

BACKPACK THE PARKS

Expeditions in Education



Backpack the Parks!



At Expeditions in Education, we believe that learning extends far beyond the classroom walls. That's why we're thrilled to introduce our "Backpack the Parks" initiative, designed to ignite students' curiosity and love for the great outdoors while fostering a deeper understanding of our national parks.

With "Backpack the Parks," educators have the unique opportunity to curate and pack 8 engaging activities into backpacks, making it easier than ever for students to check out and explore the wonders of our national parks. From hands-on science experiments to wildlife scavenger hunts, each activity is carefully crafted to immerse students in the beauty, history, and natural wonders of these treasured landscapes.

Join us in empowering the next generation of park enthusiasts and conservationists as they embark on unforgettable learning adventures in our nation's most cherished natural spaces. With "Backpack the Parks," the journey to discovery begins with the turn of a backpack strap, and the possibilities for educational exploration are endless.

Backpack the Parks!



Instruction

Step 1: Ask for Donations of Backpacks and Clean Them Up

- Reach out to parents, local businesses, or the school community to request donations of gently used backpacks.
- Inspect the donated backpacks for any damage or excessive wear.

Step 2: Print the Activity Cards and Laminate

- Prepare activity cards that detail each of the educational activities you plan to include in the backpacks.
- Print these activity cards on durable cardstock paper.
- Laminate the activity cards to protect them from wear and tear during use.

Step 3: Put Cards on Rings

- Hole punch each laminated activity card.
- Use rings or zip ties to secure the cards together, creating a set of instructions for each activity.

Step 4: Purchase or Collect the Materials Needed for the Activities

- Create a list of materials required for each activity, as outlined in your activity plan.
- Gather all the necessary materials for each activity. This may include items such as magnifying glasses, sketchbooks, rocks, clay, flashlights, and more.

Step 5: Put Materials in Ziplock Bags

- Organize the materials for each activity into separate ziplock bags.
- Ensure that each bag contains all the necessary materials, making it easy for students to access and use them.

Step 6: Attach the National Park Tag to the Outside of the Bag

- Create or print a National Park-themed tag that identifies the backpack as part of the Backpack the Park program.
- Attach this tag securely to the outside of the ziplock bag or backpack.

Activity 1: Create a Barrier Island Model

- **Materials:**

- Cardboard
- Sand
- Paints and brushes
- Small toy animals (horses, birds, etc.)

- **Instructions:**

- a. Build a miniature barrier island on a piece of cardboard.
- b. Use sand to create beaches and dunes.
- c. Paint the ocean, sky, and marsh areas.
- d. Add toy animals to represent the island's wildlife.
- e. Label and present your model to the class, explaining the ecosystem.

Activity 2: Tidal Wave Experiment

- **Materials:**

- Plastic container
- Water
- Ruler
- Toy boat

- **Instructions:**

- a. Fill the container with water.
- b. Place a toy boat in the container.
- c. Use the ruler to create gentle waves by moving it back and forth.
- d. Observe how the boat reacts to the waves and discuss tidal influences.

Activity 3: Wildlife Spotting Bingo

- **Materials:**

- Wildlife Bingo cards (created by the teacher)
- Markers or stickers

- **Instructions:**

- a. Use Bingo cards with pictures of Assateague's wildlife.
- b. As you learn about each animal, mark the corresponding spot when you spot them in class or during a virtual presentation.

Activity 4: Marsh Diorama

- **Materials:**

- Shoebox
- Construction paper
- Model animals (birds, fish)
- Glue, scissors

- **Instructions:**

- a. Line the inside of the shoebox with blue construction paper for the sky and water.
- b. Create a marsh scene with green paper and add model animals.
- c. Present your marsh diorama to the class, explaining the ecosystem.

ASSATEAGUE ISLAND



ASSATEAGUE ISLAND

Activity 5: Wild Horse Art

- **Materials:**
 - Paper
 - Pencils, crayons, or watercolors
- **Instructions:**
 - a. Sketch or paint wild horses inspired by Assateague's famous inhabitants.
 - b. Pay attention to their unique features and surroundings.
 - c. Share your artwork and discuss the wild horses' significance.

Activity 6: Bird Beak Adaptations

- **Materials:**
 - Various utensils (spoon, chopsticks, clothespin)
 - Seeds or food items
- **Instructions:**
 - a. Use different utensils to simulate bird beaks.
 - b. Try picking up seeds or food items with each "beak" to understand how adaptations affect diet.
 - c. Discuss how real bird beaks are adapted for specific foods.

Activity 7: Shoreline Erosion Experiment

- **Materials:**
 - Sand
 - Plastic containers
 - Water
 - Small plastic figures (people, animals)
- **Instructions:**
 - a. Create a shoreline using sand in a plastic container.
 - b. Pour water near the "shore" to simulate erosion.
 - c. Observe how the shoreline changes and discuss the impact of erosion on barrier islands.

