

Program 26 - THE VIVARIUM GOES TO SCHOOL - March 31, 1941  
(How To Bring the Outdoors Indoors)

SOMETHING TO DO AND TALK ABOUT FIRST

1. What does the word, vivarium, mean?
2. Would the children enjoy having a vivarium? In what ways would it be a laboratory for studying plant and animal life?
3. What kinds of plants and animals could make their homes there?
4. How does a vivarium differ from an aquarium?

DO YOU KNOW THESE WORDS?

vivarium

aquarium

biology

LISTEN FOR THESE IDEAS

1. Is this a good time of year to start a vivarium in a school room? Why?
2. How is a vivarium constructed?
3. What use is made of rocks, sand, and water?
4. How can we guarantee a constant supply of water?
5. What kinds of plants are used?
6. What kinds of animals can we keep in this enclosure?
7. Why is it important to make conditions as nearly like the natural habitat as possible?
8. What foods must we supply?

SOMETHING TO DO AND TALK ABOUT LATER

1. Many high schools have vivariums for help in teaching biological sciences. Visit such a high school and study the vivarium. Maybe the biology teacher would help you to construct your vivarium.
2. What can Trailhitters learn from a vivarium?

Wisconsin School of the Air  
Afield With Ranger Mac  
March 31, 1941

### THE VIVARIUM GOES TO SCHOOL

Hello Boys and Girls:

How does it seem to wake up to the cheery song of the robin? This morning as I gradually emerged from the land of nod, I heard a robin singing on a near-by tree, a meadow lark over in a vacant lot, a flock of red wings flew by near enough so that I could hear their "Cheer-O-lee" song, a cardinal whistling from the top-most branch of some tree, while down on the near-by pond the ducks, warmed with the new wine of the year, were quacking loud enough to awaken the whole neighborhood. These ducks are wild ducks that stay in the spring-pond all winter. ~~When we visit the duck pond on April 28, we'll talk more about them.~~ ~~But~~ Just now these ducks are fully dressed in their courtship feathers, and are engaging in their courtship antics of showing off their new dress suits. It is interesting to watch their funny antics. It is interesting to lie still in bed and listen to their quacks that float in through the open window. The man who invented the alarm clock should have been punished by putting him in a locked room for life with alarm clocks sounding all the time. The way to awaken is like the birds awaken, or like the wood chuck, or as the sun rises, gradually and not by the shrill explosion of a bell. When you awaken tomorrow morning, lie perfectly still, and watch the light of the morning sky brighten around you, and listen for the far-carrying bird songs, and then allow your imagination to run to far places in woods and meadows and marshes where you know the awakening of animals must be taken place. It's fun. Try it. That's what I call taking a hike in bed. That's one way of bringing the outdoors indoors - our subject for today.

The other way to bring the outdoors indoors is to go out and get those living things you would like to watch and study, and make a home for them; a home that is very much like their outdoor homes. Such a place is

called a vivarium. Vivarium is a new word for many trailblitters, but if you looked it up in the dictionary, as you were supposed to do, you found that it means a place for growing and caring for plants and animals. You have heard of the aquarium. That comes from the word "aqua" meaning water. So an aquarium is a place to take care of water animals. But a vivarium is a place to care for earth animals as well as water animals and plants. An aquarium is easily made. All that is required is a large glass jar. In the bottom put some washed pebbles and some sand, put in a few plants that live in water, which plants supply the oxygen necessary for the animals. In this place you can keep a few fish and some tadpoles. When the tadpoles develop into frogs or toads, they are put in the vivarium.

Ranger Mac visited a schoolroom sometime ago where the boys and girls were enjoying a vivarium. They made most everything themselves. They had to get a tinsmith to make the zinc bottom for the vivarium, but they constructed the sides, brought the small animals such as toads, frogs, salamanders and snakes, and some of the seeds and the plants. They collected the rocks, sand and soil. I suppose they learned more about frogs, toads and snakes - how they grow and live - from their experience with that vivarium than they could ever learn from books. Ranger Mac is going to tell you how they did it.

First they had a zinc tray made that was four inches deep, about 20 inches wide and four feet long. Around this they built a frame work that was twenty inches high. I believe that the manual training teacher in the nearby high school helped them with this frame. This frame was covered with a fine mesh wire screen on three sides. The fourth side was filled with a piece of glass so that the life within could be watched easily by the children. This whole structure was placed on a table with rollers to allow moving about the room or from one room to another. Both the glass front and the rollers are not necessary, however. This doesn't sound very hard to construct, does it? I suppose most any interested boy could do the same thing at home; that is

if his interests were keen enough.

