

WELCOME TO WOODS HOLE:  
A WORLD CENTER FOR MARINE AND  
ENVIRONMENTAL SCIENCE

NAME \_\_\_\_\_

In the Exhibit Center

1. Name the 3 ocean robots used for under water exploration:  
a. \_\_\_\_\_; b. \_\_\_\_\_; c. \_\_\_\_\_
2. What is the Alvin? \_\_\_\_\_
3. What fuels hydrothermal vents? \_\_\_\_\_
4. What is the newest frontier for underwater study?
5. What was the name of the first Woods Hole Oceanographic research vessel? \_\_\_\_\_
6. What is the average time submerged per dive in the Alvin? \_\_\_\_\_
7. Who designed the murals at the entrance of the Exhibit Center?  
\_\_\_\_\_
8. What form of sea life dominates the area of the mid-Atlantic hydrothermal vents? \_\_\_\_\_
9. What is one WHOI marine mammal "first": \_\_\_\_\_
10. In what year did the Titanic go down? \_\_\_\_\_
11. How old is the ocean floor? \_\_\_\_\_
12. How old is the youngest part? \_\_\_\_\_
13. Who found the wreck of the Titanic? \_\_\_\_\_
14. What was placed on the deck of the Titanic? \_\_\_\_\_
15. What do we call gelatinous plankton? \_\_\_\_\_

16. The Red Sea gets its name from the color of its mud.  
True/ False (circle one)
17. How old is the earth?\_\_\_\_\_
18. How long ago was the asteroid impact that caused the extinction of the dinosaurs?\_\_\_\_\_

Along Water Street

19. What kind of ship is carved above the entrance to the Bigelow Laboratory?\_\_\_\_\_
20. When was the Helical Man made?\_\_\_\_\_
21. In what year was the Marine Biological Laboratory established?\_\_\_\_\_
22. What kind of ships were outfitted at the Candle House, beginning in 1836?
23. Where do the Woods Hole ferries take you?\_\_\_\_\_
24. Who donated the park grounds and sundial?\_\_\_\_\_
25. What do you do to determine Savings Time?\_\_\_\_\_
26. How many different examples of marine life are represented around the sundial?\_\_\_\_\_
27. Find (on a big rock) the name of the person who was the U.S. Commissioner of Fishes from 1871 to 1887. What's his name?\_\_\_\_\_
28. What does NOAA stand for?\_\_\_\_\_
29. On what street is the NOAA Aquarium located?\_\_\_\_\_

30. What is the common name for phoca vitulina? \_\_\_\_\_

In the NOAA Aquarium

Locate 5 different kinds of fish and fill out the following form:

<u>Name</u>	<u>location</u>	<u>nature of environment</u>
A. _____		
B. _____		
C. _____		
D. _____		
E. _____		

## Provincetown

"Provincetown is like an onion. There is here layer on layer, whorl on whorl. Three civilizations have met here and formed a unique strain. The old New Englanders, the Portuguese, and the summer fold have a town individual in the world." Mary Heaton Vorse (*Time and the Town* - 1942)

While in Provincetown you will have a period of time to buy gifts and food. Remember, you are a guest of the town and the people who call Provincetown home.

### Procedures are:

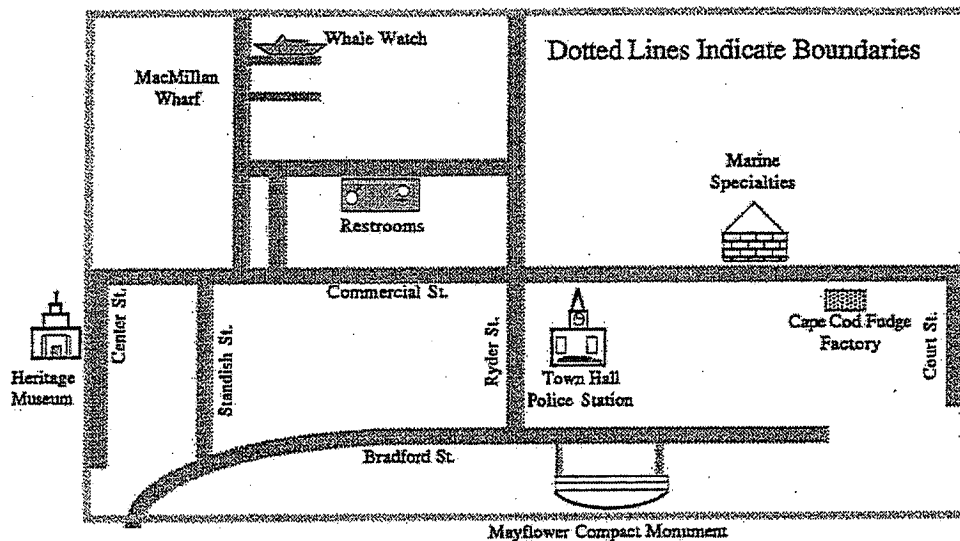
1. Buses will drop us at the main bus stop (near the restrooms) and you will be released for a short amount of time.
2. You must return to the bus stop after the trial period to prove that you can find your way back and that you are a responsible person.
3. After a teacher has checked you off, you will then have the remainder of your time to explore Provincetown.
4. Be very sure you return to the bus stop at the correct meeting time for your team!!

