**Designing from Nature**

**Essential Question** How can designers use science/biology to create beautiful and functional products?

**Grade** 1st

**Time**  45 minutes

**Art Concepts** Texture, relief, tone, pattern, camouflage

**Materials** Paper 8 1/2-by-11-inch), pencil with eraser, crayon (or glue stick as substitute), watercolor paint (or coffee/tea as substitute), brush, water

**Artwork in Focus** [*Plate,* 1860-1885Jose Alves Cunha](https://collections.lacma.org/node/1851987)

**Talking about Art** What do you see? This is a photograph of the artwork. If you were looking at it at the museum, you would see that it is actually a plate, about the size of a dinner plate.

 Art isn’t always a drawing or a painting. This beautiful plate was made more than a hundred years ago by a Portuguese artist named Jose Alves Cunha, who modeled it after similar art made by a French artist from nearly five hundred years ago who was famous for his amazing ceramic **relief** plates showing small animals against a background of vegetation. Cunha was inspired by that art, but he creatively took his work a step further: He makes the subject even more interesting by adding a narrative or story to the scene.

 What makes these animals hard to see? Let’s look more closely and focus on the very center of the plate. What is happening? Can you see that the snake is having a fight with one of the more hidden lizards?

 What do you know about animals that have specific body parts that help protect or benefit them (snakes, lizards, turtles, moths, butterflies, fish)? Can you think of an animal that has special qualities that maybe you wish *you* had? I can think of a superhero who sure is glad he has the same quality as a spider so he can do his job to help save humanity!

**Making Art** Today we will design something we can wear or use that is based on the natural design of an animal.

1. Fold your paper in half, then open it up.
2. Use the left side of your paper to draw an animal that clearly shows a body part that helps them.
3. On the right side, design and draw a product that uses the same idea of your animal that can help humans in daily life (i.e., the shell of a turtle is very hard and protects them. How about a backpack or a helmet for bike riding that looks like a turtle shell? Or a reusable drinking straw that can coil up for easy storage like a butterfly’s proboscis?)
4. Use your white or light-colored crayon (or glue stick) to color over the animal part on the left panel of the drawing and the corresponding new product on the right.
5. Add **patterns** or **textures** to your drawing to make it more interesting.
6. Use a different color of watercolor paint (or coffee/tea) to paint over the whole paper to make the crayon (or glue stick) parts pop out.

**Reflection** What animal did you choose and why? Did you get any ideas from Cunha’s *Plate,* such as **camouflage** or protective features*?*

 How were you able to think of a product for people that uses the same function as the animal’s body part?

What we did by highlighting the special quality of your animal/product design with crayon or glue stick resist is almost the opposite of camouflage. Instead of trying to hide something, we drew attention to it!

**Curriculum Connections** California Arts Standards for Public Schools—Visual Arts

1.VA:Cr1.2: Use observation and investigation in preparation for making a work of art. 1.VA:Cr2.1: Explore uses of materials and tools to create works of art or design. 1.VA:Cn11: Understand that people from different places and times have made art for a variety of reasons.

Next Generation Science Standards

LS1.A: Structure and Function. All organisms have external parts. Different animals use their body parts in different ways to see, hear, grasp objects, protect themselves, move from place to place, and seek, find, and take food, water, and air. Plants also have different parts (roots, stems, leaves, flowers, fruits) that help them survive and grow. (1-LS1-1)

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