



Insect Defense Design Challenge

Insects are masters of camouflage!



Whether they are blending in or standing out, insect bodies' colors & patterns act as a defense strategy. Your challenge is to design an insect with a defense strategy to protect it from hungry predators.

Materials:

- Pictures of insects with patterns and colors to help them hide or stand out (see pictures & resources below)
- Markers, colored pencils, or crayons
- A variety of craft materials, such as construction paper, paper tubes, newspaper, cereal boxes, egg cartons, string, pipe cleaners, foil, coffee stirrers, toothpicks, etc.
- Natural materials for decoration such as sticks, dead grasses, etc. (*Please do not pick anything living.*)
- Tape or glue

Directions:

1. Look at some pictures of different insects and think about how their colors might help protect them.
2. Create your insect with the materials you have and/or the materials that you gathered outdoors.
3. To make a good science model, make sure to give your insect model 3 body parts, 6 legs, 2 antennae, and even wings.
4. Your insect could be a 2D model like a drawing on paper or a 3D model.
5. Next, decide which strategy from the following list that your model insect will use to protect itself:
 - Disguise – use natural materials to match your insect to the surrounding landscape

A walking stick looks like a twig.



A caddisfly larva uses tiny rocks to make a protective case to blend into the rocky stream bottom.

- Concealing coloration – use colors that camouflage your insect into the surrounding landscape

A grasshopper has the same colors as the grass and the dirt.



A crab spider has the same colors as the leaves or the flower petals where it hunts.

- Disruptive coloration – use stripes or spots that make it hard to see the outline of your insect’s body

Honey bees’ stripes make it hard to tell where one bee ends and the next one begins.



The oak beauty moth’s pattern of stripes and different colors break up its outline, so it is difficult to spot on tree bark.

- Warning coloration – use bright colors to advertise (like a stop sign!) that your insect tastes bad or is stinging or venomous or poisonous

Yellow jackets sting! Their bright yellow stripes warn predators to watch out!



Ladybugs taste terrible! Their bright red colors are a warning.



Monarch butterfly caterpillars eat poisonous milkweed, which makes them taste bad. Their orange color advertises their bad taste.

- Mimicry – make your insect look like an animal that is stinging or venomous or poisonous



Locust borer beetles look like the stinging yellow jackets but are harmless.



Spicebush swallowtail butterfly caterpillars resemble snakes to startle potential predators.



Viceroy butterflies mimic the appearance of the terrible tasting monarch butterflies.

- Decorate your insect with colors and natural objects to give it protection.
- To test your strategy, bring your finished insect model outdoors and find a spot to place it – in a shrub, in the grass, next to a tree trunk. Take a picture or a video or write a post about how your model looked. Does it blend it? Or was your strategy to have it stand out as a warning?
- If you want to try a different strategy, create another model! You can also try making a model with a combination of these strategies.

Web Resources on Insects and Camouflage

Examples of Insect Camouflage:

<https://www.treehugger.com/amazing-examples-of-insect-camouflage-4869256>

<https://projects.ncsu.edu/cals/course/ent425/library/tutorials/ecology/camo/index.htm>