Activity 8: Marsh Plant Identification

- **Materials:**
 - Pictures of marsh plants
 - Index cards
 - Markers
- **Instructions:**
 - a. Study pictures of marsh plants from Assateague.
 - b. Create flashcards with the plant names and drawings.
 - c. Quiz each other on plant identification.

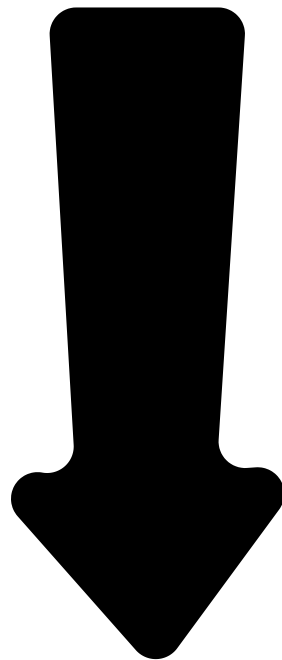
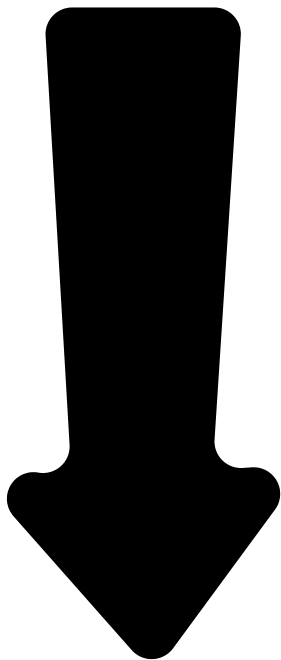


Activity Cards

Print on cardstock

Laminate

Put on rings



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BAG TAG BELOW!



**Assateague Island
National Seashore**

Backpack the Parks!

#ExploreTheParksWithUs

**"Pack Your Curiosity,
Explore Nature's Beauty!"**

www.expeditionsineducation.org

Formation of Assateague Island

Assateague Island, located off the coast of Maryland and Virginia, is a captivating barrier island with a rich natural history. Its formation is a testament to the dynamic forces of nature that shape our world. Let's explore how Assateague Island came into existence.

Ancient Origins: Assateague Island's story begins millions of years ago during the Cenozoic Era. At that time, sea levels were much lower, and the Eastern Shore of Maryland and Virginia was part of the mainland. Ancient rivers flowed through the region, carrying sediments and sands from the interior.

The Role of Glaciers: Around 18,000 years ago, during the Last Glacial Maximum, massive glaciers covered much of North America. As these glaciers advanced and retreated, they reshaped landscapes. The melting glaciers caused sea levels to rise, flooding low-lying areas and creating shallow bays along the coast.

Barrier Island Formation: Assateague Island's formation was driven by the interplay of geological forces. As sea levels continued to rise, sandy sediments transported by rivers were deposited along the coastline. Over time, these sediments accumulated, forming a long, narrow barrier island separated from the mainland by the shallow Chincoteague Bay.

Dynamic Evolution: Barrier islands are dynamic, constantly changing landforms. Assateague Island is no exception. It is shaped by ocean currents, storms, and the movement of sand. Powerful waves and currents move sand along the coast, eroding it from some areas and depositing it in others, causing the island to migrate and evolve.

Assateague's Unique Features: One of Assateague Island's most iconic features is its salt marshes, which form in the sheltered waters behind the island. These marshes are vital for wildlife and provide essential habitat for various species.

The Legend of the Wild Horses: Assateague is also known for its population of wild horses, which adds to the island's mystique. According to legend, these horses swam ashore from a Spanish shipwreck centuries ago, adapting to the island's unique environment.

Understanding Tides at Assateague Island

Tides are a mesmerizing natural phenomenon that greatly influence the coastal environment of Assateague Island National Seashore. The rise and fall of the ocean's waters create a dynamic and ever-changing landscape along its shores. Here, we delve into the mechanics of tides at Assateague Island and how they impact this unique coastal ecosystem.

Gravitational Dance of the Moon and Sun: Tides are primarily driven by the gravitational forces of the moon and the sun. As the moon orbits Earth, its gravitational pull creates a bulge of water, resulting in a high tide. Conversely, areas away from this bulge experience low tide. The sun's gravity also plays a role, although to a lesser extent.

Semi-Diurnal Tide Pattern: Assateague Island experiences a semi-diurnal tide pattern, which means it typically sees two high tides and two low tides in a 24-hour period. The timing and height of these tides vary daily due to the moon's position in relation to Earth.

Spring and Neap Tides: Twice a month, during the full moon and new moon phases, the sun and moon align, leading to spring tides. These result in higher high tides and lower low tides, known as "springing" tides. Conversely, during the first and third quarter moon phases, when the sun and moon are at right angles to each other, neap tides occur. Neap tides have less extreme tidal ranges.

