

# Exploring Butterfly Patterns

Let's explore butterfly patterns together! By using our material list, images, and template alongside the guiding questions this Exploring Butterfly Patterns project can be a fun and colorful way to think about the wings of butterflies.

## Butterfly Body Part Images



## Materials:

- Butterfly template (below; this template can be printed out or can be a guide for drawing your own)
- Butterfly images (above and below)
- Additional craft items for pattern making:
  - Scrap paper (any colorful paper - construction paper tissue paper)
  - Glue and scissors
  - Colored pencils, markers, or crayons

## Guiding Questions:

Help focus your scientist's attention and create a meaningful exploration by considering these guiding questions.

*For more information check out our "More on Butterflies" section*

- When have you seen a butterfly before? What did it look like?
- What do you notice about the close-up picture of butterfly wings?
- Why do you think the wings look like that? (*they are made up of tiny pieces - scales*)
- When you create your own realistic butterfly wings what will you use to create the pattern? Why do you want to use that supply or material?
- Why might different butterflies have different colors and patterns on their wings?

## More on Butterflies:

The Illinois Department of Natural Resources lists 150 species of butterflies in Illinois.

Butterflies have three main body parts (head, thorax, abdomen), three pairs of legs, and a pair of antennae.

**Most have two pairs of symmetrical wings, which are covered with tiny scales. The scales and their arrangement provide the diversity of color patterns seen in different species.**

Want a deeper dive on color? Continue reading to learn even more and then share with your scientist, as you think is age and interest appropriate. Animals and plants **use color** for many purposes: including **to attract** something or **to repel** something. Colors in biological organisms are produced in three primary ways: as a biological pigment, from structural color, or through bioluminescence. All have to do with the interaction of light.

**Structural color** is color produced by microscopic physical features that function like tiny prisms, reflecting or refracting light. These often appear iridescent because light catches them at certain angles, so the visible color changes. Lots of insects use structural color.

Blue, purple, green and white are structural in butterflies. In fact, the color blue is often a structural color for animals, and there are very few natural blue pigment colors on living things.

**Biological pigment** is color produced by the absorption of light, and the pigments reside in specialized cells of the organism. The color of our eyes, hair and skin is biological pigment.

The orange, yellow, brown, and black are pigment colors in butterflies.

**Bioluminescence** is color produced through a chemical reaction. Some marine animals use bioluminescence. The color and light a firefly uses is also bioluminescence!

