MAP OF MOBILE BAY
To be completed BEFORE your visit.

Using the map of Mobile Bay above, label the following areas around Mobile Bay:

- Dauphin Island
- South
- Gulf of Mexico
- Bon Secour Bay
- Mobile Bay
- East
- Dog River
- Fowl River
- Ship Channel
- West
- Mobile
- Mississippi Sound
- Middle Bay Light
- North
- Fort Morgan Peninsula

Draw a circle around the Mobile Delta area.
A watershed is an area of land that drains to a particular body of water. Watersheds are complex systems of rivers, lakes, streams, groundwater, and wetlands that eventually drain into the same body of water.

Using the map provided (www.nationalatlas.gov), begin at Mobile Bay, and trace the rivers and streams that are connected to the bay. Draw a line to encompass these rivers and streams, being careful not to cross rivers that don’t connect to the bay. This will outline the watershed of Mobile Bay. Shade the area.

Do you live in the Mobile Bay watershed? ______________________

Water from more than two-thirds of the state of Alabama, and parts of Mississippi, Tennessee, and Georgia eventually flows into Mobile Bay, which drains into the Gulf of Mexico. Upstream activities in a watershed can impact the quality of waters downstream.

If your town is within the large Mobile Bay watershed, your activities that affect a creek in your backyard or a river in your town can directly affect the Mobile Bay estuary and the Gulf of Mexico many miles away.
At the Estuarium

What is the Estuarium?
The Estuarium is an aquarium exhibiting plants, animals, and habitats of coastal Alabama. An estuary is a place where fresh water from land mixes with salt water from an ocean. Your visit through the facility will take you from the fresh water delta to the salty Gulf waters.

This worksheet is divided into the galleries that you will find as you tour the Estuarium. Read the panels, observe the tanks, and ask docents and staff to help you find the answers.

Mobile Delta Gallery

1. **Before the Delta:** Describe how our continent looked different 75 million years ago, during the late Cretaceous Period, when mosasaurs lived on earth. 

2. How big is the Mobile-Tensaw Delta (measured in acres)? 

3. What is Alabama’s state reptile? What specific range in Alabama does it occupy? 

4. What are Streamside Management Zones (SMZs)? 

5. Name two photosynthetic, carnivorous organisms in this gallery. They can be found in what ecosystem? 

6. What are invasive species?
Mobile Bay Gallery

1. By volume of water, Mobile Bay is the ______________ largest drainage basin (watershed) in the United States.

2. How does the present-day coastline of Alabama differ from Alabama’s coastline of 15,000 years ago? __________________________________________
   Why was it different? _________________________________________
   __________________________________________________________

3. What animal did people avoid eating in summer months? ______________
   How do these animals feed? ____________________________________
   __________________________________________________________
   How can these two factors (summer months, and their manner of feeding) contribute to making people sick when they consume these organisms?
   __________________________________________________________
   __________________________________________________________
   __________________________________________________________
   __________________________________________________________

4. How does water’s ability to dissolve particles affect our food web? _________
   __________________________________________________________
   __________________________________________________________
   __________________________________________________________
   __________________________________________________________

5. Explain three problems caused by piers and bulkheads along shorelines. _______
   __________________________________________________________________
   __________________________________________________________________
   __________________________________________________________________
   __________________________________________________________________
1. Name two important benefits of barrier islands to mainland coastal areas.  
____________________________________________________________________________
____________________________________________________________________________
____________________________________________________________________________

2. Below is a cross section of a barrier island. Label the following habitats:  
beach       fresh water wetland       dune       maritime forest       salt marsh

For each habitat, label one plant or one animal found there. Explain why the sand dunes can be a harsh environment for plants and animals. Give at least three examples. Explain at least three adaptations that allow some plants and animals to survive these challenges.

________________________________________________________________________________
________________________________________________________________________________
________________________________________________________________________________
________________________________________________________________________________
________________________________________________________________________________

3. Soup of the Sea: Use each answer only once.

A. phytoplankton        B. red tide         C. zooplankton         D. meroplankton         E. nekton

1. _____ radiolarians        2. _____ moon jellies         3. _____ diatoms         4. _____ sharks

5. _____ dinoflagellates
Gulf of Mexico Gallery

1. Name an invasive jellyfish sometimes spotted in Mobile Bay and the northern Gulf of Mexico. ___________________________________________________________________

2. Name four types of structures that have been sunk in Alabama waters to create artificial reefs. ___________________________________________________________________
   Why have people created these artificial reefs? ___________________________________________________________________
   ___________________________________________________________________

3. Explain the environmental problems caused by paving surfaces. _____________
   _______________________________________________________________________
   _______________________________________________________________________
   _______________________________________________________________________
   _______________________________________________________________________

4. Underwater Exploration: What value is there to exploring the deep ocean?
   _______________________________________________________________________
   _______________________________________________________________________
   _______________________________________________________________________
   _______________________________________________________________________

1. Oil Spill: What do dispersants do? _______________________________________________________________________
   What were two concerns some people had about the dispersants being put on the Deep Water Horizon oil spill? _______________________________________________________________________
   _______________________________________________________________________
   _______________________________________________________________________
   _______________________________________________________________________
   _______________________________________________________________________

Revised 4/14
9th - 12th Grade
6
1. **The Weather Station:** Record these current weather conditions:

<p>| | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Air Temperature</td>
<td>_______</td>
<td>Wind Speed _______</td>
</tr>
<tr>
<td>Water Temperature</td>
<td>_______</td>
<td>Wind Direction _______</td>
</tr>
<tr>
<td>Dissolved Oxygen mg/L</td>
<td>_______</td>
<td>Salinity _______</td>
</tr>
</tbody>
</table>

* Don’t forget to include units of measure.

Would the amount of dissolved oxygen usually increase, decrease, or stay the same with increased depth through the water column? *Hint: you will not find the answer written on a sign; you will have to think about it.*

Some of the contributing factors are listed below. Give brief explanations of how they relate to water depth and dissolved oxygen.

- **Pressure:**
  - 
  - 

- **Air-water interface:**
  - 
  - 

- **Temperature:**
  - 
  - 
  - 
  - 

- **Photosynthesis:**
  - 
  - 

Don’t forget to include units of measure.
**Living Marsh Boardwalk**

The Living Marsh Boardwalk is located outside the Estuarium. This area was once the site of a septic tank used by the Air Force. In 1993 the Dauphin Island Sea Lab removed the sewage-septic tank and rebuilt the marsh. Use the panels and audio kiosks on the boardwalk and your own observations to answer the following questions.

1. Plants that live in salt-water environments have means of resisting the harmful effects of salt. Name two of these techniques.

   _____________________________________________________________
   __________________________________________________________________________

2. On average, how deep is Mobile Bay? ________________ How long is Mobile bay? ________________ How wide is Mobile Bay? ________________

3. How real is the threat of an oil spill from the rigs you see just offshore? ______

   __________________________________________________________________________
   __________________________________________________________________________

4. Compare the form and function of the existing Estuarium parking lot to a hypothetical, typical, paved parking lot in the same place. ________________

   __________________________________________________________________________
   __________________________________________________________________________
   __________________________________________________________________________
Invertebrate Trail

On the Invertebrate Trail, locate animals that represent the phylum Arthropoda (which means "jointed legs"). Use a crayon (or pencil) to make a rubbing of one of these animals.