

Here belong some of our worst weeds as well as some of our most common vegetables and flowers. Among the former are two or three species of pepper grass, two or three mustards, the worm-seed mustard, wild radish, and shepherd's purse. Wild species which are not weeds are toothwort, sea rocket and two or three species of Cress.

Cruciferous vegetables are radish, mustard, turnip, cabbage, cauliflower, Kohl-rabi, and horse-radish. Well known flowers are Stocks, Arabis, Sweet Alyssum, Candy-tuft and Wall flower.

May I urge young teachers who may not know all our common flowers and weeds, to save these lists until next summer? Everything I name is easily found. Learn the family characteristics and, as the season advances, try to make complete family collections. During the winter, read seed catalogues; and order seeds of each cultivated plant I mention. If you have no school garden, grow them at your home or your boarding place. Encourage your pupils to grow them at home. The result will repay the effort many times over.

NATURE STUDY OF ANIMALS.

Suggested studies for the last part of October and the first part of November.

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For general work throughout the grades, use the fish, rabbit and squirrel. For the lower grade each subject (animal) should suggest topics for two or three fifteen-minute lessons; these should be followed by a comparison of the different forms.

In taking up the work on the fish, you should, if possible, provide a small live fish or two in an aquarium, and also several dead specimens of the same species. In providing aquaria no extra expense need be incurred, as large glass fruit jars, candy jars, or other glass vessels serve the purpose very well. If you plan to keep the fish several days, you will have to either change the water several times daily, or, better still, provide your aquarium with a growing water-plant. For this purpose use plants found growing under the water.

In setting up your aquarium, first of all cover the bottom, an inch or two deep, with small stones taken carefully from a pond. Next take some mud and leaves from the bottom of the pond, being careful to disturb them as little as possible, and place upon the stones. Next plant the water-plants mentioned above, among the stones, and then very gently

pour the water down one side of the vessel or along a slanting board, filling to the depth you desire. Place in a cool part of the room where the sun will not shine directly upon it for any length of time, as most fish, tadpoles, etc., cannot live long in warm water. After the mud has settled, and the water has become perfectly clear, put your live specimen in this "pond." You may find it of advantage to tie mosquito-bar over the dish, to keep the fish from jumping out; under certain conditions I have known fish to jump as high as six inches over the sides of a similar prison.

This interesting work may be much extended, and other forms kept in aquaria for observation, and study. Snails, water beetles, fresh-water clams, etc., readily lend themselves to such treatment. In the aquarium for the clam, place in the bottom only clear sand, about two inches deep. Direct the higher grades in this work.

The breathing, swimming, floating, sinking, etc., of your fish, will be of great interest, and provide for your higher grades valuable topics, as the illustrate the application of chemistry and physics to the functions in animal life.

Note and sketch the outline of the body as seen from above, and from the sides. Observe the body covering, the scales, and make a diagram of their arrangement. Study a scale from a dead specimen, sketching and note its texture. How does this covering compare with that of the snake, toad, bird and horse?

Examine closely the sides of the fish for linear markings, and lead your pupils to discover themselves the lateral line, extending from head to tail. Examine scales from this region. Are they exactly like the others. This lateral line is a zone of sense-cells of rather doubtful function. On page 306, "General Zoology," Linville and Kelly, in an account of the fish, we find this reference:—"Along a clearly defined lateral line, the scales are somewhat modified, and beneath them are sense organs, the functions of which have been variously stated. Professor G. H. Parker considers these organs are sensitive to mechanical jars of a low rate of frequency, thus standing between the organs of touch proper and those of hearing."

Call attention to the appendage, the fins, both the medial and the paired. Diagram the fish on the black-board, marking in and naming these as well as other parts, such as the mouth, nose, eye, ear region, and the gill-covers and gills.