Now let's see what they did on the inside of the frame to make it livable for plants and animals. The children placed small rocks and sand in the bottom for drainage. A hole was made in the bottom of the zinc tray to allow the water to run out slowly if the soil became too wet. Then they placed soil over the rocks and sand. On this, some larger rocks were placed to make a few little caves for animals to hide. On top of these rocks was placed a tin can with a very small hole in it. When this tin can was filled, the water would run among the rocks along a little stream bed made of cement to a little pan at the opposite corner of the vivarium. When that pan filled with water to a certain height, a little tube lead the water from the pool. Filling the tin can every day or every other day was all that was necessary. Can you see how that vivarium was constructed? Very simple, just keeping in mind that animals are happy in a place like their outdoor homes; that frogs and toads need damp earth to keep their skins moist; that some animals like shady places and places to hide; that some plants need moist places, and others not so moist.

Now let's see how and what life was placed in this home. First angleworms were placed in the vivarium to keep the soil loose. These angleworms served as food for some of the inhabitants of the vivarium. A few of the plants were purchased from the greenhouse like the snakeleaf, sometimes called Mother-in-law's tongue, and a small umbrella plant, but most of the plants were brought from the woods and roadsides and from the children's homes. There was a strawberry plant, a few wood violets, watercress, a dandelion, peppermint and some wild ferns. The children planted acorns, mapleseeds, and grapefruit seeds. The grape fruit grew well and were green and attractive. Grass seed was sown over certain areas. This stays green for a time, then dies out and must be resown, but it looks attractive while it lasts.

When this home was ready, the children caught and placed within it a half dozen toads, two or three frogs, two garter snakes, a salamander and

four small turtles. Fish and tadpoles were put in the pool but these didn't last long for they were eaten.

The most fun came from taking care of the vivarium each day and watching the animals. The soil needs sprinkling each day to keep the plants fresh, and the children learned to handle the plants and animals with care. The toads and frogs enjoy having their backs stroked gently. They sit while this is going on with the most contented look on their faces. The snakes become less afraid when handled often. During the winter these animals do not eat for that is their hibernating time, but with the coming of warm weather in the spring they must be fed, and so children bring insects and worms of many kinds to school. But the greatest fun comes from observing the animals. The children learn that the snake crawls into its hole head first, and that the toads and frogs back into their holes, covering themselves up as they go all except the head. Then if an enemy comes along, back goes the head, the earth caves in around it, and where is Mr. Toad? The children learned that the frog and toad do not breathe ~~as~~ we do but must swallow the air instead. This accounts for the in and out movement of the membrane of the throat. The children learn that a toad never drinks by taking water in through the mouth, but absorbs it through the skin. When it wishes to drink it stretches itself out in the pool and thus satisfies its thirst. A toad would waste away and die in a short time if kept in a dry atmosphere. The children might even get a chance to see the toad shed its skin and then eat it, something an ordinary observer seldom sees. They see how the snake sheds its skin and how it moves without feet. Above all, the children learn to have no feeling of fear when playing with the different animals and develop an attitude of kindness and thoughtfulness through handling the creatures. One time each child pretended he was one of the animals in the vivarium, and he wrote of the experiences he had, what things he liked, and how he liked the treatment he was receiving. In that way

each child was able to see the animal's side of things. Even mothers came to school to see the vivarium which they had heard so much about, and were glad that their youngsters were growing up without a feeling of horror at handling a snake or a toad.

Along about the 15th or 20th of April we'll hear the peepers in southern Wisconsin, and about two weeks later in Northern Wisconsin. These peepers are little frogs about an inch long and are very hard to see. I have ridden on the train and heard their peeping above the noise of the train, and many a time have I walked down to the edge of a pond where hundreds of them were making music and was not able to see even one. But here is a way to get a look at them and to catch them for your vivarium. Some quiet night put a candle on a little board. Light the candle and float it out onto the water with a string attached. The candle light attracts them; they jump on the board and by gently pulling on the string you can get a few of them to the shore. Then if you have a net ready a few may be captured for your vivarium. We all hear these peepers but very few people ever see them. That's why they would make interesting specimens for your vivarium.

If you feel that a vivarium is a little more than you would like to make and handle, let me show you how simply an aquarium can be made. Take any kind of a glass receptacle - a tumbler, fruit jar, candy jar, or battery jar. Place in the jar a layer of sand an inch or more in depth. In this sand plant the water plants you find growing under water in any pond or stream. Then on top of the sand place some small stones or gravel to hold the plants in place. Now by dipping the jar a little pour in very gently along the side water taken from the pond or stream. Place this in a window which does not get direct sunlight. A north window is best. Now with a dip net dip deep into the edges of a pond and be sure to bring up some of the leaves and mud, for it is in these that the little animals live. Put the little creatures in a pail and bring them to the schoolroom, and put only a few of them in each jar. Keep the

plants growing in the aquarium because plants are necessary to the life of the animals. They supply some of the food, they give off the oxygen which the animals need for breathing, and they absorb the poisonous gas given off from the bodies of the animals. To feed these animals tie a little piece of beef to a string and suspend it in the jar. After it has been in for a day remove because after that it is apt to make the water foul.

It is a very simple thing to make an aquarium, just as you see, and you would be surprised to learn how many interesting things a simple aquarium, like the one described, has to offer to Trailhitters.

Goodbye until next week.

May the Great Spirit

Put Sunshine into your Heart

Today, and forever more

HEAP MUCH!