#### References:

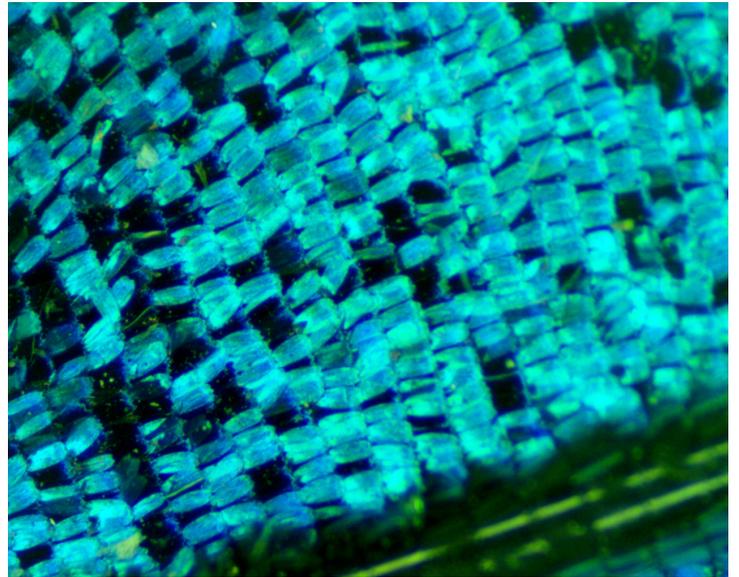
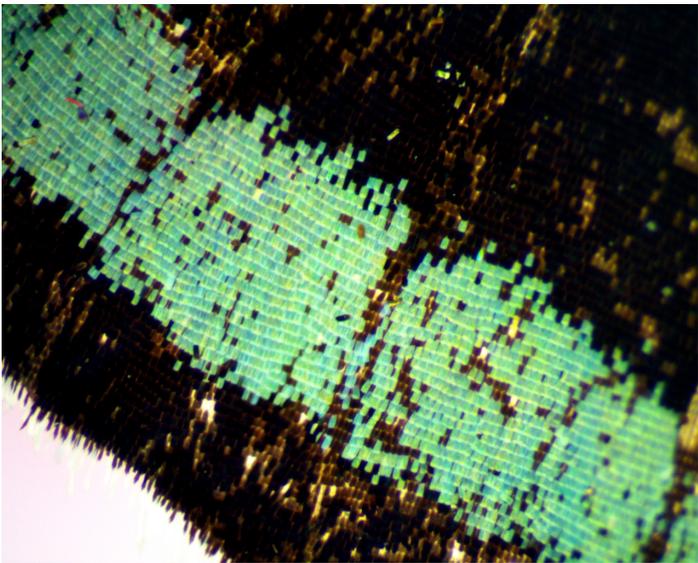
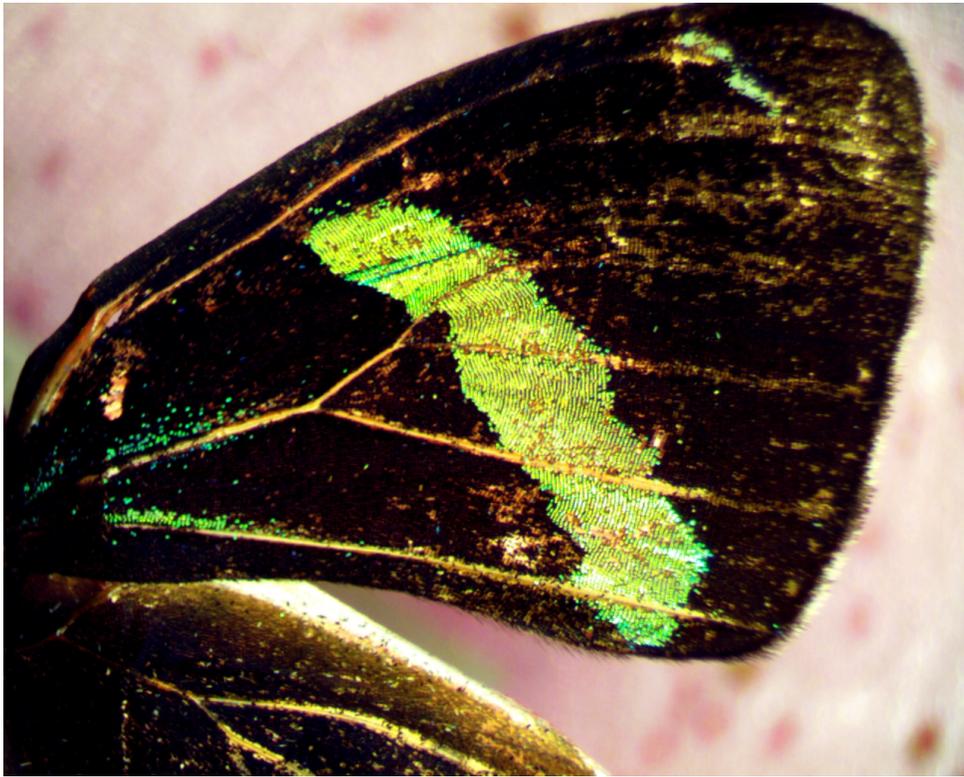
<http://www.webexhibits.org/causesofcolor/>

<https://www2.illinois.gov/dnr/education/Pages/WAMothButterfly.aspx>

#### Butterfly Body Part Images



Close up Butterfly Wing Images



Butterfly Body Template