### Cautions:

1. You must always be with another person from school while in Provincetown. If you are found alone - you will spend your time with a chaperone.
2. Be sure to stay within the set boundaries as shown on the map on next page. Chaperones will be patrolling these areas.
3. Be sure items you purchase will not be items that the chaperones *must* and will confiscate. These items are those that are dangerous, disruptive, and items of questionable taste.
4. Be sure to get a receipt for each purchase, other than food that you make.
5. Count your change before you walk away from a store's register.
6. You are not allowed to have your ears, or any other body part, pierced or permanently tattooed while on a school trip.
7. No bike rentals
8. Commercial Street, the street where all the shops are located, is very narrow and you must take care to avoid the automobiles that are trying to navigate their way through town.

## Problems?

1. Public restrooms are located where the buses dropped us off (on the Wharf). These restrooms are monitored by town employees. It is customary to tip these people, they not only keep you safe, they also keep the facilities very clean.
2. If you need help -
  - a. Chaperones are stationed throughout the area.
  - b. Police are always at the two major street intersections
  - c. The Town Hall, across the street from the Pilgrim Monument, has emergency personnel always on duty.



### Highlights of Provincetown

Fresh-made Ice Cream  
 Seafood—lobsters, clams, scallops, fresh fish  
 Salt Water Taffy  
 Cape Cod Fudge  
 "Penny" candy  
 Portuguese bakery products  
*Puzzle Me This* game store  
 Yogurt Shakes  
 All the usual: pizza, hamburgers, hot dogs, fries, etc.

### Shopping

T-shirts and sweatshirts  
 Shells and coral  
 Quahog jewelry  
 Anything from Marine Specialties store  
 Earrings in all price categories  
 Anything and everything with whales and dolphins  
 "You design it" baseball caps  
 beachwear  
 Cape Cod souvenirs  
 Novelties (sometimes called "junk")

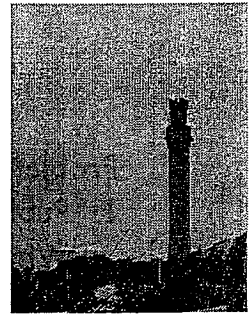
### Something Different:

Visit MacMillan Wharf to watch the fishing fleet come into port.  
 Enjoy music and or dance by street artists - usually at Town Hall.  
 Phone Home.



# Provincetown - Pilgrim Monument

(These questions were adapted from the Scavenger Hunt designed by the Pilgrim Monument and Provincetown Museum - 4/2009)



1. **Macmillan Exhibit** - Why are there polar bears and snowshoes in a museum about Provincetown?
- 

- b. Name at least 3 animals and 3 birds brought back from Arctic expeditions.

Animals	Birds
1.	
2.	
3.	

2. **Find the cannon from a British ship** - What Revolutionary War ship wrecked off Cape Cod on November 2, 1778?
- 

3. Find the photos of Theodore Roosevelt and William Taft - Why was each of these presidents in Provincetown?
- 

4. **Building of the Monument** - How did workers get heavy granite blocks from Maine to the top of the Pilgrim Monument?
- 

- b. How much did a piece of granite weigh?
- 

5. What is the arch into the Nichols wing made out of?
- 

6. **Whaling Captain's Quarters and Captain's Parlor** - Look at the Captain's bed. Why do you think its legs don't touch the floor?
- 

7. What was the prize for being the first to spot the Captain's ship?
-

8. Find the fire engine named after a United States President. Why does the fire engine have wide wheels?

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b. Which U.S. President was it named after?

