VIRGINIA AQUARIUM
FIELD TRIP GUIDE
CHECKLISTS & SELF-GUIDED ACTIVITIES
WHAT’S INSIDE

- Teacher Guidelines & Checklist
- Chaperone Checklist
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- Classroom Activities

Questions? Call us at 757-385-FISH
Dear Teacher,

We are looking forward to your visit to the Virginia Aquarium & Marine Science Center. Please help us by completing this short checklist.

**Before Your Visit**

- Complete pre-trip classroom activities
- Review behavior expectations with students
  - Read the student rules listed on the Chaperone Checklist
- Give each chaperone a copy of the checklist and activity guide
- Review trip itinerary for important times and locations
  - Take note of scheduled programs, films, boat trips, lunch, etc.

**When You Arrive**

- Check-in at the Bay & Ocean Pavilion *unless*
  - Scheduled for a program upon arrival in the Marsh Pavilion
- Lead teacher checks in at Admissions
  - Have final head count and payment ready
  - Remaining adults and students line up under awning
- Bus parking is located across the street from the Bay & Ocean Pavilion
  - Lunches should remain on the bus until lunch time
  - Bus loops are located at both buildings for drop-off and pick-up
Dear Chaperone,

Thank you for supervising students on a field trip to the Virginia Aquarium. Your role is very important to ensure a fun and safe visit. Please use these helpful directions on your visit.

Your most important duty is to keep your students with you at all times.

☐ Arrive on time
  • Know where to meet your group if driving separately
  • Be prepared to pay full price admission if you’re not here to check in with group

☐ Know which students are in your group
  • Know their names and a description of what they’re wearing
  • Make sure they know your name

☐ Use the Field Trip Activities to keep students engaged
  • Review activities prior to field trip
  • Lead the activities while you guide students through the Aquarium
  • Encourage students to ask questions, make observations, and express opinions

☐ Review the following rules with your students
  • Stay with your chaperone
  • Be courteous and respectful of other visitors
  • Please walk through the Aquarium
  • Pick up your trash
  • Respect the exhibits and animals. Do not climb on, reach into, or tap on the exhibits.
Dear Chaperone,

Use these activities to add fun and focus as you guide your student group through the Aquarium.

Theme
Observing Patterns & Characteristics of Life

Find & Explore

**Find an animal you can touch**
- How does it feel? Is it smooth or rough? Hard or soft?
- What color is the animal?
- Is it bigger or smaller than you?
- Is the animal moving? What helps it to move?
- What's the name of this animal?

**Find an “exhibit” outside (Hint: Marsh Loop)**
- Use your senses to explore.
- What living things do you see? How do you know they are living?
- What things do you see or hear that are not alive?
- What do you smell?

**Find an animal that has a shell**
- What color is the shell?
- Does it have shapes on its shell? How many?
- How does it use its shell?

**Find your favorite animal**
- What does it look like? What color is it? How would you describe its shape?
- Do you see more than one of them? What are they doing?
- Do you see food, water, and shelter for the animal?

**Find an exhibit with living plants**
- Does the plant have leaves? What color are the leaves?
- Does the plant have everything it needs to grow?
- Find a plant taller than you and one shorter than you.

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- Ask questions to keep students engaged.
- Respond positively to students’ answers and ideas.
- Encourage students to learn by observing.
Teacher Resources

Pre-Trip Activities

- Using objects found in the classroom, have students use their senses to explore each item. What does it feel like? Does it have a smell? Does it have a shape? Does it make a sound? Review vocabulary to help describe each object such as smooth versus rough, hard versus soft, and cold versus hot. Sort items into like categories based on their characteristics.

Post-Trip Activities

- Have students draw a picture of their favorite animal at the Aquarium and include living and nonliving objects the animal needs to survive. What type of food does it eat? Does it live on land or in the water? What living and nonliving things are in its habitat?

SOL Objectives

- **Science K.2**: The student will investigate and understand that humans have senses that allow them to seek, find, take in, and react to information in order to learn about their surroundings.

- **Science K.4**: The student will investigate and understand that the position, motion, and physical properties of an object can be described.

- **Science K.6**: The student will investigate and understand the differences between living organisms and nonliving objects.

