ART ACTIVITY

Adventuring for Art and Science

Background

Maria Sibylla Merian was a scientist born in 1647 who traveled to the Americas to study insects. She intended her books to be used as educational tools from which scientists and scholars could learn and study, and therefore her published illustrations needed to be accurate, clear, and easy to read. Maria Sybilla used her artistic prowess to accomplish this, as is evident in Plate 11, *Metamorphosis insectorum surinamensium*.

The plant diagonally cuts across the page, framed by two moths on the top left and bottom right. The green leaves curve upward while the yellow flowers arc downward. This creates symmetrical balance and a unified composition that is pleasing to the viewer and highlights the final stage of metamorphosis and various parts of the plant. By placing the fully-grown caterpillar perpendicular to the branch in the center of the composition, Maria Sibylla has made the insect a key focal point—creating an "x" for the viewer to zero in on. The juvenile caterpillars are then strategically drawn adjacent to the adult to clearly show the physical differences between each stage.

Task

Maria Sibylla Merian's fascination with plants and animals found in her childhood backyard provided a foundation for her future scientific career. Students will embody the role of environmental scientist by finding, recording, and sketching flora and fauna in their own communities. Then, inspired by Maria Sybilla's artwork, students will create a well-composed watercolor illustration that showcases their discoveries.

Materials

- Drawing paper (9" x 12")
- Pencils
- Rulers
- Cameras (optional)
- Paint brushes (sable, camel, or synthetic)

- Watercolor paint
- Watercolor paper
- Containers for water
- Paper towels

Art Vocabulary

- **balance:** A principle of design concerned with the arrangement of one or more elements in a work of art to create a sense of stability; the three types of balance are symmetrical, asymmetrical, and radial.
- **unity:** A principle of design that refers to the sense of wholeness in a work of art, often created using repeating shapes, colors, or lines.

Steps

- Invite students to examine Plate 11 from *Metamorphosis insectorum surinamensium* by Maria Sibylla Merian and discuss the subject matter; placement of insects in relation to the plant and each other; artistic choices, including balance and unity; and why this is remarkable for a woman scientist and artist.
- As a class or individually as homework, invite students to embody the role of field scientist and explore the natural environment in their community. Using a field sketchbook made with four or five sheets of folded paper, students should create ten or more entries for plants, insects, animals, or other environmental features they discover. Entries should include:
    - Detailed drawings including patterns, shapes, and/or unique markings
    - Time and place of discovery
    - Measurements (real or approximated)
    - Observational notes
- *Note: Students can also record findings with a camera and add photographs to their Field Sketchbook. Students can also conduct additional field research using books or the internet.*
- After completing their Field Sketchbooks, students will select three or four entries to depict in a single watercolor illustration modeled after the work of Maria Sibylla. Students should look

for connections between their entries (i.e., a bumblebee and the plant it was harvesting pollen from) to strengthen their illustration.

- Provide each student with painting materials: watercolor paper, watercolor paint, brushes, water containers, paper towels. Students should draw their illustrations onto the watercolor paper before painting. Final illustrations should include:
    - Three or four examples of flora or fauna from their Field Sketchbook with connections to each other
    - Symmetry and unity through thoughtful placement of flora and fauna in relation to each other
- After watercolor paintings dry, invite students to add contextual information to their illustration, including a title and species notations.
- Conclude the project with a written reflection using the following prompts:
    - *How does creating artwork in the style of Maria Sibylla Merian better help you understand the importance of her story?*
    - *What is so remarkable about her artwork and scientific research? Why is it important to share her story?*

Watercolor Tips

Watercolor is a translucent or transparent water-based paint.

Application and Technique: Watercolor can be applied in thin translucent washes or thick solid color. The amount of water used with the paint determines the application technique. The more water used, the harder it will be to control the paint and the thinner and more translucent the color. The less water used, the easier it is to control the paint and the thicker and more opaque the color.

If students are new to this medium, allow them time to explore its properties before painting their final illustration.