

## Nature Study for October

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**The Fish.**—In the June number of *THE SCHOOL* there was given a concise account of the best method of constructing and managing an aquarium. The reader is referred to this article. If the teacher is unable to construct or purchase such an aquarium any glass jar will serve the purpose. Several small fish should be placed in this vessel. If each pupil could have one all the better. A creek or small stream is found in the vicinity of every school and this is sure to contain several species of small fish which are admirable for the purpose. If the boys are supplied with a dip-net they will generally be pleased to furnish an abundant supply. The fish should be observed by the pupils for a week or two before the formal lesson is taken on Friday. The facts to be observed are so numerous that only a few can be suggested.

(a) *Observations to be made by the pupils.* Describe the form of the fish. How is this suitable to its method of locomotion? How many fins has it? How would a dead fish lie on the water? What fins does it use to keep it in a vertical position? What fin does it use to steer it from side to side? Which fins would be used when it wishes to turn up or down? What is the main swimming organ? Breathing is usually a rhythmical motion of the organs involved. Can you notice any such motion in the fish? What parts move in breathing? From where must it get the air it breathes? Does water contain air? (Let each pupil at home fill a bottle with cold water and turn it mouth down in a dish of water, then place it near the warm stove and see if some air collects at the upper part of the bottle). Test what kinds of food the fish will eat. Does it chew its food? Does it bite it off or swallow it whole? Why would a fish not require as much food in proportion to its size as a person? What organs of sense can be detected? Has a fish eyelids? If not why are they not required? Test whether a fish pays attention to sounds. Has it organs of smell?

(b) *Information for the teacher.*—The pointed, tapering shape of the fish eminently suits its method of locomotion. Water is a strongly resisting medium and this form gives the minimum amount of resistance as it glides rapidly through its depths. Most fish are flat from side to side and would float naturally on the side or with the heavier dorsal surface downward. In fact a dead fish always floats in this position, indicating that the centre of gravity is nearer the upper than the under surface.