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9. **Art Colony -**

- a. Name 8 artists whose work is displayed as part of the art colony exhibit. Name 2 subjects they painted.

ARTISTS

1. \_\_\_\_\_
2. \_\_\_\_\_
3. \_\_\_\_\_
4. \_\_\_\_\_
5. \_\_\_\_\_
6. \_\_\_\_\_
7. \_\_\_\_\_
8. \_\_\_\_\_

SUBJECTS PAINTED

9. \_\_\_\_\_
10. \_\_\_\_\_

- b. Which two artistic groups had a controversy in the 1920's? How did it work out?
- 

10. **Long Point Settlement**

- a. What is Long Point Settlement?
-

b. Where is Long Point?

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c. Why were the houses moved on Long Point? How did they move them?

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d. How did people preserve fish before refrigerators?

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11. Scrimshaw Exhibit

a. How are the areas made dark on a piece of scrimshaw?

---

b. Which President was a collector of scrimshaw?

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12. Dollhouse - Which critical room is missing in the dollhouse?

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13. Pilgrim Exhibit - What three "firsts" are listed in this exhibit?

a. \_\_\_\_\_

b. \_\_\_\_\_

c. \_\_\_\_\_

14. Find the Mayflower Compact. How many women signed the Mayflower Compact?  
Why do you think?

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15. Find the model of the Mayflower. What do you think the men in the cabin are  
doing?