- **Science K.7**: The student will investigate and understand basic needs and life processes of plants and animals.

- **Science K.9**: The student will investigate and understand that there are simple repeating patterns in his/her daily life.
Dear Chaperone,

Use these activities to add fun and focus as you guide your student group through the Aquarium.

Theme
Understanding and Classifying Life

Find & Explore

-desk Find an animal that is not moving
  - What’s the name of the animal? What does it look like?
  - What is the animal doing?
  - Is this an animal that can move (mobile) or can’t move (sessile)?

-desk Find an exhibit with plants
  - Select one plant and draw a picture of it.
  - Identify the different parts of the plant in your picture (roots, stem, leaves, flower).
  - Does the plant have everything it needs to grow? Where did you find those in the habitat?
  - Find a plant taller than you and one shorter than you. Estimate their heights.

-desk Find a place in the Aquarium you can recycle
  - What items can you recycle?
  - Do you recycle these items at school or home?
  - Name something you can reuse to help conserve resources.

-desk Find two animals that look alike
  - What animals did you find?
  - Describe what they look like. Why do they look alike?
  - Do they live in the same place? Do they need the same things to survive?

-desk Find an exhibit you can walk through
  - Where are the animals in the exhibit?
  - How are they moving?
  - What on their body helps them move?

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Teacher Resources

Pre-Trip Activities

- Take a nature walk outside your school or at a nearby park. Search for plants and animals to learn what’s in your neighborhood. Pick one plant and animal to learn more about. Take a picture of it or write down what it looks like so you can research it when you return to school. Students can draw a picture and include what the plant or animal needs to survive.

- Review the terms reduce, reuse, and recycle with students. Brainstorm different ways students can help with the three R’s at home and school.
  
  - Select items that are trash, recyclable, reusable, and compostable. Have students practice sorting those items into the right category.
  
  - Have students create art by using materials that may get thrown out at home or school.

Post-Trip Activities

- As a class, write down the students’ favorite animals they saw during the field trip. Group the animals together based on their different physical characteristics. Which animals swim? Which animals crawled or walked? Which animals had scales? Which had feathers or fur?

- Go the Conservation section of our website and click on “Sustainable Practices”. Learn how the Virginia Aquarium is being green and find out ways you can help conserve our natural resources in the “Your Green Guide”. [www.VirginiaAquarium.com/conserve](http://www.VirginiaAquarium.com/conserve)

SOL Objectives

- **Science 1.4**: The student will investigate and understand that plants have basic life needs and functional parts and can be classified according to certain characteristics.

- **Science 1.5**: The student will investigate and understand that animals, including humans, have basic needs and certain distinguishing characteristics.

- **Science 1.8**: The student will investigate and understand that natural resources are limited.
Dear Chaperone,

Use these activities to add fun and focus as you guide your student group through the Aquarium.

**Theme**
Understanding Animals and their Habitats

**Find & Explore**

- **Find an animal living in a desert habitat**
  - Describe what’s in its habitat.
  - What’s in their habitat that helps them to survive a desert?
  - How does it protect themselves from the sun?

- **Find a baby or juvenile animal**
  - What animal did you find? Describe what it looks like.
  - Does the animal have parents that take care of it?
  - How will it change as it grows?
  - Will it need the same things as an adult?

- **Find an exhibit with fossils**
  - Are the fossils showing plants or animals?
  - How old are the fossils?
  - How are they different from plants or animals today?

- **Find an exhibit outside (Hint: Marsh Loop)**
  - Do you see any plants? What kinds?
  - How do they help the animals in the water?
  - How do they help the animals on land?

- **Find an exhibit with egg cases (Hint: By the shark exhibits)**
  - What animal do you think it comes from?
  - Where does the animal lay its eggs?
  - How does it keep the eggs safe?
  - What shape is the egg?
  - Measure the length of the egg.

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Teacher Resources

Pre-Trip Activities

Select a story about an animal’s life cycle such as *The Very Hungry Caterpillar* by Eric Carle and discuss each stage of the animal’s life. What does the animal look like in each stage? How does it get its basic needs? How does it protect itself?

Post-Trip Activities

Have students select one of their favorite animals during their visit to the Virginia Aquarium. Ask them to write a letter to a friend or family member describing their animal, some interesting characteristics it has, and their experience on the field trip.

