



Practice

Answer the following using short answer.

1. What does the term *plankton* mean? _____
2. What are the two main types of plankton? _____

3. Why must phytoplankton remain in the photic zone? _____

4. Why are phytoplankton important for sustaining life? _____

5. What are the shells of diatoms made of? _____

6. Why are dinoflagellates considered to be between plants and animals? _____



7. What is *red tide*? _____

8. What do zooplankton feed on? _____

9. What are animals that spend their entire lives as plankton called?

10. What are animals that spend only part of their lives as plankton
(usually as larvae) called? _____
11. What are two members of the holoplankton? _____

12. What should you do if stung by a jellyfish or Portuguese man-of-
war? _____

13. What are two animals besides the crab that experience the
meroplankton stages? _____

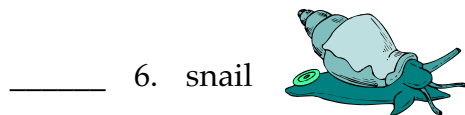
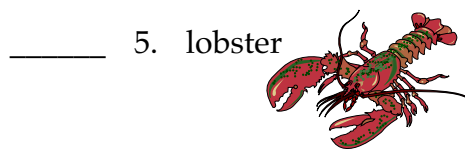
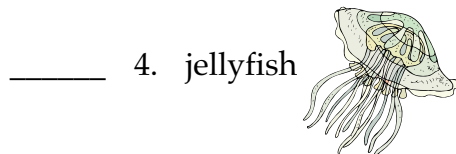
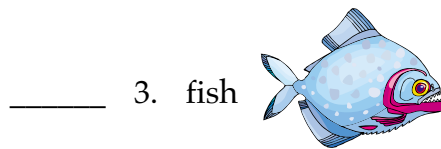
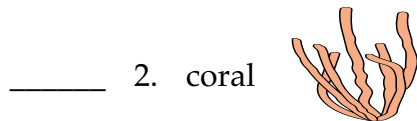
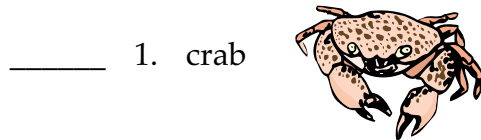
14. What equipment is used to catch plankton? _____



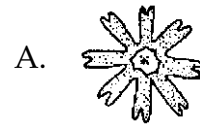
Practice

Below are examples of **meroplankton**. Use examples provided in the unit to match each **adult meroplankton** with the correct **planktonic larvae**. Write the letter on the line provided.

adult meroplankton



planktonic larvae





Lab Activity 1: Plankton Net



Investigate:

- Perform virtual or “computer” plankton trawls to examine the differences in the number and variety of phytoplankton, copepods, and invertebrate larvae in the open bay in comparison to the number and variety in the grass beds.

Materials:

- EcoVentures CD-ROM
- computer with CD-ROM drive
- Plankton Identification Data Sheet
- Plankton Data Sheet
- pencil or pen

Procedure:

1. Your teacher will provide you with an EcoVentures CD or will have the activity installed on a computer desktop for you. **Click** on the Ecoventures logo.
2. You should be viewing a map of **R. U. Green State Park**. **Click** on the **marine site** located on the lower right corner of the computer screen.
3. On the marine site screen, **click** on the **EcoVentures** box of the site map.
4. You should be viewing the Marine Ecoventures map. **Click** on the **pontoon boat** icon located in Snapper Bay.
5. You are now viewing the **trawl screen**. **Click** on the **red arrow**.
6. You are now viewing two pontoon boats. Each boat is ready to trawl for plankton. **Click** on **either boat**. Please note that one boat will trawl in the **seagrass area**, and the other boat will trawl in the **open ocean area**. You will have to operate both boats, but for now, **select one**.



