How to Set Up a Freshwater Aquarium

Owning and caring for a freshwater aquarium allows you to observe the behavior of a number of fascinating fish and invertebrates. Once you become familiar with its requirements, maintaining a freshwater aquarium is not difficult.

SETTING UP

If a new aquarium is being used, certain precautions save a lot of potential work.

1. Rinse out the tank with hot water to remove any residues and dust. Do not use any soaps or detergents as they can affect the animals or beneficial bacteria once the tank is filled.

2. It is a good idea to test for leaks by completely filling the aquarium with water and letting it sit for 24 hours. If the tank is watertight, it is ready for set-up.

3. Place the undergravel filter in the tank first and add the columns. Airline hosing can wait until the aquarium is in its final position.

4. Rinse the gravel with freshwater until the water is clear. Layer it over the filter using one pound per gallon or add a one to two-inch layer of rock gravel on the bottom.

5. Put the aquarium in its final position before filling it with water. Select a spot away from direct sunlight and on a sturdy stand or table. Water weighs 8.3 pounds per gallon, and moving a full tank can damage not only your back but also the aquarium itself. Gently pour tap water into the tank. To avoid disturbing the gravel or leaving a pit, pour the water over your hand or a dish in order to break its flow. The water will be very cloudy at first, but will clear within a day. Add a dechlorinator to neutralize or remove excess chlorine from your tap water.

6. Hang the mechanical power filter on the back of the tank, prime it with water, and plug it in. Arrange plastic plants, shells, tubes and broken pots along the bottom to provide future hiding spots for your animals and make the aquarium more attractive. Air hoses can be cut to length to begin aerating the system. No animals should be added yet.

ESTABLISHING THE SYSTEM: PREPARING FOR FISH

Although fish and other animals can be acclimated directly into an established system, a new aquarium must be properly...

EQUIPMENT LIST

Fish Tank
Gallon sizes vary; choose according to how small or large of a tank you would like to maintain.

Undergravel Filter
A plastic tray that covers the bottom of the tank, with spaces for airlift columns.

Gravel
Provides surface area for bacteria to colonize and for the placement of plastic or live plants.

Air Pump
Circulates air through airlift columns to keep the tank oxygenated (by exposing water to the surface air) and maintains bacteria in gravel.

Plastic Tubing
Connects the columns (usually two per tank) to the pump.

Heater
Different types of fish require different temperature ranges.

Thermometer
Monitors the aquarium’s temperature.
conditioned before animals are added. Not only must temperature be constant, but the filtration system must be functioning. Fish and invertebrates produce toxic waste products in the form of ammonia, which must be removed from the water. Bacteria living in the gravel on the bottom of the tank and in the mechanical filter convert this toxic ammonia to less toxic nitrate. This method of filtration is called biological filtration. In a new system, the bacteria will be slow to break down the ammonia. Therefore, only hardy fish like platys and some tetras should be put in the tank for the first six weeks while the bacteria population is growing and converting wastes. After this point, more delicate species may be introduced.

It is also possible to “seed” a new tank with bacteria covered gravel from a healthy, established tank. Just be sure that the tank that you are taking the gravel from contains freshwater and is free of disease. This “seeding” approach will lessen the time needed to condition the water before adding animals, but is dependent on an existing aquarium. Whether you choose to “seed” your aquarium or start from scratch with all new gravel, remember that the bacteria need waste products to start the cycle of converting ammonia to nitrate. Adding one or two hardy fish and about 10 gallons of water (depending on size of tank) after set up should establish a healthy biological filtration system in your tank.

In addition to biological filtration, your tank will need methods of mechanical and chemical filtration. Mechanical filtration, or the removal of solid debris, can be achieved in a number of ways. A mechanical filter that traps solid debris can be installed. This same filter may contain carbon, which would achieve chemical filtration, or the removal of dissolved wastes, as well. A hose with a vacuum attachment can also be used to clean the gravel of excess food, debris, and fish waste, while also siphoning water out of the tank as part of a monthly water change. Water changes involve replacing some of the water from the tank (15-20%) with new freshwater in order to reduce the nitrate levels that eventually become toxic. If the water level decreases between changes due to evaporation, simply add enough dechlorinated tap water to make up the difference. To avoid thermal shock, the new water should be the same temperature as the water it is replacing.

Power Filter
An external filter that hangs on the edge of the tank to increase mechanical, chemical, and biological filtration of the water. If this filter is primarily being used as a mechanical filter, then it is not a good idea to consider it as part of your biological filter. As it is cleaned and the filter material is thrown away, beneficial bacteria may be lost.

Freshwater
Add the proper dose of dechlorinator to the tank water.

Tank Cover
Reduces evaporation from the tank and prevents fish from escaping.

Light Source
Light promotes fish and plant health.

Timer
Ensures a constant light cycle by automatically turning the light source on and off.

Plastic Bucket
For holding freshwater, washing gravel and siphoning old water.

Dechlorinator
A chemical treatment that removes chlorine from the water; follow product instructions for proper dosage.

Gravel Cleaner
A hose with vacuum attachment for siphoning excess food, debris and fish waste from the gravel.

Water Quality Test Kit
Provides tests to perform on the water to check for ammonia, pH, nitrite and nitrate levels; test your water quality bi-weekly or monthly.

Log Book
For recording water changes, feedings, new additions, mortalities and water quality test results.
ADDING YOUR NEW ANIMALS

Any fish or invertebrates that you intend to add to your tank must be acclimated to their new environment. To prevent shock from different water temperatures, you can pour the animal with its original water into a shallow plastic bowl. Float this on the surface of the aquarium and the temperature in the bowl will begin to match that of the tank. As it floats, add small portions of tank water to the bowl every 10 to 15 minutes for at least one and a half hours until the bowl is nearly full and the temperatures are the same. Then, gently scoop the animal out of the bowl with a net and add it to the tank. Discard the water in the bowl. Or, use the plastic bag in which your animal arrived and float this in the tank. Again, add tank water slowly so that both temperature and water quality will equalize. Never add the water that the fish came into your tank as this may increase ammonia or nitrate levels in your aquarium system.

A DILIGENT AQUARIST...

Remember, this information is only a basic guide. Further research is necessary before setting up and maintaining your own tank. Your local pet shop or library may have a number of good books on freshwater aquariums. These books are important resources for topics such as disease recognition and treatment, special dietary needs and breeding. Being a diligent aquarist means learning how to provide the best possible care for your fish!

ANIMAL DIET

Depending on the animals you choose for your aquarium, they will have a variety of dietary requirements. A selection of flake, pellets, dried krill, frozen brine shrimp and dried tubifex worms is an example of a good staple diet. Brine shrimp and black worms are examples of live foods that are good for some species. Commercial flake foods are acceptable, and some types of fish may also nibble on leafy vegetables. If the tank has enough sun or artificial light, algae may grow on the sides and can be beneficial. When you scrub, leave a small amount of this green growth on one side of the aquarium so that fish and invertebrates can graze on it. Since some animals require special foods or are simply picky eaters, research and experiment until a suitable diet is found. An important note to remember is that no matter what the diet, resist the temptation to overfeed any animal. Do not leave food in the tank expecting the fish to snack on it later. It is best to feed fish only until they stop eating and then clean up any extra food remaining in the tank.