

# Activity 1.1

- Grade Level  
3-5
- Subject Areas  
Science, Social Studies
- Duration  
1 class period
- Setting  
Classroom, computer lab
- Skills  
Mapping, interpreting, computing
- Vocabulary  
Estuary, Salinity, Watershed, Runoff
- Correlation with Next Generation Science Standards  
2-ESS2-3, 4-ESS2-2, 5-ESS2-2

## Materials:

- Copies of Delaware Estuary watershed map, New Jersey, and county road maps
- Student Worksheet-Activity 1.1
- Transparency films
- Marking pens
- Computers with internet-access
- Stick on stars or other symbols

## An Estuary Nearby: A Scavenger Hunt Mapping Exercise

### Charting the Course

In this exercise students will learn about estuaries and watersheds and become familiar with the geography of the Delaware Bay region. They will gain their sense of place within the area by locating and mapping their school in relation to the geography of the Bayshore region. This lesson has two parts. In Part 1 the activity takes shape as a mapping scavenger hunt. In Part 2 students employ computer skills to conduct a mapping exercise using the internet.

### Objectives / Students will be able to:

1. Describe what an estuary is.
2. Locate the Delaware Estuary on a map.
3. Recognize that many tributaries and streams flow into the estuary.
4. Locate their "space" (school) and other major geographical features in relation to the estuary.

### Procedure / Warm Up

Open a class discussion about what estuaries and watersheds are. *Ask: What is the nearest bodies of water are and if they lead to a bay. What bay?* Review the basic features of a map.

### The Activity [Part I]

1. Divide class into groups of 2 to 3 students.
2. Hand out transparency films and original or copies of road maps of your area (map should include Delaware Bay).
3. Ask students to locate their school on the map (or have a star on map designating the location of your school).
4. If not already marked, have students place a stick-on-star on location.
5. Now students should trace on the transparency the outline of the land/bay margin and mark the location of the school.
6. Using the Scavenger-Map Activity hand out, students should find, trace on the transparency and label the following items:
  1. The Atlantic Ocean
  2. North, south, east and west
  3. The major body of water located west of your school
  4. The largest river on the map
  5. The river closest to your school that flows into the Delaware Bay
  6. Two other rivers
  7. Two states bordering the Delaware Bay
  8. The capital of New Jersey
  9. A city located on the Delaware Bay/Delaware River
  10. The source of salt water that enters the Delaware Bay
  11. The major source of fresh water that enters the Delaware Bay (largest river)
  12. A place where they would like to explore, fish, or just hang-out.
  13. Locate their school (approximately) and the tributaries that they identified as being nearest to their school.
  14. They should identify the other tributaries that they traced.
  15. Follow the Bay to the Delaware River, and follow the River as far as it goes.

