

Anatomy of a Butterfly

Objective: Provide students with the means to learn the different parts of a butterfly.

Antennae: They have many functions including pheromone detection, which is used for mate location and recognition. Think of them as butterfly radar.

Front wing and back wing: Students should be able to mark location on a diagram.

Wing veins: The pattern of veins is different for every genus of butterfly, and is one of the main criteria used by taxonomists when classifying butterflies.

Abdomen: Contains the digestive system, breathing apparatus, a long tubular heart and sexual organs.

Spiracles: On the sides of each segment are microscopic holes called spiracles, through which air enters and leaves the body. Slight rhythmic movements of the body, coordinated with the opening and closing of the spiracles, causes air to be drawn into tiny lung-like sacs, and later expelled.

Thorax: Consists of three body segments, which are fused together, forming a chitinous cage, which contains the flight muscles, and acts as an anchor point for the legs.

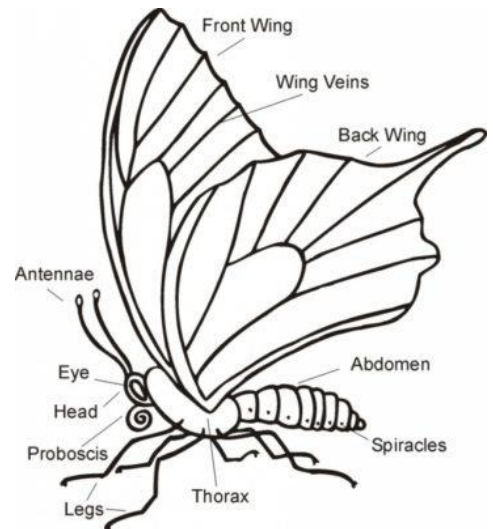
Legs: Butterflies have three pairs of legs.

Proboscis: A tube, much like a drinking straw. This tube can be coiled up like a spring for storage, or

extended to enable the butterfly to reach deep into flowers to suck up nectar.

Head: Contains the eyes, antennae and proboscis.

Eye: Butterflies have compound eyes that produce an image that looks like a mosaic.



Procedure

Students will build butterfly models out of the following items: (Just a suggestion)

- Gum drops (head)
- Small marshmallows (thorax)
- Orange candy slices (abdomen)
- Black shoelace licorice (legs)
- Red shoelace licorice (proboscis)
- Mini M&M's (compound eyes)
- Large pretzel twists (wings)
- White frosting (glue for candy)
- Toothpicks (holds head, thorax and abdomen together)



Constructing Pollinators - ART of the CAMOFLAGE

Objective: Students will use their knowledge of pollinators to construct a fictional pollinator.

Materials: Drawing paper, pencil, markers, crayons, paints, and art supplies. Materials to build a pollinator such as foam, yarn, felt and pipe cleaners.

Background

Animals or insects that transfer pollen from plant to plant are called “pollinators.” Pollinators visit flowers for many reasons, including food and shelter. Although some plant species rely on wind or water to transfer pollen from one flower to the next, the vast majority, almost 90 percent, of all plant species need the help of animals to accomplish this task. Of the approximately 200,000 different species of animals around the world that act as pollinators, the vast majority are invertebrates, including bees, butterflies, wasps and flies.

Among pollinators, bees are the superstars, as they are the only group of insects that actively collect pollen and, in the process, transfer large amounts of pollen from flower to flower. Bees also exhibit a behavior called floral constancy, which means that they visit flowers of one species repeatedly over a period of time. North America alone boasts more than 5,000 species of native bees, 90 percent of which lead solitary lives. The remaining 10 percent are social bees, live in colonies and share the work of preparing and provisioning the same nest.

Butterflies have excellent vision and are thus drawn to bright colors, including reds and oranges like sunflower, coneflower, artichoke, thistles, and dandelions. Lavender, mint and other herbs are naturally appealing to these fluttering insects. Attracting butterflies involves incorporating plants that serve the needs of all their life stages, places to lay eggs and form chrysalides, as well as food plants for larvae (caterpillars) and nectar sources for adults. The wing colors and patterns of butterflies are one of their most visible adaptations. Some butterflies have wing patterns that allow them to blend into their surroundings, while others have colorings that make predators believe they are poisonous. Still other butterflies have wing patterns that look like eyes, making them appear larger and scarier to enemies.

Procedure

Before students begin, review what they learned about pollinators and their role. Explain and draw the NEW POLLINATOR - AND that their pollinator can be a bee, fly or butterfly. Students are building their pollinator, they must explain the reasoning behind coloration (what function does it serve, protection, mating, etc.) mouth parts, legs and other body parts. Use the following questions for a basis to build the pollinator:

- What does your pollinator eat?
- How does it eat?
- What colors is it attracted to?
- How large is your pollinator?
- Where does it live? Describe the habitat?
- What are its predators?

Write a narrative about the pollinator by answering the questions above.