The dead of the commissary  
 Go bring him home to his people.  
 Lay him in state on a sepal. (the green part of a flower that holds the petals)  
 Wrap him for shroud in a petal.  
 Embalm him with ichor of nettle. (In Greek mythology, ichor is the fluid that flows like blood in the gods.)  
 This is the word of your Queen."  
 And presently on the scene  
 Appears a solemn mortician;  
 And taking formal position,  
 With feelers calmly atwiddle,  
 Seizes the dead by the middle,  
 And heaving him high in air,  
 Carries him out of there.  
 No one stands round to stare.  
 It is nobody else's affair  
 It couldn't be called ungentle  
 But how thoroughly departmental.

### Step 3: See Bugs in Action

*What I'll do:* Observe bugs in nature

*What I'll need:*

- Cardboard box like a shoebox
- Scissors or box cutter (and a parent to help!)

- Plastic wrap
- Tape
- Sharp pencil or other sharp tool
- Twigs, grass, leaves

*How I'll do it:*

- Find three different bugs. Watch each for a while so you can see how they move and how they eat. Do they try to crawl on you, or do they move away from you? Or maybe they don't pay any attention to you! What is similar about your three bugs? What is different?
- If you can find a trail of ants, see what happens when you distract them by putting something in their way, like a stick or a rock or a small puddle of water. Be careful not to hurt them!
- Do you want to take one (or two or three) bugs home? Make a bug box! Find a cardboard box (like a shoe box) that you can cut. Remove the cover and save for later. Cut a rectangle (about 6" x 3") in one end to use as a window. Cover the window with plastic wrap and tape it so the bugs can't escape. Then with a pencil or other sharp tool, make three small holes (smaller than your bugs) in the side so they can breathe. You may want to fill the bottom of the box with grass and twigs and leaves to make your bugs feel at home. Replace the cover and watch to see what your bugs do. Do they move fast or slowly? Did any of them eat the grass or leaves, or climb on the twigs? After observing them for a while, carefully place them back where you found them.

#### **Step 4: Learn About Pollinators**

*What I'll do:* Learn what pollinators are and what they do, and how we can protect them.

*What I'll need:*

- Paper
- Pencil or crayons

*How I'll do it:*

Let's watch this video! <https://www.generationgenius.com/videolessons/pollination-and-seed-dispersal-video-for-kids/>

- Plants need to be pollinated in order to make new seeds or grow fruit. That means the pollen needs to move from one plant to another. Then a seed is formed from which a new plant can grow.
- Can you name some different pollinators? Remember these can be insects or birds or animals.
- Can you think of some foods that you eat that come from plants that have been pollinated?
- Now for a tricky question: What would happen if there weren't any pollinators? Can you draw a garden without pollinators? Would it be colorful?
- What can we do to save our pollinators?

## **Step 5: Take a Bug Hike**

*What I'll do:* Take a walk; find and observe different kinds of bugs.

*What I'll need:*

- Magnifying glass (optional)
- Assorted snacks

*How I'll do it:*

Take a bug hike. If you have a magnifying glass, bring it along!

Where will you find bugs? Look on the ground, on trees and plants, and in the air. How many different types can you find? A Smartphone app may help you identify the bugs you see. There are several available; find your own or try this one:

[https://play.google.com/store/apps/details?id=com.mm.insects.identification&hl=en\\_US](https://play.google.com/store/apps/details?id=com.mm.insects.identification&hl=en_US)

There are so many interesting things about bugs, other insects, and spiders that we couldn't name them all here. What else can you find out about them?

**Now celebrate earning your Bugs Badge by making and eating some buggy snacks. Crackers with peanut butter or other sticky food make good bodies; pretzels make terrific legs, and raisins are perfect eyes. What vegetables can you use to make edible bugs? Take a photo and send it to your Girl Scout friends!**

**Where I can purchase the Badge:**

<https://www.girlscoutshop.com/BROWNIE-BUGS-BADGE>

**Attachments: none**