Impact on Assateague Island: The tidal cycle exerts a profound influence on Assateague Island's ecosystem. It shapes the island's shoreline, creates habitat for various marine species, and influences the behavior of its famous wild horses. The salt marshes behind the island play a crucial role in absorbing tidal energy and preventing erosion.

Tidal Flooding and Marsh Health: Assateague's salt marshes are subject to tidal flooding during high tides. This natural process helps flush out sediments and nutrients, maintaining the health of the marsh ecosystem. The marshes act as a buffer, absorbing wave energy and protecting the island's interior.

Beachcombing Opportunities: The shifting tides bring treasures to Assateague's sandy shores, making beachcombing a popular activity. Visitors can discover seashells, driftwood, and other oceanic artifacts left behind by the receding tides.

Exploring the Marshes of Assateague Island

Salt Marsh Basics: Salt marshes are coastal ecosystems located between the land and open waters, where saltwater and freshwater mix. They are characterized by tall grasses, sedges, and other salt-tolerant vegetation that thrive in the brackish waters.

Unique Features:

- 1. Spartina Grass:** One of the dominant plants in the marshes, *Spartina alterniflora*, or smooth cordgrass, forms dense stands that stabilize the marsh soil and provide habitat for various species.
- 2. Tidal Influence:** Marshes experience daily tidal fluctuations, with rising and falling waters. This constant ebb and flow bring nutrients and oxygen to the plants and animals that inhabit the marsh.

Biodiversity Abounds: The marshes of Assateague Island are biodiversity hotspots, supporting a wide range of flora and fauna:

- 1. Avian Haven:** Marshes serve as essential nesting and foraging areas for numerous bird species, including herons, egrets, rails, and waterfowl.
- 2. Nursery for Fish:** The brackish waters provide a safe haven for juvenile fish, such as flounder and bluefish, as well as crabs and shrimp.
- 3. Rich Invertebrate Life:** The marshes are home to countless invertebrates like fiddler crabs, snails, and marsh periwinkles.
- 4. Abundant Plant Life:** Aside from *Spartina* grass, marshes host a variety of plant species, including sea lavender, salt meadow hay, and glasswort.

Ecosystem Services: The marshes of Assateague Island provide invaluable ecosystem services:

- 1. Flood Mitigation:** Marshes act as natural buffers, absorbing excess water during storms and reducing the risk of flooding.
- 2. Water Filtration:** They filter pollutants from water, improving water quality in adjacent bays and estuaries.
- 3. Carbon Storage:** Marsh vegetation captures and stores carbon, helping mitigate climate change.

Exploration and Education: Visitors to Assateague Island National Seashore can explore the marshes through guided walks and educational programs. These experiences offer a chance to witness the incredible diversity of life that thrives in these brackish waters.

Animals of Assateague

1. Wild Horses:

- The most iconic residents of Assateague Island are its wild horses, known as Chincoteague ponies on the Virginia side. These hardy and resilient animals have adapted to the island's dynamic environment and are a symbol of the island's untamed beauty.

2. Birdwatcher's Paradise:

- Assateague Island is a birdwatcher's paradise, with over 320 bird species documented. Visitors can spot majestic bald eagles, graceful herons, colorful warblers, and countless shorebirds. The island is a crucial stopover point for migratory birds along the Atlantic Flyway.

3. Marine Life:

- The waters surrounding Assateague Island teem with marine life. Dolphins play in the surf, while sea turtles, including loggerheads and green sea turtles, nest along the shores. The offshore waters are home to a variety of fish, including flounder, striped bass, and bluefish.

4. Inhabitants of the Marshes:

- The island's salt marshes provide habitat for a rich diversity of life. Fiddler crabs scuttle along the mudflats, while hermit crabs seek out shells along the beach. Saltmarsh sparrows and clapper rails can be spotted amid the tall grasses.

5. White-tailed Deer:

- White-tailed deer are a common sight on Assateague Island. These graceful creatures can often be found grazing in the forested areas and grassy fields.

6. Delmarva Fox Squirrel:

- Assateague Island is home to the Delmarva fox squirrel, a subspecies that was once listed as endangered. Conservation efforts have helped protect this charismatic squirrel, and sightings are increasingly common.

7. Terrapins and Turtles:

- Diamondback terrapins, box turtles, and Eastern painted turtles are some of the island's reptilian inhabitants. They can be found sunning themselves along the shores and marshes.

8. Small Mammals:

- Smaller mammals such as raccoons, opossums, and muskrats are prevalent on the island. These nocturnal creatures play vital roles in the island's ecosystem.

9. Insect Life:

- Assateague Island hosts a variety of insect species, including butterflies, dragonflies, and the colorful monarch butterflies during their annual migration.

10. Ghost Crabs:

- These small, sand-colored crabs are known for their burrowing habits and quick scuttling movements along the beaches.