Your students have discovered a new animal species! Have students design a fact sheet highlighting their new animal discovery and include the following information:

- animal’s name
- animal’s basic needs
- how the animal’s needs are met
- where the animal lives
- a colored illustration of the animal in its natural habitat

SOL Objectives

Science 2.4: The student will investigate and understand that plants and animals undergo a series of orderly changes as they mature and grow.

Science 2.5: The student will investigate and understand that living things are part of a system.

Science 2.8: The student will investigate and understand that plants produce oxygen and food, are a source of useful products, and provide benefits in nature.
Dear Chaperone,

Use these activities to add fun and focus as you guide your student group through the Aquarium.

Theme
Understanding Ecosystems and Adaptations

Find & Explore

*) Find an animal with lots of teeth
  - Describe the teeth. What do they look like?
  - Based on the teeth, do you think it’s a carnivore, herbivore, or omnivore?
  - Is the animal moving?
  - Do you think it’s easy for it to sneak up on its food?
  - How does its movement or lack of movement help it sneak up on its food?
  - Estimate the length of the animal.
  - Estimate the weight of the animal.

*) Find an animal that can hold its breath under water
  - How long did it stay down while you watched?
  - What adaptations does it have for living in the water?

*) Find an exhibit with both a terrestrial (land) and aquatic (water) habitat
  - How are they connected? Do the habitats come together?
  - What are the similarities and differences between them?
  - What animals do you see?
  - Do the animals use both habitats?

*) Find an animal that is camouflaged
  - How does it blend into its environment?
  - Describe any markings or special coloring it has to help it blend in.
  - Where might it hide in its habitat?

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Teacher Resources

Pre-Trip Activities

Select and research an aquatic or terrestrial habitat. Describe the ecosystem to include what it looks like, what plants and animals can be found there, and how they interact with their habitat. Do the plants and animals have special adaptations to survive there?

Post-Trip Activities

Draw a picture of one of the animals you saw at the Virginia Aquarium. Label the physical adaptations the animal has to survive in its habitat. Describe the behavioral adaptations it uses to survive.

Pick one of the habitats you saw at the Virginia Aquarium and write down all the plants and animals in that habitat. Create a food chain and draw a line from the predator to prey indicating who eats whom.

Use the animal weight you estimated during your tour and determine how much food it needs if it requires 10% of its body weight per day to survive. Research what types of foods the animal typically eats.

SOL Objectives

Science 3.4: The student will investigate and understand that adaptations allow animals to satisfy life needs and respond to the environment.

Science 3.5: The student will investigate and understand relationships among organisms in aquatic and terrestrial food chains.

Science 3.6: The student will investigate and understand that ecosystems support a diversity of plants and animals that share limited resources.
Dear Chaperone,

Use these activities to add fun and focus as you guide your student group through the Aquarium.

**Theme**
Understanding niches. Identify how animals interact with the living and non-living components.

**Find & Explore**

- **An exhibit with live trees**
  - What animals do you see in the trees?
  - What energy source do the trees need to grow?
  - What other non-living things do the trees need to be healthy?

- **An exhibit with turtles**
  - What are the turtles doing?
  - Is the turtle on land or water?
  - What adaptations does the turtle have for its environment?
  - Do you think it is always on land or water? Why?

- **An exhibit with a venomous reptile**
  - What other animals do you see in the exhibit?
  - What non-living resources do you see in the exhibit?
  - Estimate the length of the reptile.

- **An exhibit you can walk through**
  - What do you see when you look up?
  - What large animals do you see?
  - Are they moving? How are they moving?
  - Are they staying in one spot?
  - Are they the same color all over?

- **Find an “exhibit” outside (Hint: Marsh Loop)**
  - What living and nonliving things do you see?
  - Find an animal that can move.
  - Find an animal that can’t move.
  - If you can’t move, what challenges might you face?
  - What challenges are human caused?
  - What evidence of people do you see? How do you think it impacts the non-living things and the living things you see?

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Teacher Resources

Pre-Trip Activities

- List the major habitats found on earth. Identify the living and non-living components. Describe how a living thing is dependent on another living thing. Describe how a living thing is dependent on a non-living thing.

