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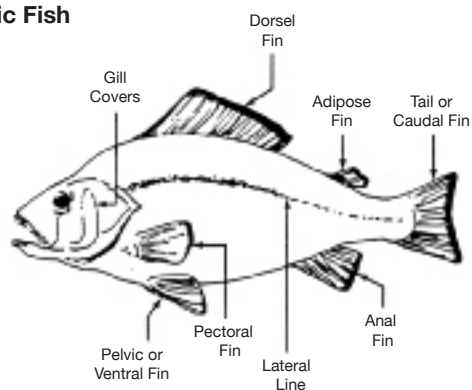
Oklahoma Cooperative Extension Service • Division of Agricultural Sciences and Natural Resources

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Background

Fish are vertebrate animals belonging to the class Pisces. Fish possess gills for underwater breathing, have skeletons of bone, fins for swimming, and most have a covering of overlapping scales for protection.

Basic Fish



The age of a fish can be determined by studying its scales. Every year, as the fish grows, a thin ring forms on each of its scales. By counting the rings on a scale from a carp or whitefish, for example, age can be determined. This counting of course requires a magnifying glass or microscope.

Numerically, fish constitutes the largest class of vertebrates. They are distributed throughout the world—in ponds, lakes, rivers, and oceans. Since fresh water goldfish and tropicals are the varieties usually kept by children, these are the only fish discussed here.

For young people, for those with little time for pets, and for families in small crowded homes, fish make good pets. After the fish tank is set up, the everyday care is simple. Fish, under ideal conditions, may be safely left alone for 1 or 2 weeks. The collection and care of fish is a hobby that can grow with interest and knowledge. Some people remain content with a few bright goldfish in a bowl, but others become so engrossed in the study and care of fish that they buy and breed the more unusual tropical varieties, grow exotic plants in their aquariums, and progress to more elaborate tanks and equipment.

Fish as a 4-H Pet Project

Fish Care

Housing

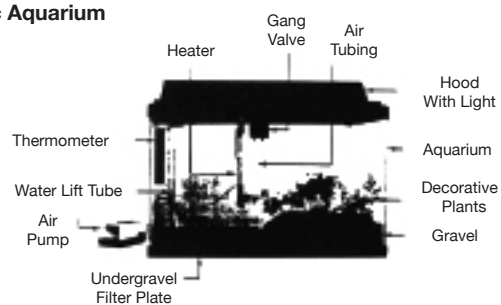
The Tank: Fish should never be kept in a tiny round bowl because it does not have adequate air surface for oxygenation. Instead, house them in a large square or rectangular glass aquarium.

Start out with the best and the largest tank you can afford. Remember — the fish population can always expand but the tank can not! For the beginner, a 10-gallon aquarium is an excellent size.

Never over crowd your fish tank with fish. Follow this basic rule, allow 1 gallon of water for every inch of fish. This rule may be modified somewhat according to the kinds of fish, number and variety of plants, and aeration equipment, if any.

Setting up the aquarium. Planning and fixing up the new home for pet fish can be fun. This project provides youngsters with many varied opportunities to use their constructive and creative abilities. As initial steps, they can perform the following tasks:

Basic Aquarium



1. Scrub the tank with clean hot water and vinegar, then rinse. Never use a soap or detergent, as it is harmful to some fish.
2. Line the bottom of the tank with about 2 inches of coarse sand or small gravel or pebbles. Allow roughly 2 pounds of sand per gallon of water capacity. Before putting in the sand, wash it thoroughly under a stream of water. Meanwhile, stir the sand or small gravel or pebbles until all other impurities are washed away. Inside the tank, slope the sand so that it is deepest at the back where plants will be placed. Because of this slope, waste material will drift toward the front of the tank where it is easily seen and can be readily removed with a dip tube or siphon.

3. Lay a dinner plate or clean, folded wrapping paper over the sand to hold it in place. Then, slowly pour in water until the tank is about two-thirds full. Then, remove the paper or plate.
4. Plan and prepare “the sea-scape” of rocks and plants. If this is done well, the aquarium will have an attractive appearance.
5. Place your rocks. In selecting rocks, a word of warning: Some rocks are poisonous to fish. Therefore, obtain your rocks from a dealer or check with an expert on the rocks you have.
6. Set your plants. Carefully rinse your plants. Then plant them—tall ones toward the back; and stubby ones toward the front. In setting each plant, push its roots gently into the sand to a depth of an inch or so. Leave the crown of the plant (area where the stems start to branch) above the sand. In setting your plants, leave adequate free-swimming space in the front and the center of the tank.

Cover the water surface with paper. Then fill the tank. If your tap water has chlorine in it, remove this chemical because it is harmful to fish. To remove chlorine, use one of the preparations available in a fish pet store, or use 3 drops of a saturated solution of sodium thiosulfate (hypo) for each gallon of water. If you use the hypo, stir, let tank settle for 5 minutes then place the fish in it. Sodium thiosulfate can be obtained in drug or photo stores. Before you put your fish in the tank, be sure the tank water is about the same temperature as the water in the containers in which you brought them home from the store. This is extremely important.

Healthy fish generally can be obtained from a reputable pet store. Buy young fish, and put them all in the tank at the same time. Because fish are often aggressive toward strangers, add new fish at night, and then the old-timers are less likely to bully the newcomers.

Cover the top of the tank with a sheet of clean glass. This will keep out dust, prevent the fish from jumping out, and reduce chilling and evaporation of water. For most tropical fish, both a heater to warm the water (78 to 84° F) and a thermometer to check the water's temperature are necessary.

