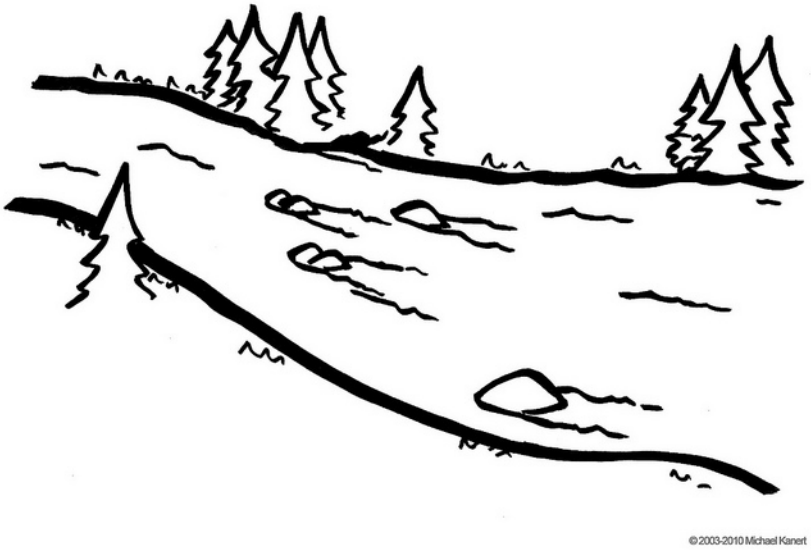
Watery World



Key Groups: Families, school groups, (ages 8-11)

Subjects: Aquatic Insects

Duration: 30-45 minutes

Abilities: Observation, labeling, note-taking/describing, drawing

Materials: 5x 5 container (a whip cream container would work great) microscopes *or* magnifying glasses, clipboards, notebook, pencils, coloring pencils, shorts

Background: In fresh water habitats, insects are among the most common and ecologically important of the small animals without a backbone. What makes an animal an insect? To be classified as an insect, an animal must have a segmented body (head, thorax, and abdomen), antennae, six legs, two compound eyes, and an exoskeleton. There are many kinds of aquatic insects living in Mill Creek Canyon, including Springtails, Mayflies, Dragonflies, Damselflies, Stoneflies, True Bugs, Alderflies, Dobsonflies, Caddisflies, Moths, Beetles, Butterflies, Flies, and Midges. All of these insects start out as larvae, but undergo metamorphosis and become adults, just as humans start out as babies and become grown-ups one day. We breathe with our lungs; however, insects breathe through little tiny openings in their exoskeleton called spiracles. Insects have adapted to breathing under

water in various ways. They either trap air in a bubble and take it in around their body; or use their tubes, gills, or body surface.

Method: After telling the kids a little about the aquatic insects they will be studying (types of insects), obtain a rock from the stream to put in the container. Have one person or persons pass out microscopes or magnifying glasses for observation. Then allow them to take notes of what they observe about the insects on the rock. Guide them in what to look for by asking them about their insect's length, abdomen, presence or lack of gills, etc. Let them also draw a picture of what they see and color their creation.

Assessment:

-Kids will classify the insects they have collected (see the page at the end).

Further Learning:

-Have the kids label the body parts on the picture they have drawn.

-Have the kids draw an insect's life cycle.

-Complete the word search and crossword puzzle attached (see the end)

Works Cited

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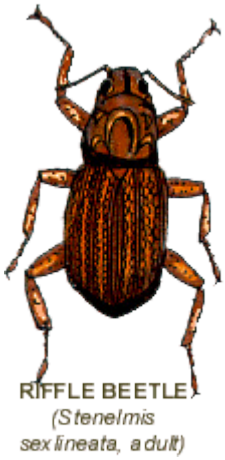
See What You Can Find:

(Insect Illustrations Courtesy of Mike Simiu)

Stoneflies: These insects live in clear, cold streams with high levels of oxygen. They have two lengthy antennae, gills behind each leg, two lengthy hair-like tails, and two hooks at the backs of each leg to hold on to the streambed even in fast currents.



Riffle Beetle: Larvae resemble long caterpillars, whereas the adults have tiny (1/4 inches) oval bodies.

FLATHEADED MAYFLY
(Stenacron interpunctatum, larva)

Mayflies: They typically are found on uncovered rocks in swift, clear streams or they could even live buried in soft stream beds for safety. Mayflies are a common source of food for fish, because large populations of flying adults often come out of the stream at the same time as the fish.

CADDISFLY
(Symphitopsyche slossanae, larva)

Caddis fly: Caddis fly larvae are fascinating insects, because they make their own homes. There are a lot of varieties of caddis flies, and each type creates a dissimilar house for themselves out of dissimilar materials, from small rocks, to sticks, to mud.

WATER PENNY

Water Pennies: They are found in cold, swift streams. They are frequently found on slippery rocks. Their own smooth, flattened bodies help them to withstand the force of the current and remain on the rocks.

ALDERFLY
(Sialis hamata, larva)

Alderflies: These carnivorous insects have large chewing pinchers in their mouths. Alderflies have a smooth underside and one, straight, feather-like tail.

RIFFLE BEETLE
(Stenelmis sp., larva)

Riffle Beetle Larva: They move on the waterbed with small segmented legs on the top middle portion of their body.

CRANE FLY
(Tipula abdominalis, larva)

Crane flies: These are large flies that seem like big mosquitoes. It has long slim legs and wings. A crane fly larva looks like a thick worm. They can grow up to 4 inches long!

SPREADWINGED DAMSELFLY
(Lestes congener, larva)

Damselflies: These have big eyes and long spindly legs. Their 3 fan-shaped tails are really gills!

WATERSNIPE FLY
(Atherix pachypus, larva)

Watersnipe fly: Just like Riffle Beetle Larva, Watersnipe fly larva seem like caterpillars. They are carnivorous and can bite! They typically are a greenish color.

Insects not Sensitive to Pollution

(Insect Illustrations by Mike Simiu)

MIDGE
(Chironomus attenuatus, larva)

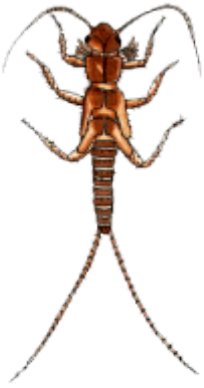
MIDGE
(Pseudodiamesa sp., larva)

Midges: These live in extremely polluted waters. They grow up to 1/2 inch in length and have a worm-like body.

BLACK FLY
(Simulium vittatum, pupa)

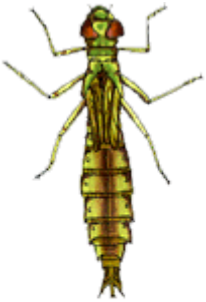
Black fly: Larvae have tiny suckers on the backs of their abdomen, which they use to anchor themselves to rocks. They feed by filtering food from the water with their tiny gills. When they move, they drift downstream, but stay connected to their rock with silken threads, which stretch from their abdomen.

Other:



NEMOURID BROADBACKS
(Amphinemura nigritta, larva)

CLUBTAIL
(Gomphus vastus, larva)



DARNER
(Anax junius, larva)

PREDACIOUS DIVING BEETLE