

## Making a Fresh Water Aquarium

### INTRODUCTION

Making an aquarium can be fun. You can make your aquarium as simple or complex as you want to. It can be made to resemble a pond, lake or marsh. There are two main kinds of aquaria. One is made using freshwater and other is made using saltwater.

Balance is important in an aquarium. You can alter balance of either the plants or fish in an aquarium and see dramatic changes take place.

Aquaria come in all sizes and shapes. A rectangular one is probably the best shape. One rule to remember is that the width should equal the height. This allows a greater surface area of water. The amount of surface area of water controls oxygen transfer from the atmosphere. So within limits, the greater the surface area, the greater the oxygen transfer.

### SETTING UP THE FRESH WATER AQUARIUM

The number of freshwater animals and plants that will thrive together in an aquarium depends on the amount of water it will hold.

Keeping the water clear and clean is important. Do not use mud for the bed. Use coarse, clean sand: the coarser the better. Fine sand entraps decaying organic material. When you have cleaned the coarse sand, place a layer on the bottom to a depth of approximately an inch.

The next step will be to collect some stones. Here you will have to use your judgment on the size and number of stones that you collect. The stones will be used for:

- a. Landscaping,
- b. Anchoring plants in the sand,
- c. Providing shelter for water creatures, and
- d. Increasing the amount of surface area in the aquarium for water creatures to crawl and climb on.

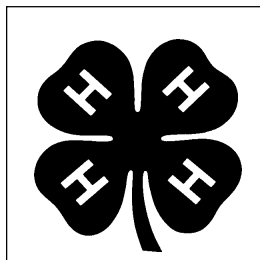
Use your imagination in selecting stones of different shapes and sizes. Make sure that they have a flat side so they will not tip over once you place them in the aquarium.

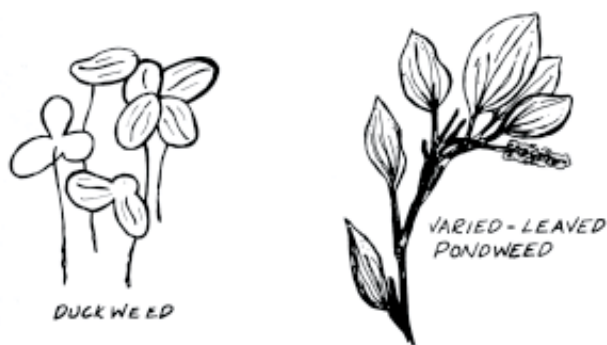
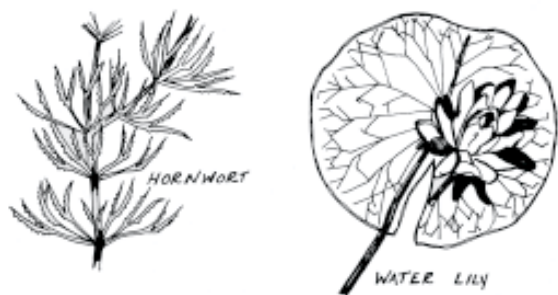
Decide where you want to keep the aquarium before you fill it with water. Moving the aquarium once it is filled with water could cause a leak. Moving can also result in damage to your landscape in the aquarium. Choose a location with a lot of light. Be careful not to place your aquarium in direct sunlight. Direct sunlight can cause overheating of the water.

Overheating will reduce the amount of oxygen in the water and some of your fish may die. Direct sunlight can also cause the green plants to grow too rapidly. Try to keep the temperature of the room between 60 and 70 degrees if possible.

Now that you have selected a location for your aquarium, you are ready to add the water. The water that you use in your aquarium is important. All life is dependent upon it. It must be clean and free of impurities. Water from the tap is probably your best source. Draw enough *hot* water in a separate container to fill the aquarium. Be sure to let it cool to room

temperature before you pour it in the aquarium. Tiny bubbles will escape while the water is cooling. These bubbles will remove some of the contaminants that might cause injury to your fish.





Do not boil the water. Boiling removes oxygen. Boiling can also concentrate some chemicals that influence hardness and salinity.

Be careful not to disturb the sand and gravel when you add the water. Pour the water in slowly on a flat rock or a tin jar lid (deep side up). Cover the bottom of the aquarium to a depth of about 2 inches. Now you are ready to select the plants for your aquarium. The number and kind of plants that you select will, in part, be determined by the size of your aquarium. A field trip to collect plants can be a lot of fun. You might want to consider the following plants, which grow in ponds and slow moving streams:

- |                   |                        |
|-------------------|------------------------|
| Duckweed          | Water crowfoot         |
| American pondweed | Water star wort        |
| Hornwort          | Sweet flag             |
| Water lily        | Varied-leaved pondweed |

Be sure that when you put your plants in the aquarium you bury the roots in the sand. In addition to the plants, make several rock piles on the bottom of the aquarium. Pile the rocks loosely. This will provide hiding places for some of your animals. Now pour in the rest of the water. Do it gently so you do not disturb any of your arrangements.

Now you are ready to add animal life to your aquarium. Ponds, streams and creeks are full of animal life that you can use in an aquarium. Make a collecting trip to a nearby pond or stream. You might want to use some of the following creatures in your aquarium:

- |                   |                   |
|-------------------|-------------------|
| Pond skates       | Freshwater shrimp |
| Backswimmers      | Female cyclops    |
| Whirligig beetles | Water flea        |
| Tadpoles          | Flatworm          |
| Water snails      | Blood worm        |
| Water scorpion    | Golden shiner     |
| Darter            | Gambusia          |

## MANAGING A FRESHWATER AQUARIUM

Your ability to manage an aquarium will depend on your knowledge of certain rules by which animals and plants grow and live. Plants are an important part of the world of your aquarium. They manufacture their own food. They do this using water, carbon dioxide and chemicals dissolved in the water. They can only do this in the presence of a good source of indirect light. During the process of food-making, oxygen is given off by the plants. This oxygen is used by many water creatures. In return, the water creatures release carbon dioxide into the water. This replaces the carbon dioxide used by the plants.

Under some conditions the oxygen supply for aquatic animals such as fish becomes low. When this happens, they begin to skim the surface. Now you must find the cause of the low oxygen supply. Is it from high water temperature? Too many fish inhaling the limited supply? Too few green plants producing oxygen?

Another problem you may face is your plants growing out of control. Maybe you may want to add some animals that feed on plants. You can even crop some of the plants yourself.

A very common problem is overfeeding. Feed your aquatic animals at regular intervals. Do not feed them too much. When food begins to collect at the bottom of the aquarium, you are overfeeding.

## SOME OTHER THINGS TO DO

1. Be alert for new additions for your aquarium.
2. Give a demonstration to your club on how to build an aquarium.
3. Give a demonstration to your club on how to collect plants and animal creatures for an aquarium.
4. Give a demonstration on life cycles and food chains that you have observed in your aquarium.

Check with your local library and reliable internet resources for additional information on building and managing a freshwater aquarium.



WATER CROWFOOT



AMERICAN PONDWEED



WATER SCORPION



FRESHWATER SHRIMP



SWEET FLAG



WATER STAR WORT



GAMBUSIA



CYCLOPS



WATER FLEA



TADPOLE

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