- Read the story *Dancing on the Sound* by Kathleen M. Hollenbeck.

Post-Trip Activities

- Convert the length and weight estimates you made during the trip from mm to cm to m.

- Pick one of the animals you saw and describe its adaptations. If its habitat changed, what new adaptations might it need?

- Build or draw one of the habitats you saw during the field trip OR make up your own habitat. Identify all of the living and non-living components in the habitat. On the back side of your drawing or on a separate sheet of paper create a food web of the living components you included in your habitat.

SOL Objectives

- **Science 4.5**: The student will investigate and understand how plants and animals, including humans, in an ecosystem interact with one another and with the nonliving components in the ecosystem.

- **Math 4.7**
Dear Chaperone,

Use these activities to add fun and focus as you guide your student group through the Aquarium.

Theme
Understanding Ocean Environments

Find & Explore

 CGFloat Find an animal with a light colored belly
  How does this help the animal camouflage?
  Is there a lot of light in the exhibit?
  Are there different amounts of light in the exhibit?
  Does the light look like its moving? Why?

CGFloat Find an exhibit with sound
  What do the sounds represent? Something living or nonliving?
  Can you make a similar sound?
  How do animals use sound in their habitat?

CGFloat Find an exhibit that makes waves
  What creates waves?
  How many waves pass in 10 seconds?

CGFloat Find a window overlooking the creek
  Is the water moving?
  What animals do you see? Are they moving?
  What can you see on the shoreline?
  Do you see any signs of high tide or low tide? What are they?
  Do you see people interacting with the habitat? How?

CGFloat Find an exhibit with rocks
  What types of rocks do you see? How do you know?
  Describe the rock’s shape, color and texture.
  Where was this rock formed? What does this tell you about the Earth?
  Is there any evidence of erosion or weathering? What would cause it?

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Teacher Resources

Pre-Trip Activities

- Draw a picture of the ocean to show the surface and bottom. Label the three zones – sunlit (photic), twilight, and midnight. Describe what it’s like to live in each zone focusing on light, temperature and pressure.

- Assign students a different zone and have them research one animal that would live there. Have them present their animal with a picture, description, and what adaptations help the animal to survive in that zone.

Post-Trip Activities

- Watch the short film to see scientists exploring a deep water area right off our coast – Norfolk Canyon. Discuss the similarities and differences in the real habitat compared to our Norfolk Canyon exhibit at the Virginia Aquarium.

  [Website Link]

SOL Objectives

- **Science 5.2:** The student will investigate and understand how sound is created and transmitted, and how it is used.

- **Science 5.3:** The student will investigate and understand the basic characteristics of visible light and how it behaves.

- **Science 5.6:** The student will investigate and understand characteristics of the ocean environment including geological, physical, and ecological.

- **Science 5.7:** The student will investigate and understand how Earth's surface is constantly changing.
Dear Chaperone,

Use these activities to add fun and focus as you guide your student group through the Aquarium.

Theme
Understanding Energy

Find & Explore

Find an exhibit with flowing water
- What type of energy is the moving water? Kinetic or potential energy?
- Where in the exhibit do you see potential energy?
- What living (biotic) and non-living (abiotic) things do you see in the water?
- How do you think the energy of the moving water might affect the biotic and abiotic things in the water?

Find a natural exhibit with water (hint: the Marsh Loop)
- What signs of erosion do you see?
- What caused the erosion? Was it a chemical or physical process?
- What living things do you see?
- How do you think the energy of the moving water might affect the living things along the shoreline?
- What protections do the living things need to survive the energy of the moving water/erosion?

Find an exhibit with jellyfish
- What shape is the exhibit? Why?
- Where in the exhibit are the jellies moving the fastest? Moving the slowest? Why?
- Which area of the exhibit has the greatest kinetic energy?

Find an exhibit with trees or plants
- What would happen if the vegetation all disappeared?
- What animals would be affected?
- How would those animals be affected?

Find a window overlooking the creek
- Is the water moving?
- What can you see on the shoreline?
- What man-made things do you see on the shore?
- What natural things do you see on the shore?
- Do you see people interacting with the habitat? How?