*Ask: Where does it begin?*

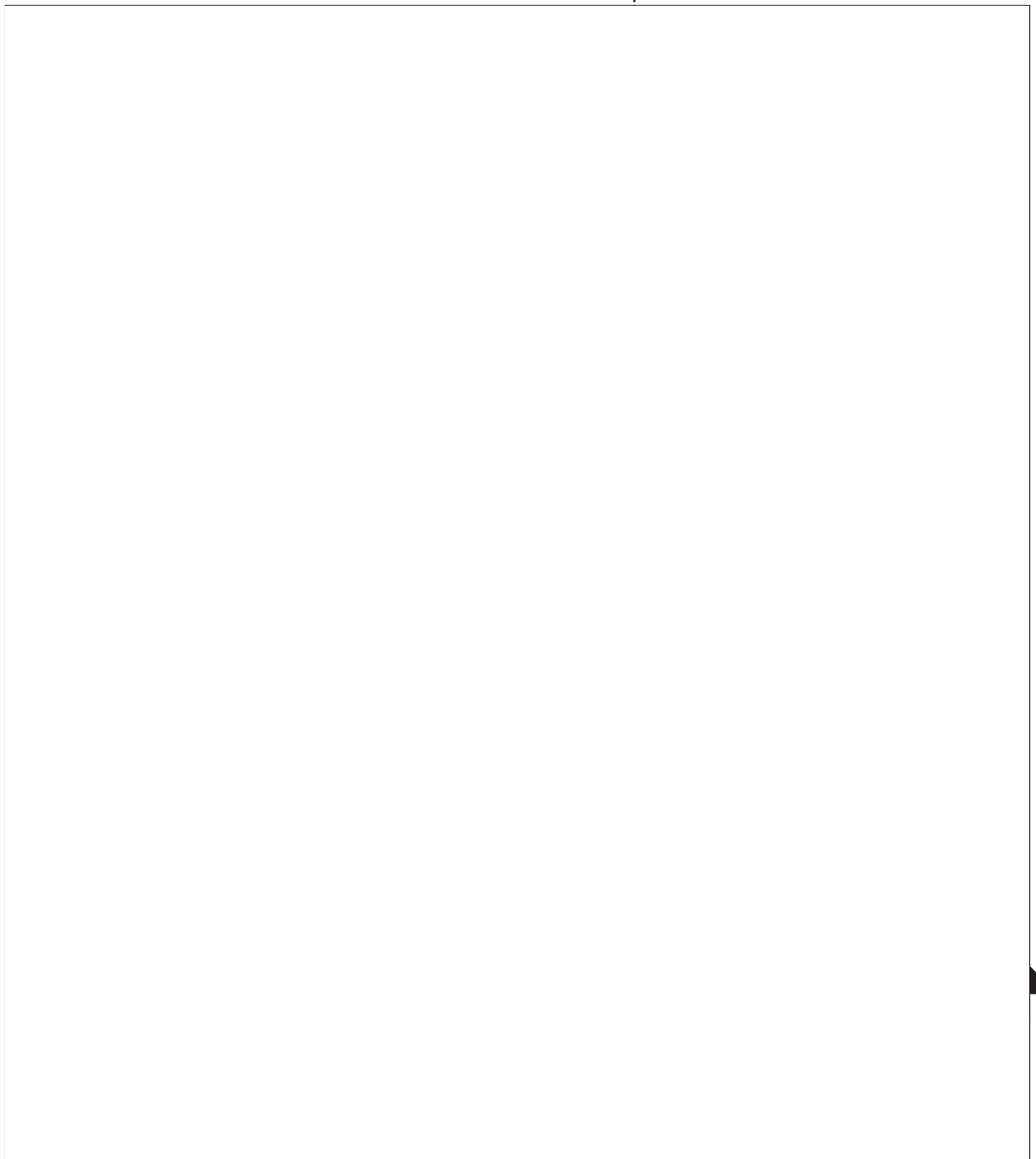
## The Activity [Part II]

1. Have students log on to <http://maps.google.com/>. (For more advanced classes have students work with Google Earth, which can be downloaded for free)
2. Search the map for their school (eg. D'Ippolito School, Vineland, NJ).
3. Change the format to hybrid (this will combine satellite image with overlaid road drawings).
4. Have students point out rivers, creeks, and streams on the map.
5. Follow the most prominent waterway as far as it will go. (Students will likely see creeks, moving toward rivers, ponds, and lakes; many will ultimately lead to the Delaware Estuary).
6. Based on the previous exercise can they identify the water body?

**Wrap Up** / Have students discuss what they learned through this exercise.

*Ask: Can you name any creeks, rivers, or bays that are located near our school, within our county, or in Southern New Jersey?*

**Extensions** / Introduce the concept of non-point source pollution. Participate in storm drain mapping activities available through state agencies and other organizations. More advanced students can be asked to investigate fresh water diversion issues, the use of water outside the watershed. For instance, New York City draws a huge volume of water from the Delaware River for drinking water. This can significantly impact the estuary.



**Student Worksheet** Activity 1.1 — An Estuary Nearby: A Scavenger Hunt Mapping Exercise

Name \_\_\_\_\_ Date \_\_\_\_\_

1. Locate your school on the map provided.
2. Mark the location with a sticker.
3. Trace on the transparency the outline of the land/bay margin and state and mark the location of the school.
4. Trace on the transparency and label the following items:
  - a. The Atlantic Ocean
  - b. North, south, east and west
  - c. The major body of water located west of your school
  - d. The largest river on the map
  - e. The river closest to your school that flows into the Delaware Bay
  - f. Two other rivers
  - g. Two states bordering the Delaware Bay
  - h. The capital of New Jersey
  - i. A city located on the Delaware Bay/Delaware River
  - j. The source of salt water that enters the Delaware Bay
  - k. The major source of fresh water that enters the Delaware Bay (the largest river)
  - l. A place where you'd like to explore, fish, or just hang-out.
5. How far is your school from the Bay?

Challenge question.

*What path of creeks and rivers would rain falling on your school follow to get to the Delaware Bay?*