Every day, the tank should receive from 8 to 10 hours of light, either natural or artificial. Too much direct sunlight will cause an overgrowth of algae along the tank's walls.

Fish Selection

You may decide to keep a number of fish of the same species in your tank. If children are to have the main responsibility for the fish, they should probably choose goldfish since they are usually hardier than the tropicals. But if a parent or other adult assumes responsibility for supervision, tropical fish may be the better choice. A community of bright tropical fish is a beautiful and fascinating display. For many people, it is worth the slight extra work involved.

When selecting tropical fish, be sure that the species can live together as a community. Some fish are quarrelsome. Others are not. Still others are very delicate, requiring special tank conditions if they are to survive and flourish.



For beginners, guppies may be the perfect choice. They have bright colors, peaceful dispositions, and tend to multiply rapidly.

The lively zebra fish is a suitable candidate for group living in your aquarium. It requires relatively little oxygen, so a number of them can thrive in the tank. The zebras are at their best when they are flashing about in a lively school.

Other recommended species are the Platys and then Neon or Glow-light Tetras, both hardy and attractive fish.

A male and female, or a single male Siamese fighting fish will add marvelous color to the tank. Contrary to its belligerent name, this species is really quite harmless to other species of fish.

The well-balanced aquarium needs some scavengers—water animals that serve as sanitation workers. Probably the best are the snails, such as the Cornucopia, Mystery, and Red Ramshorn. Catfish also help to keep the water clear of animal and plant wastes.

For the well-stocked, 10-gallon aquarium, here are two suggested lists:

List A

- 3 guppies (1 male, 2 females)
- 4 zebra fish
- 1 catfish (small)
- 1 Siamese fighting fish (male or pair)
- 2 neon tetras
- 2 snails

List B

- 2 glow-light tetras
- 2 black mollies
- 2 platys (2 males, 1 female)
- 2 rosy tetras
- 2 head and tail light tetras
- 1 catfish
- 2 snails

Some of the most popular and useful plants that are well suited to your aquarium are: Vallisneria, Sagittaria, Nitella, Cabomba, and Ludwigia. Plants are not only decorative, they perform many useful and valuable services: supplying oxygen, providing food, and offering hiding places for shy fish and baby fish (the very young, called fry).

Feeding

Feed your fish a well-balanced commercial ration. Though it is not a basic requirement, some pet owners may enjoy feeding live foods (if available) such as daphnia, brine shrimp, mealworms, or chopped-up earthworms.

Never over-feed your fish. Over-feeding can be one of the greatest causes of fish mortality. If food remains uneaten after a 5-minute period, reduce your next feeding slightly. Always remove all decayed food as well as dead fish, snails, plants, and fish excreta.

Health Care

It is exceedingly difficult to recognize and correctly diagnose fish ailments. Sickness among fish, however, can be kept to a minimum if the aquarium is well-balanced, temperature is even, fish are not overfed, and the tank is not overcrowded. Even under the best tank conditions, an occasional death must be expected. Never place pet fish in cold tap water. Promptly replace smelly or milky water.

Overcrowding is a problem if all the fish are gasping at the surface of the water. The treatment is to remove some of the fish.

General Suggestions for Treatment

1. Remove sick fish at once. Put them in a small, shallow, hospital tank.
2. Add about 2 teaspoons of salt to every gallon of water in the hospital tank.
3. Continue the treatment for several days.

4. If there is no improvement, consider disposing of them: a sharp clean blow or decapitation is the quickest and kindest way.
5. If disease is widespread, remove all the fish to the hospital tank. Then, clean out the main aquarium completely, sterilize it with 10 drops of household chlorine bleach to each gallon of water and let stand for 30 minutes. Rinse thoroughly. Refill with water, add hypo, and restock with fresh sand and plants.

Breeding

Breeding is by no means a simple project. Exact conditions must be met if fish are to propagate successfully. Consult a reference for details.

To Learn More

Ask your Volunteer Leader or Extension Educator about the Aquatic Maestro videotape series, available for loan through the video library at Ag Hall Mailing Services, or for purchase through the National 4-H Council.

Your public library is also a good source of information about Aquatic Science.

The Oklahoma 4-H Program staff acknowledges the Iowa Cooperative Extension Service for use of their 4-H publication, "Fish."

The Oklahoma Cooperative Extension Service

Bringing the University to You!

The Cooperative Extension Service is the largest, most successful informal educational organization in the world. It is a nationwide system funded and guided by a partnership of federal, state, and local governments that delivers information to help people help themselves through the land-grant university system.

Extension carries out programs in the broad categories of agriculture, natural resources and environment; family and consumer sciences; 4-H and other youth; and community resource development. Extension staff members live and work among the people they serve to help stimulate and educate Americans to plan ahead and cope with their problems.

Some characteristics of the Cooperative Extension system are:

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- It is administered by the land-grant university as designated by the state legislature through an Extension director.
- Extension programs are nonpolitical, objective, and research-based information.
- It provides practical, problem-oriented education for people of all ages. It is designated to take the knowledge of the university to those persons who do not or cannot participate in the formal classroom instruction of the university.
- It utilizes research from university, government, and other sources to help people make their own decisions.
- More than a million volunteers help multiply the impact of the Extension professional staff.
- It dispenses no funds to the public.
- It is not a regulatory agency, but it does inform people of regulations and of their options in meeting them.
- Local programs are developed and carried out in full recognition of national problems and goals.
- The Extension staff educates people through personal contacts, meetings, demonstrations, and the mass media.
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