7. After the boat has completed the trawl, **click** on **plankton**. A short video clip of how plankton are collected will appear on the screen. Please view the video clip.
8. After the video clip, a microscope screen containing a slide of plankton will appear.
9. You are now ready to begin counting the variety of plankton you collected in your plankton net. Count the kinds and number of plankton for **five different locations** on the microscope slide.
10. Use the **Plankton Data Sheet** on page 297 to keep track of the plankton you identify and count.
11. Using the **Plankton Identification Data Sheet** on page 298, sketch one example of each plankton type in the two areas and summarize your observations.

Identifying and Counting Plankton Tips:

1. **Click** on the word **count** and **select** the **organism** you wish to count.
2. Using the **mouse**, move the circle to **five different locations** on the microscope slide. At each location, record the type and number of plankton. (**Hint: Click** on each plankton as you count it. This will ensure that you do not count it twice.)
3. If you are **not sure** of the type of plankton you are observing, use the **reference** selection located in the tool bar at the top of the computer screen.
4. Select **Field Guides** and **Plankton Book**.
5. Browse the list of plankton and click on the plankton names to view images for identification.



Analysis:

1. Which tow area contained the greatest number of plankton? _____

2. Explain why the tow area in question 1 had the greatest number of plankton. _____

3. Explain why you think certain plankton types were found in smaller numbers in the open ocean than in the seagrass area. _____



Plankton Data Sheet

Tow Area: Seagrass

Organisms	Total
Copepods	_____
Larvae	_____
Phytoplankton	_____

Tow Area: Open Bay

Organisms	Total
Copepods	_____
Larvae	_____
Phytoplankton	_____



Plankton Identification Data

Seagrass Area		
Plankton Type	Sketch	Summary
copepods		<hr/> <hr/> <hr/> <hr/>
larvae		<hr/> <hr/> <hr/> <hr/>
phytoplankton		<hr/> <hr/> <hr/> <hr/>

Open Bay Area		
Plankton Type	Sketch	Summary
copepods		<hr/> <hr/> <hr/> <hr/>
larvae		<hr/> <hr/> <hr/> <hr/>
phytoplankton		<hr/> <hr/> <hr/> <hr/>



Lab Activity 2: Plankton Shape and Movement



Investigate:

- Determine how plankton remain floating in the upper levels and mid levels of the water column.

Materials:

- Marine Plankton Sheet
- Plankton Floating Data Sheet
- baby food jars
- tissue paper
- plastic baggies
- toothpicks
- clay
- cardboard
- vegetable oil
- stop watch
- pipe cleaners
- variety of odds and ends

Procedure:

1. Study pictures of plankton on the **Marine Plankton Sheet** on page 301. Discuss with your teacher and classmates how the shape of plankton and the surface area of plankton affect their ability to float.
2. Create your own plankton. Select the best material type from the assortment of odds and ends provided by your teacher.
3. After constructing your plankton, test its ability to float. Place your plankton in a sink full of water. (Wet your plankton model first to eliminate surface tension.) Time how long the plankton is able to float on top of the water. Once the plankton begins to sink, **stop** timing and retest the plankton's ability to float. Repeat the floating test three more times for a total of five trials. Record your times on the **Plankton Floating Data Sheet** on page 302.
4. Some plankton produce oil within their bodies. Create a new plankton (or keep the same design) but add about a teaspoon of oil to its body design.



5. Test the *oil-producing* plankton's ability to float. Remember to wet the plankton first. Time how long the *oil-producing* plankton is able to float on top of the water. Once the plankton begins to sink, **stop** timing and retest the plankton's ability to float. Repeat the floating test three more times for a total of five trials. Record your times on the data sheet.