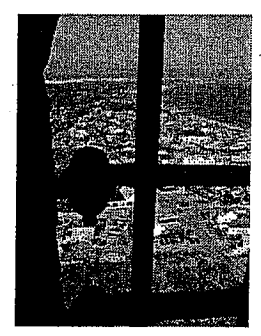
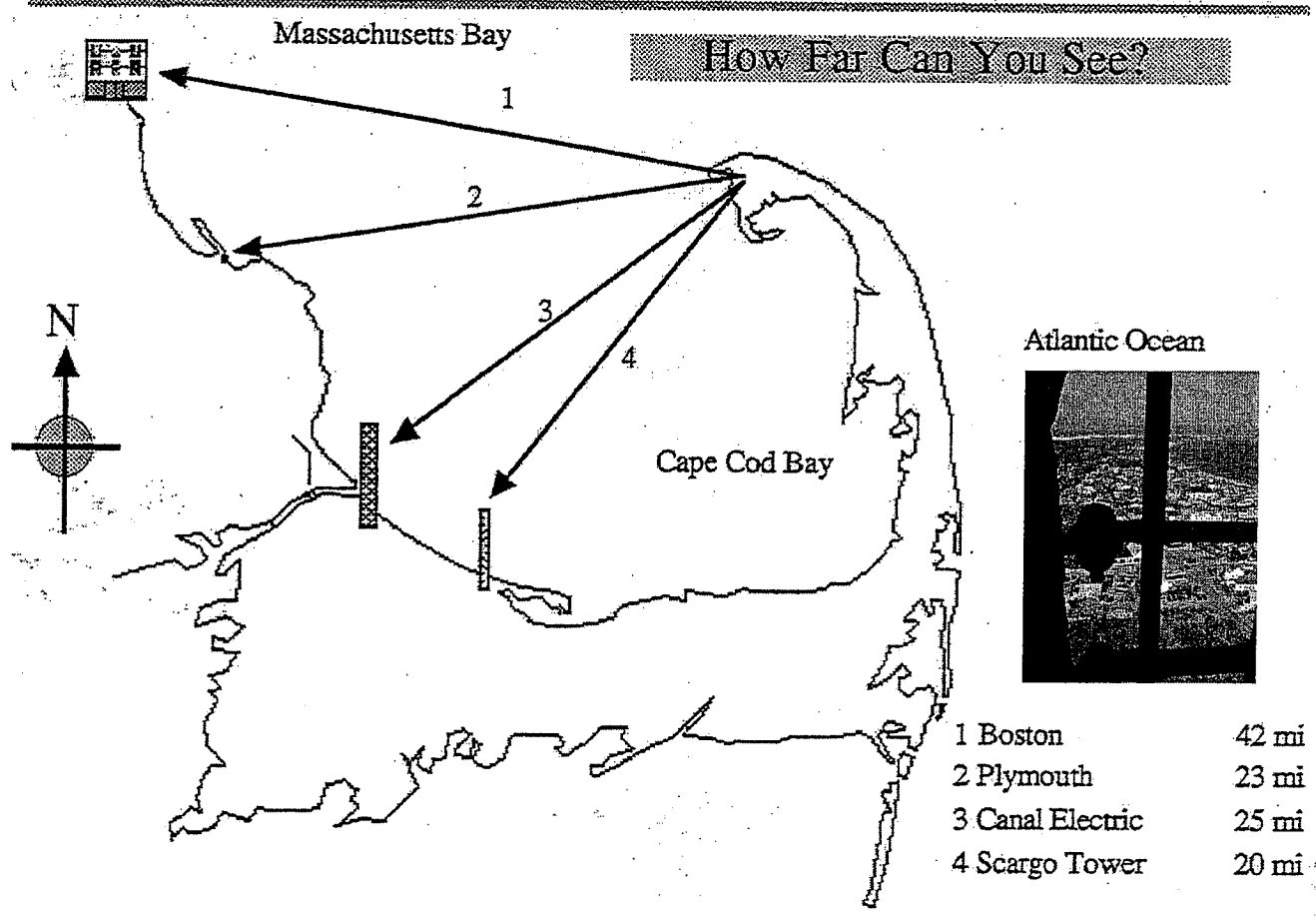
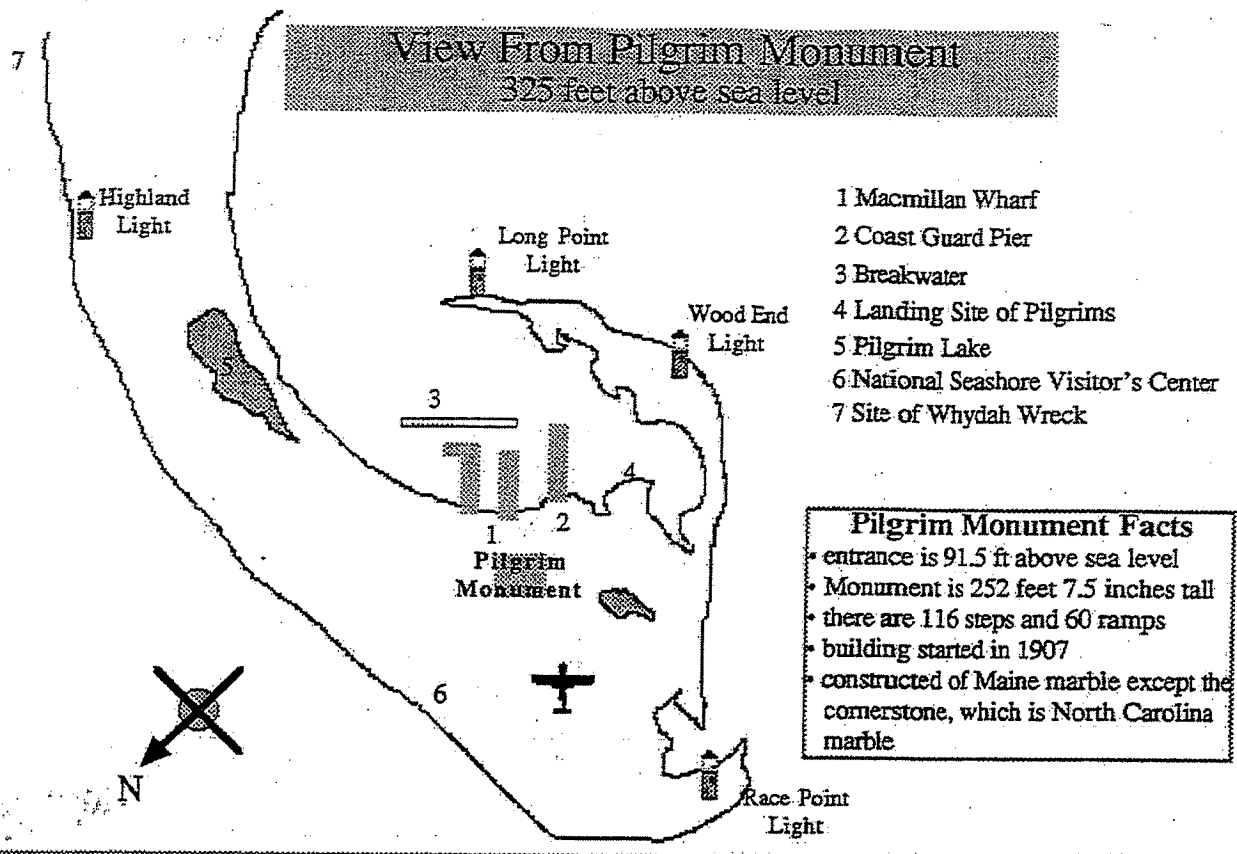
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b. How many sleeping people can you find on the model of the Mayflower?

