

**Grade level:** 1-3

**Academic Standards**:

**Time:** 45-60 minutes

**Logistics**: Split the class into small groups

**Materials**:

- Plastic insect toys

-Insect order presentation

- Insect pictures
(from “Backyard Bugs of AZ” on Insect Discovery website)

-Matching game cards

**Background:** There are over one million species of insects (and more being discovered all the time)! The goal of this activity is for the students to understand what diversity is and how scientists organize and categorize this diversity. The students will practice recognizing some major insect groups and their characteristics.

**Preparation:** Obtain plastic insect toys (can easily order online or find at a craft store). Pull up the Powerpoint presentation of insect orders (groups). You can choose to focus on just a few groups or all 6 that are included. Print out photos of examples from major insect groups. Choose photos of native insects that you can print from the “Backyard Bugs of AZ” document on the Insect Discovery website: [*https://extension.arizona.edu/sites/extension.arizona.edu/files/mblock/insect-discovery-backyardbugs2022.pdf*](https://extension.arizona.edu/sites/extension.arizona.edu/files/mblock/insect-discovery-backyardbugs2022.pdf)Print out cards from matching game.

**DO - Activity**:

**1.)** *Setting the stage* Ask the students to name some of their favorite insects. After you’ve gotten a variety of responses ask students to guess how many different types (species) of insects exist. Tell them that there are over one million! (It will be hard for students to grasp this number but that is ok). Introduce them to the word **diversity**. Diversity is when you have many different types of things, like insects. Scientists organize diversity by putting similar animals into groups.

**2.)** *Categorizing plastic insects* Give each group a pile of plastic insects. Ask them to think of a way to divide the insects (e.g. color, size, body shape, etc.). Anything is ok as long as they can follow their own rules! After a few minutes let each group share how they divided their insects. As an added challenge tell each group to pick one of their insect piles and find another way to further divide them. Tell students that scientists also use different characteristics to divide insects into groups. If the toys you ordered comes with non-insects (e.g. spiders) then first ask the students to group plastic animals into insects and non-insects.

**3.)** *Categorizing real insects* Pull up the presentation on insect groups and hand out a set of insect pictures to each group. Go through the presentation one group at a time. Introduce the group name and characteristics scientists use to put insects in this group (see below). Ask students to find any insect photos they have that fall into this group. Ask students to share how they identified the insects to choose. Repeat for all insect groups.

**REFLECT**

Ask students what their favorite insect group was that they learned about today and why. What characteristics define this group? Ask students to remind you why we have so many groups and what diversity means.

**APPLY**

*Matching game* Give each group a set of cards.Set out the cards face down in a grid. Let each student (or pair of students if playing in teams) take turns flipping over two cards at a time. The goal is to flip over two insects from the same order. If a student/team flips over a matching pair, they keep the cards and get a point. Play until all cards are matched and count to see who wins. After the game ask students to share what characteristics they used to know that two insects were in the same group.

**Supplementary information**:

**Beetles** (*coleoptera*) can be distinguished by their *elytra*, which are modified wings

**Butterflies/moths** (*lepidoptera*) can be distinguished by their large wings which are covered in scales (often colorful)

**Grasshoppers/crickets** (*orthoptera,* or “hopper group”) can be distinguished by their long legs and extended bodies

**Dragonflies/damselflies** (*odonata*) can be distinguished by their clear sets of wings

**Bees/wasps and ants** (*hymenoptera,* or “stinger group”) can be distinguished by their double sets of wings and thin “waist,” note than many ants have lost their wings and only some type of ants (*alates*) have wings

**Flies** (*diptera*) can be distinguished by their one set of wings

Also see the “Short Guide to Major Insect Orders” on the Insect Discovery website for more options and information: <https://extension.arizona.edu/sites/extension.arizona.edu/files/mblock/insect-discovery-short-guide-major-insect-orders.pdf>