

Forces in Motion and Wetlands

Design Intent: Forces in Motion

The dynamic forces of nature shape and inspire our imaginations. Rivers crawl along the surface, shifting boundaries and carving stone. Mountains are heaved high by enormous plates underground. Tornadoes weave along the landscape, powerful enough to move anything in their paths and while these influences may seem too grand to comprehend, the basic principles of Our World can be replicated on a much smaller scale. Put the powers of the planet in the hands of some pint-sized people, and watch them light up as they deepen their connection to the world around them.

Design Intent: Wetlands

The local waterways await, with a new adventure around every corner. Stop for a moment and listen... can you tell a green tree frog's call from an American Bullfrog? See those crushed grasses? The birds are rustling around, making their nests. Look at how the ecosystem works together, a living breathing thing as it supports countless forms of life. So go explore: climb a tree, have a picnic on the water's edge, set out with your fishing gear in the quiet hours before dawn. The *Wetlands* are nature's playground, ready to be enjoyed by animals and people alike!

Technology Components

- AR Sandbox - An AR (Augmented Reality) sandbox is an interactive tool that combines a physical sandbox with 3D visualization using a projector and depth-sensing camera. As users shape the sand, the projector displays real-time topographic maps, water simulations, and other features onto the surface. It is commonly used for teaching geography and earth science concepts in an immersive way. Refer to the classroom activity guide for recommended usage.
- Magic Window - Collection of video clips

Mural Features

- Great Egret - The great egret is a tall wading bird with all-white plumage, a long, slender neck, and a yellow bill. Commonly found in wetlands, marshes, and along shorelines, it hunts by standing still or slowly stalking prey like fish, frogs, and insects. During the breeding season, it grows long plumes on its back, which were once hunted. The great egret is smaller and thinner than a great blue heron.



Mural Features

- Great Blue Heron (flying) - The great blue heron is a large wading bird found near shores, marshes, rivers, and wetlands across North and Central America. This heron species stands around 4 feet tall, with a wingspan of up to 6.5 feet, making it the largest heron in North America. It is a solitary hunter, often standing still to spear fish, frogs, or insects with its bill. Great blue herons nest in colonies called rookeries, usually in tall trees.
- Red-winged Blackbird - The red-winged blackbird is a medium-sized bird, about 7 to 9 inches long, easily recognized by the male's glossy black feathers and bright red and yellow patches. They are commonly found in wetlands, marshes, and grassy fields across North America. Red-winged blackbirds build their nests low among cattails or shrubs near water. Their diet includes seeds, grains, and insects, which they often forage for on the ground or among plants.
- Monarch Butterfly - Monarch butterflies are well-known pollinators recognized for their long-distance migration, with some traveling up to 100 miles a day. Distinguished by its vibrant orange and black markings, it is one of the most recognizable butterfly species in North America. These bright colors serve as a warning to predators, signaling that monarchs are toxic if eaten, a defense they acquire by feeding on milkweed plans. Although originally native to North America, monarchs have since dispersed to other parts of the world, with non-migratory populations now found from islands in the Pacific Ocean to the western edge of Europe.
- Beaver - Beavers are the largest rodents in North America, weighing between 35 and 50 pounds as adults. They have stocky bodies covered in yellow-brown fur, broad flat tails, and strong front teeth. Beavers use their teeth to cut down trees and branches to build dams and lodges, which makes them highly impactful on their environment. They eat the bark, leaves, and twigs of trees such as aspen, willow, and birch, as well as aquatic plants.
- Duck - A duck is a water bird with a wide, flat bill, webbed feet, and waterproof feathers. Because of their webbed feet, ducks are excellent swimmers. They can fly short distances and are known for their distinctive quacking sounds. Most ducks eat a mix of plants, insects, and small aquatic creatures.
- Turtle - Turtles are classified as cold-blooded reptiles with bodies encased in a bony shell; this group also includes tortoises. There are approximately 360 species of turtles found across the globe, on every continent except Antarctica, inhabiting environments ranging from oceans and rivers to forests and deserts. All turtles must breathe air through lungs and cannot survive entirely underwater. They also lay their eggs on land, typically digging nests in sand or soil for incubation.
- Cattails - A cattail is a tall, reed-like wetland plant with long, slender leaves and a distinctive brown, sausage-shaped flower spike. Found near ponds, marshes, and lakes, it provides habitat for wildlife and helps filter water. In late summer, the flower head releases fluffy seeds that disperse in the wind.
- Inspirational Science Environments - Science can happen anywhere – at school, at home, or in a science lab. Visuals like these spark curiosity and discussion when introducing early science inquiry in the classroom. Comparing different visuals helps build observation skills and connect real-world science to classroom experiences. Encourage students to think and share by asking questions such as:
- "What do you see?"
- "What do you think happens in this room?"
- "What tools do you think scientists use?"

Themes to Explore: Forces in Motion

- Electricity
- Careers
- Weather
- Erosion
- Climate Change
- Conservation
- Forces
- Earth
- Sink or Float
- Rainbows
- Safety

Themes to Explore: Wetlands

- Habitats
- Animal Identification and Behavior
- Plants
- Water and Land
- Conservation
- Water and Soil Exploration
- Sink or Float

To Find Out More: Forces in Motion

- Museum Links: Smithsonian Learning Lab, Exploratorium: Tools for Teaching and Learning
- PBS Learning Media: Science

To Find Out More: Wetlands

- Ohio Department of Natural Resources (ODNR)
- U.S. Fish and Wildlife Service