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16. How many Pilgrims were living when the 2<sup>nd</sup> ship arrived in 1621? \_\_\_\_\_





# Provincetown-Pier & Pirate Museum

1. This museum contains artifacts from the only pirate shipwreck ever excavated. The name of the pirate ship is

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2. Treasure Discovered

- a. What is a Spanish eight? \_\_\_\_\_

- b. Why were Spanish eights cut? \_\_\_\_\_

3. The Final Proof

- a. When was the bell of the pirate ship found? \_\_\_\_\_

- b. Why was finding the bell important? \_\_\_\_\_

4. First green sign

- a. Who were the buccaneers? \_\_\_\_\_

- b. What was the pirate round? \_\_\_\_\_

5. Myth and Truth

- a. What was the name of the last woman hanged in Massachusetts (a pirate)

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- b. What was the descent of most pirates?

---

- c. Was there any record of anyone "walking the plank"?

---

6. Myths and Misconceptions in the Golden Age of Piracy

- a. How did pirates govern themselves?

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7. Sam and Maria

a. How many shipwrecks have been in the waters off Cape Cod?

\_\_\_\_\_

b. Looking at the map . . . When was the Whydah shipwreck?

\_\_\_\_\_

8. Mooncussers

a. What are moon-cussers?

\_\_\_\_\_

b. What were the sounding weights used for?

\_\_\_\_\_

c. What are the sounding weights made of?

\_\_\_\_\_

9. The Members

a. Name 6 nationalities of the sailors in Bellamy's crew.

i. \_\_\_\_\_

ii. \_\_\_\_\_

iii. \_\_\_\_\_

iv. \_\_\_\_\_

v. \_\_\_\_\_

vi. \_\_\_\_\_

10. Black Ivory

a. What was a bar shot?

\_\_\_\_\_

b. Name one of the "prices of a man".

\_\_\_\_\_

11. Middle Passage

a. What was eaten by the captives?

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b. How many human beings could be carried on the ship?

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c. How long was the ship? How wide?

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12. The Whydah

a. What was the other name of the Whydah?

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b. How fast could she go?

---

c. When and where was the ship built?

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d. How many were in the crew?

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13. Golden Age of Piracy

a. What are "guineas" and what were they made from?

---

b. What were stinkpots?

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c. What was the purpose of stinkpots?

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d. What are five of the nineteen *Articles*?

i. \_\_\_\_\_

ii. \_\_\_\_\_

iii. \_\_\_\_\_

iv. \_\_\_\_\_

v. \_\_\_\_\_

e. What was punishment for violating *The Articles*?

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f. About how many men became pirates 1680 and 1725? Why did they do it?

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#### 14. Liberty, Equality, Fraternity

a. What was the pension for a pirate who lost a limb or became crippled while a pirate?

---

b. Could he stay a pirate?

---

c. How did it work out since the pirates couldn't speak a common language?

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15. Sam Bellamy life-sized Portrait

a. Where and when was Sam Bellamy born?

\_\_\_\_\_

b. How did he get his experience to be a pirate?

\_\_\_\_\_

c. How many ships did his crew take in over a year?

\_\_\_\_\_

16. How They Lived

a. How did Blackbeard's career end?

\_\_\_\_\_

b. Name 5 other artifacts found in shipwrecks (not previously mentioned).

\_\_\_\_\_

17. How They Died

a. Name 3 ways pirates died.

i. \_\_\_\_\_

ii. \_\_\_\_\_

iii. \_\_\_\_\_

18. Pirate Ship Whydah

a. What was the triangular trade route?

\_\_\_\_\_

b. What were some things traded?

\_\_\_\_\_

19. What was a vise used for?

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20. Rub the ballast stone.

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21. What are x-rays used for?