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Teacher Resources

Pre-Trip Activities
- Identify/review potential versus kinetic energy.
- Identify/review gravitational energy, elastic energy, and chemical energy.
- Watch the video Youtu.be/vl4g7T5gw1M
- After watching the video, identify three examples of gravitational, elastic, and chemical energy (other than those shown in the video).

Post-Trip Activities
- View a map of Virginia which shows elevation and rivers, such as this one: Geology.com/topographic-physical-map/virginia.shtml
- Have students pick one river on the map that extends from the mountains to the Chesapeake Bay. Students should use a highlighter to mark the length of the river system across the states.
- Identify the changes in potential energy and kinetic energy over the course of the river system to demonstrate the energy transformation of rivers as they travel from the mountains to the Chesapeake Bay.
- For additional teacher background information, check out TheBritishGeographer.weebly.com/river-processes.html

SOL Objectives
- **Science 6.2**: The student will investigate and understand basic sources of energy, their origins, transformations, and uses.
- **Science 6.5**: The student will investigate and understand the unique properties and characteristics of water and its roles in the natural and human-made environment.
- **Science 6.7**: The student will investigate and understand the natural processes and human interactions that affect watershed systems.
Dear Chaperone,

Use these activities to add fun and focus as you guide your student group through the Aquarium.

**Theme**
Classifying Life

**Find & Explore**

- **Find an exhibit with a variety of organisms**
  - What classification kingdoms are in the exhibit?
  - What phyla do you see in the exhibit?
  - What non-living things do you see in the water?
  - What living things do you see in the water?
  - How do you think the energy of the moving water might affect the living and non-living things in the water?

- **Find an exhibit with territorial fish**
  - How many fish do you see claiming territory?
  - How many different species of fish are exhibiting this behavior?
  - What is the fish doing that makes it look like it guarding its territory?

- **Find an exhibit with an animal that might live on land, freshwater, or salt water**
  - What type of animal did you find?
  - What characteristics does the animal have that helps it live in that environment?
  - What different characteristics does this type of animal have if it’s living in a different environment?

- **Find an exhibit with jellyfish**
  - What shape is the exhibit? Why?
  - Where in the exhibit are the jellies moving the fastest?
  - Where in the exhibit are the jellies moving the slowest?
  - Which area of the exhibit has the greatest kinetic energy?

- **Find an exhibit with oysters**
  - How does moving water affect the oysters? Why is it important to them?
  - How do oysters eat?
  - What biotic factors might influence oyster health?
  - What abiotic factors might influence oyster health?
  - How would a decrease in pH affect oyster health?

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Teacher Resources

Pre-Trip Activities

- The Virginia Aquarium is an accredited member of the Association of Zoos and Aquariums (AZA). To begin this activity, either share with students or have students look up AZA Vision and Mission Statements: www.aza.org/strategic-plan

- Group students into “committees” and provide them the link to the AZA Scientific Advisory Groups. Assign students a committee role to research and then share out with the group. Suggested roles are below:
  - Ambassador Animal Scientific Advisory Group
  - Behavior Scientific Advisory Group
  - Nutrition Scientific Advisory Group
  - Reproduction and Endocrinology Scientific Advisory Group
  - Veterinary Scientific Advisory Group

Post-Trip Activities

- Return students back to their original committee groups.

- Have students choose an animal from the animal care manuals found here: www.aza.org/animal-care-manuals
  - Alternatively students can choose a different animal of their choice and research their Scientific Advisory Group topics.

- Students should share with the committee a summary of their portion of the animal care manual. For instance, the student who played the role of the Veterinary Scientific Advisory Group should read and summarize the Veterinary Care portion of the Animal Care Manual.

- Based on the recommendations of the Scientific Advisory Groups, students should create a product with their knowledge. Suggested ideas include:
  - A skit depicting the arrival, set-up, feeding, training, etc. of an animal,
  - Create an exhibit habitat for that animal to include the biotic and abiotic features,
  - An animal care log to include feeding information, veterinary care, exhibit tank cleaning information, animal program use, etc.

SOL Objectives

- LS.1, LS.4, LS.7, LS.8, LS.9, LS.10, LS.11
- BIO.2, BIO.4, BIO.6, BIO.8
- PS.1, PS.2, PS.6
- CH.4, CH.5, CH.6
- ES.2, ES.10
- PH.3, PH.4, PH.5, PH.6