



Sampling Plankton

PROJECT PLANNING GUIDE

OBJECTIVES OF THE 4-H SAMPLING PLANKTON PROJECT

1. To learn about plankton and the role it plays in freshwater and marine communities.
2. To distinguish between animal plankton and plant plankton.
3. To construct a plankton net and collect plankton from various aquatic sources.
5. To become aware of the variety of plankton types and to identify as many forms as possible.

EXTENSION RESOURCE MATERIALS

Sampling Plankton, 4H M-1-107

NOTE: The following books may help you identify the plankton you collect:

A Guide to Marine Coastal Plankton and Marine Invertebrate Larvae, Deboyd L. Smith, 1977. Kendall Hunt Publishing Company, Dubuque, Iowa.

A Guide to the Study of Freshwater Biology, J. Needham and P. Needham, 1969. Holden-Day, Inc., San Francisco, CA.

Marine Plankton, G. E. Newell and R. C. Newell, 1973. Hutchinson Educational LTD, London, England.

How to Know the Freshwater Algae, G. W. Prescott, 1978. William C. Brown Company, Dubuque, Iowa.

Please Note: Level 1 is for 4-H'ers 12 to 14 years old or for beginners of any age. Age levels are relative since all youngsters will not progress at the same rate. These are some things that the 4-H Sampling Plankton Project should teach and participants should do. Other related activities will likely be suggested and are encouraged.

LEVEL 1
(12- to 14-year-olds)

Things to Learn	Things to Do
1. What is plankton? Why is it important?	1. Find out what kinds of plants and animals make up plankton. a. What animals feed on plankton? b. What is the largest animal that feeds on plankton? c. Where is plankton found?
2. How to make your own plankton net.	2. Construct a plankton net from a nylon stocking. a. Collect plankton with your net. b. Look at plankton under a microscope or with a magnifying glass. Demonstrate how to make a plankton net to your 4-H club or your class.
3. Why it is important for plankton, especially plant plankton, to stay in the upper layers of the water column.	3. Discuss photosynthesis. What is it? How do plant plankton make their food? What advantages do you think animal plankton have in staying near the water surface?
4. Some types of plankton seem to move around well in a drop of water but are almost helpless against water currents and gravity. What helps keep them from sinking?	4. Complete the activity "Plankton Bodies." Can you think of another reason why it may be helpful for plankton to have long spines and strange shapes?
5. How to tell plant plankton from animal plankton.	5. Keep a plankton notebook. On plain white paper draw different types of plankton you collect. Separate the plant plankton pictures from the animal plankton. Write down: a. The date you collected the plankton. b. Where you collected it. c. When possible write down the name under each picture.

LEVEL 2
(15- to 19-year-olds)

Things to Learn	Things to Do
1. How varied plankton are in species, size and shape.	1. Continue to add drawings to your plankton notebook. a. Record characteristics that help you identify each. b. Organize your drawings by classification; for example, group all crustacean larvae together, all mollusks, marine worms, etc. c. You may want to label each type of plankton as either holoplankton (forms that are planktonic throughout life) or meroplankton (forms that are planktonic only during certain stages of life).
2. The life history of animals with planktonic larvae.	2. Choose an animal such as a marine worm, crab, shrimp, jellyfish, mollusk or barnacle and read about its life history. a. Find out how the adults reproduce. b. Pay close attention to the planktonic life stages of the animal. Find out: -how many larval stages the animal passes through before adulthood -what each planktonic stage looks like -what each larval stage eats -where the various larval forms are found (open ocean, bays and estuaries, ocean bottom, etc.) c. Make a poster showing the life history of your chosen marine animal. Draw and label as many of its life stages as possible. Report to your 4-H club.
3. To become familiar with freshwater plankton.	3. Collect plankton with your net from a nearby pond or lake. Observe as many types of plankton as possible. Freshwater zooplankton and phytoplankton are often collected. Some examples might be freshwater copepods, diatoms, and blue green algae.
4. How to conduct a plankton study.	4. Decide what you would like to find out about plankton in your area waters (fresh/salt water).

Things to Learn

Things to Do

You may want to see what kinds of plankton are most numerous in your local water and if this changes over the year. To do this: Collect plankton samples from the same area once a month for 6 months or a year.

- a. Count the plankton found in a drop(s) taken from the collecting jar. (Be sure to use the same number of drops every month. Refer to the Leader's Guide for counting techniques.)
- b. Draw the various kinds of plankton you observe.
- c. Record the number of each kind.
- d. Group your plankton drawings into zooplankton and phytoplankton. Keep the two groups of drawings on separate sheets of paper.
- e. Try to identify the plankton. Under each print name, date and place of collection. (Refer to the Leader's Guide on how to make a data graph.)
- f. Draw two graphs, one for zooplankton and one for phytoplankton. At the bottom of each, indicate the dates of collection (Jan., Feb., etc.) and on the left side the number of individuals caught. Plot the number of each kind of plankton (e.g. crab larvae, copepods) counted each month.

Enter your plankton study in a science fair at school.

Do a similar study looking at plankton from different areas (ocean, tidal creeks, sound) and compare the plankton population of each.

Prepared by Jaynee Medicott, Extension 4-H Staff Associate

Published by

THE NORTH CAROLINA AGRICULTURAL EXTENSION SERVICE

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