Analysis:

1. From observing classmates' plankton models and recorded times, which design or shape of plankton floated the longest? _____

2. Do you think waves and currents affect plankton movement? _____
How? _____

3. Why do phytoplankton need to stay near the surface? _____

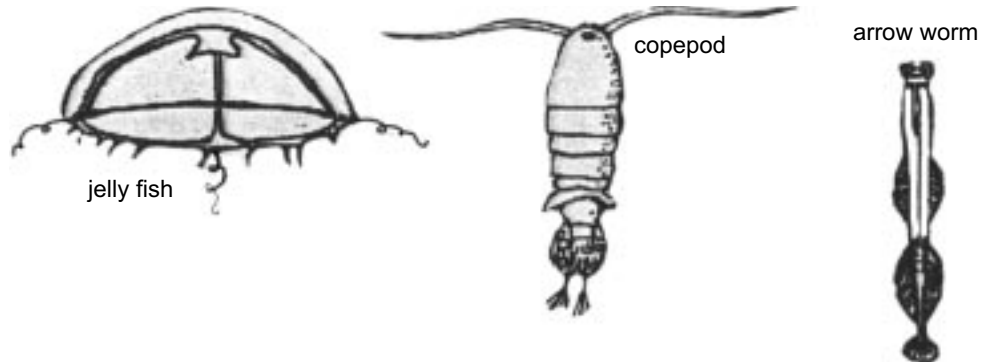
4. What type of design or shape would best be suited for phytoplankton? _____



Marine Plankton Sheet

Holoplankton—spend their lives as plankton

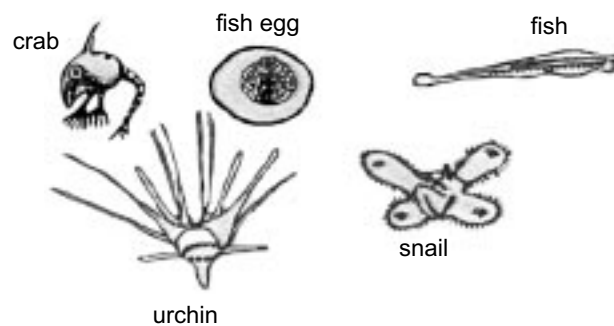
zooplankton



phytoplankton



Meroplankton—spend only part of their lives as plankton





Plankton Floating Data Sheet

Regular Plankton

Trial	Floating Time
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____

Oil-Producing Plankton

Trial	Floating Time
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____



Practice

Match each definition with the correct term. Write the letter on the line provided.

- | | | |
|-------|---|--------------------|
| _____ | 1. small, usually microscopic plant and animal organisms that float or drift in the ocean | A. diatom |
| _____ | 2. plant plankton | B. dinoflagellates |
| _____ | 3. the lighted region of the ocean; area where photosynthesis can occur | C. flagella |
| _____ | 4. animal plankton | D. holoplankton |
| _____ | 5. tiny whiplike hairs used for movement or catching food | E. meroplankton |
| _____ | 6. small plankton with characteristics of both plants and animals; causes red tide | F. photic zone |
| _____ | 7. organisms that spend their entire lives as plankton | G. phytoplankton |
| _____ | 8. organisms that spend only part of their lives as plankton | H. plankton |
| _____ | 9. composed of two identical halves encased in a shell made of silica or "glass"; most common phytoplankton | I. zooplankton |



Practice

Use the list below to write the correct term for each definition on the line provided.

copepods	mesh	radiolarian
foraminiferan	mysis	tentacles
larva	plankton net	zoea
megalops	pseudopod	

- _____ 1. a single-celled holoplankton with a transparent body or shell
- _____ 2. a single-celled holoplankton with a calcium carbonate shell
- _____ 3. long, threadlike structures that hang from some organisms; may contain dangerous stinging cells
- _____ 4. young planktonic larval state of the crab
- _____ 5. small crustaceans that have two long antennae for movement and gathering food; most common zooplankton
- _____ 6. planktonic larval stage of the crab; follows the zoeal stage
- _____ 7. open spaces in a net or screen
- _____ 8. a cone-shaped net of fine mesh that is pulled through the water to collect plankton
- _____ 9. planktonic shrimp larva
- _____ 10. footlike projection
- _____ 11. form of an organism that is immature and very different looking from the adult organism