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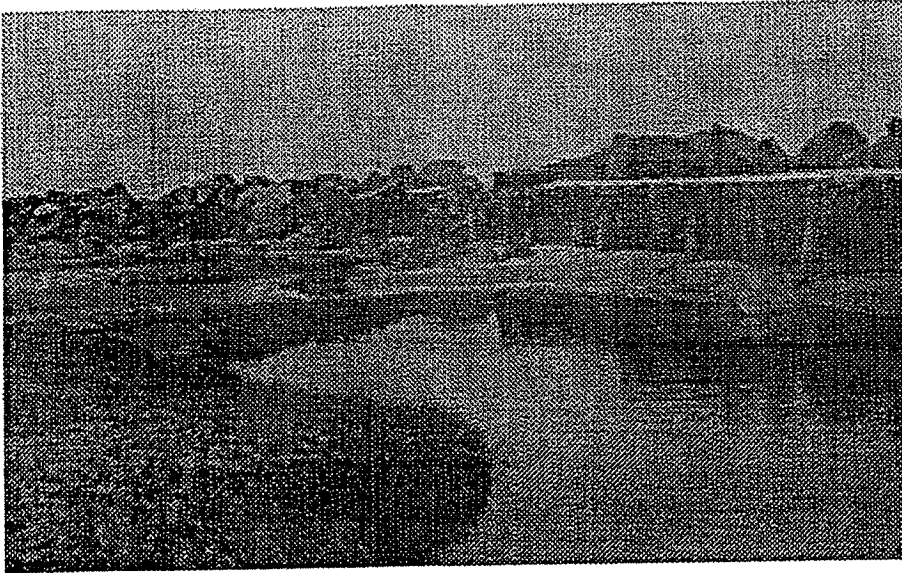
22. What is a concretion?

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23. What are 5 of the techniques used to excavate a wreck site?

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## Tide Pool Studies



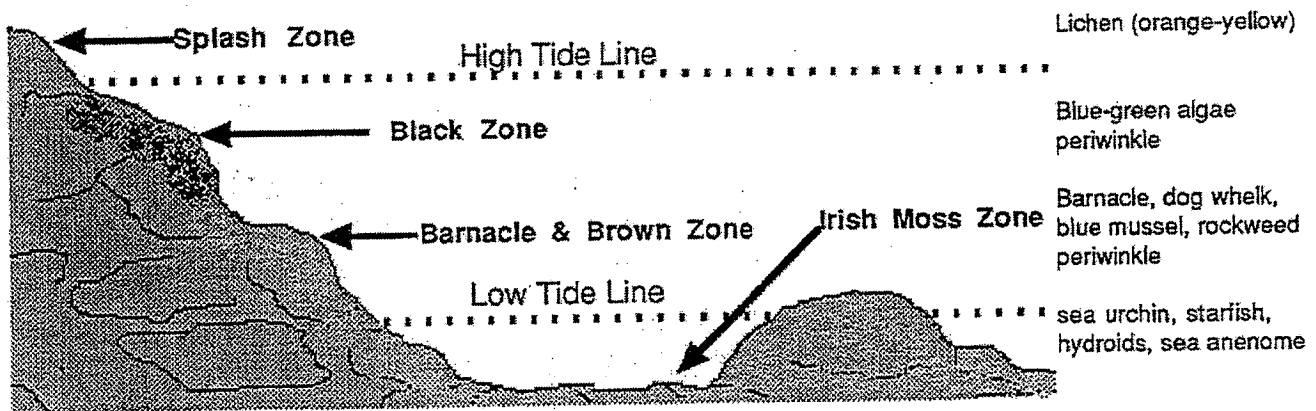
"For organisms living in the rocky intertidal zone, life is a constant challenge. As the tide comes in, or when storms occur, the intertidal organisms are hit by crushing waves. When the tide recedes, they are left high and dry. Basins among the rocks trap water from the outgoing tide, and these tidepools remain until covered by the next high tide. Organisms in tidepools must deal with extreme fluctuations in temperature, salinity, and oxygen availability. Because of their differing abilities to live out of the water, intertidal organisms appear in specific horizontal

bands along the shore. Others that live near or below the low tide line can only stand to be exposed to the air for very short periods of time."

