EARTH OBSERVATION FROM THE ISS

OBJECTIVE

Students will create one of the following pieces of artwork from an astronaut photograph that explores how the view of Earth from the International Space Station (ISS) teaches us about our planet and its systems:

- 2D Drawing
- Scaled Drawing (for more advanced students)
- 3D Model

TEACHER PREP

Visit the Windows on Earth website, www.windowsonearth.org, and study the photographs taken by astronauts from the cupola on the ISS.

You will need:
Large chart paper and drawing materials for student brainstorming, computer with Internet connection, and a variety of art materials.

Students can utilize mobile devices to help with research and can work independently or in pairs to create their artwork.

EXTENSION ACTIVITY

Students can recreate printed images from the Windows on Earth website by using the grid method.

These lessons address NGSS standards: Engineering Design; Motion and Stability: Forces and Interactions; From Molecules to Organisms: Structures and Processes; Ecosystems: Interactions, Energy, and Dynamics; Biological Evolution: Unity and Diversity; Heredity: Inheritance and Variation of Traits; Earth’s Systems; and Matter and Energy in Organisms and Ecosystems.

YOUR MISSION

Scientists are always looking for new views of our planet to learn more about its climate, surface, cycles and how humans are impacting the planet. Imagine you are an astronaut capturing images of the Earth from the cupola of the ISS. What science do you view in your images, and how could you share your camera view of the planet through artwork?

Top: The frozen Great Lakes of the Midwest.

Middle: NASA Commander Barry (Butch) Wilmore shoots a scene with the IMAX® camera through the window of the International Space Station’s Cupola Observation Module.

Bottom: The entire North East of Canada, the United States and beyond.
YOUR TASK

PART 1: HOW DO WE VIEW THE EARTH FROM THE ISS?

What is the cupola? Begin by exploring the parts of the ISS on the CASIS Academy site. Start with the tour of the Space Station at www.spacestationexplorers.org/explore/earth/intro. Keep your eyes open for the cupola, which appears at 1:25 minutes.

PART 2: WHAT DO IMAGES FROM THE ISS LOOK LIKE? WHAT DO THESE VIEWS SHOW US?

Go to the Windows on Earth website (www.windowsonearth.org) and find a view of Earth that captures your attention. Do the astronaut photographs of Earth look how you thought they would from space?

PART 3: LET’S ZOOM IN ON AN IMAGE!

1 Select an image from the “Regions” section of the Windows on Earth website to explore in more depth. By beginning in a specific region, you can narrow down your focus. You may want to try comparing the astronaut image to a map view using Google Maps, an iPad map app, or a wall or book map.

2 Use the next page to sketch out your image and relative location of the area. Research the science and the location about the region or image content (types of clouds and weather, areas of the planet and landforms).

PART 4: CREATE AND SHARE!

1 Select art supplies from the materials your teacher provides. You can create a 2D drawing or a 3D model to represent your image.

2 Share your artwork and describe the science you have learned about from researching your image.
MY IMAGE, MY VIEW
Draw sketches of your selected image and its relative location.

MY IMAGE

LOCATION OF MY IMAGE

NOTES ABOUT MY IMAGE

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