*The Seaside Naturalist* -Deborah A Coulombe

### Experiment Goals:

1. Choose one tide pool to explore with your group.
2. Use the diagram to figure out which zone your tide pool is in. Include this information in your data.
3. Make one Biological Map.
4. Do a careful chemical and physical analysis of your tide pool.
5. Convert all your observations and data into a report, *one per group*.
6. Identify as many different plant and animal species as possible. You may go outside your tide pool to do this. Use MAC FIELD GUIDE to help you. Each time you have identified a new species, see a teacher for a green card. If you make up an answer, you will lose a card. The group with the most green cards



will win a wonderful prize!

### Procedures:

1. Choose one tide pool with your group. Only one group to a pool!
2. One person, with neat handwriting, should volunteer to be the recorder. Record the following:
  - a. Make a Key for the organisms in the tide pool. (See the example on next page.)
  - b. Show all types of algae and all animals in your tide pool on your map.
  - c. Show each organism on the map as it is found in the tide pool.



- d. Record the readings for the chemical and physical analysis.
3. The others in your group will be busy giving the recorder the information. They should do the following:

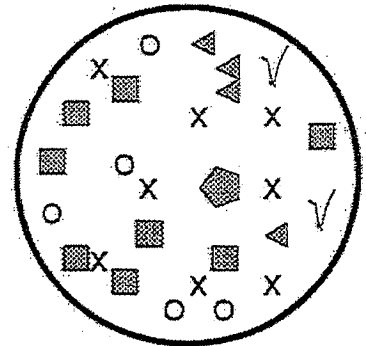
- a. Identify each organism in the tide pool. Use the field guide!
- b. Do the chemical and physical analysis of the tide pool.

4. Chemical and Physical Analysis:

- a. Temperature: place the thermometer into the tide pool and wait for two minutes to record in °C.
- b. pH: use the pH paper or a pH meter to test the water in the tide pool.
- c. Specific Gravity: use the Sea Water Tester to determine the specific gravity.

note: pure water has a specific gravity of 1.00

- d. Repeat all tests in sea water not in the tide pools.



Example

**Report:**

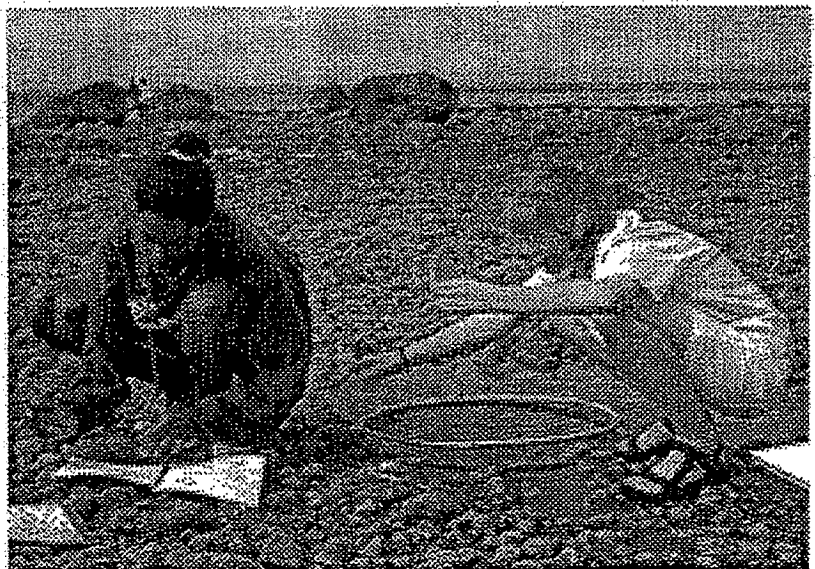
Each group will include the following in a report, which will be handed in to the designated teacher at the end of the session.

1. Title Page - including the date, group members, and a title
2. Biological Map Page - should redo the map after you leave the tide pool area.
3. Concluding Page:

One on page, your group will explain the types of organisms found in the tide pool, the stresses they live with each day, and anything unusual you noticed about your tide pool. Example: "We found 10 green crabs and no other animals in our tide pool. We were the only group to find an 80 ft whale in our tide pool..."

**Scavenger Hunt**

As you are working and after you finish your testing, find and identify as many species of plants and animals as you can find. Each time you identify a new species, show a teacher and get a green card.



# Tide Pool Reporting Sheet

Tide Pool Team	
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Tide Pool Data: **Temperature** Tide Pool

Ocean

**pH**

**Specific Gravity**



<u>Key to your Tide Pool</u>		
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

## **Tide Pool Biological Map**

