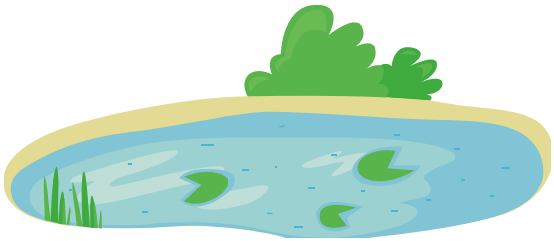
Cary Institute
of Ecosystem Studies

MacroinvertbrateStream Study

Together, we are going to conduct scientific research on our local creek

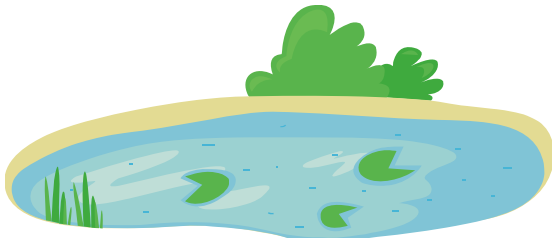
But first, we need to learn about the creek as a HABITAT

A **HABITAT** is the natural environment in which an organism lives .



A **HABITAT** is the ~~natural~~ environment in which an organism lives .

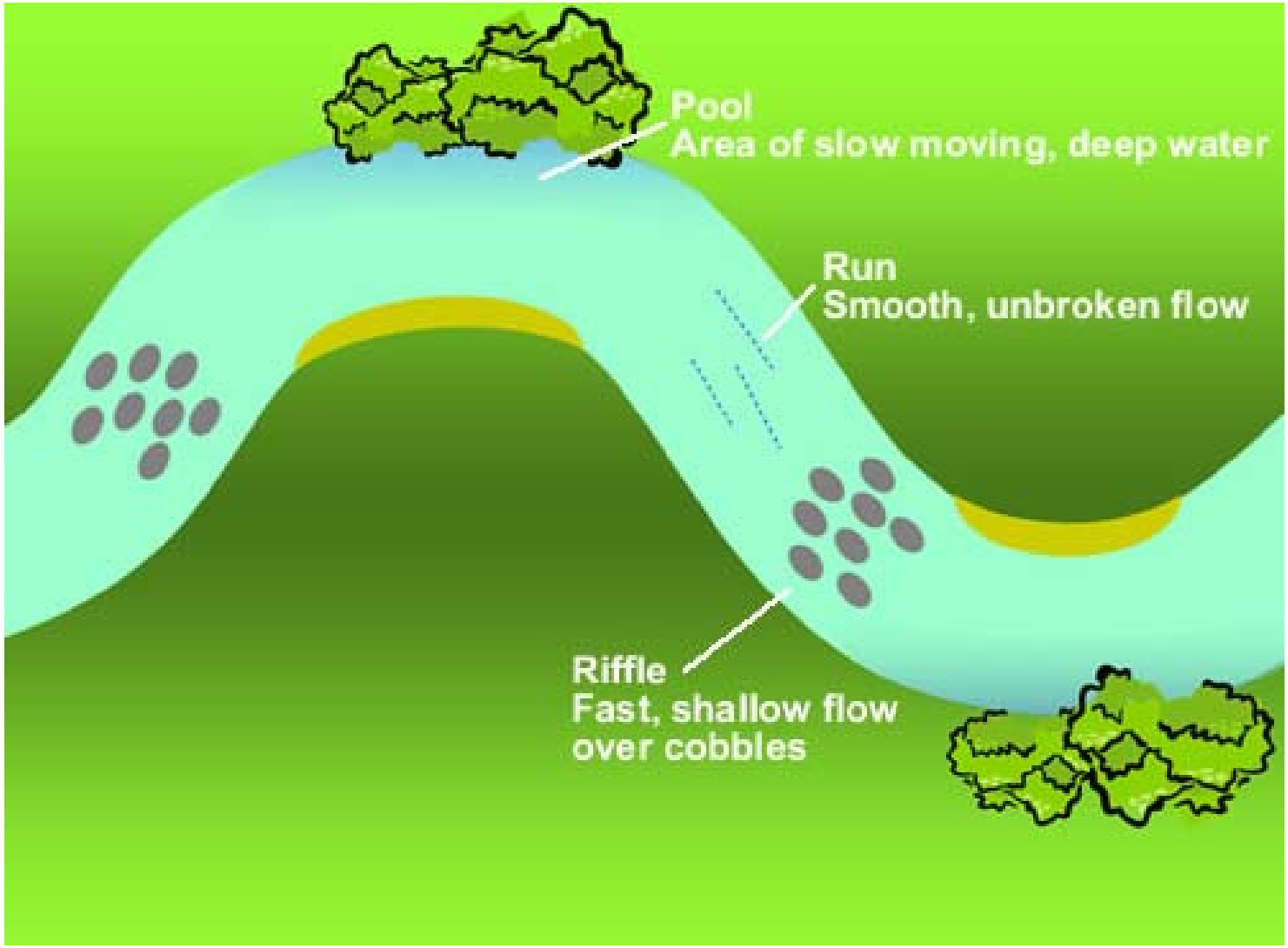
Cities can be habitats too!!



How many different habitats are there in a stream ecosystem?

What is a MICROHABITAT?

Pools, Riffles, Runs



http://ag.arizona.edu/watershedsteward/resources/module/Stream

Anatomy of a stream

www.lakesuperiorstreams.org

How are Pools and Riffles different

- Speed of water
- Oxygen levels
- Temperature
- Depth of water
- Size of rocks
- Amount of detritus

Abiotic Conditions

Our Goal

Together, we will answer the question:

Do different organisms live in pools than in riffles?

WHY? What are characteristics of the physical environment that might cause these differences?

How will we answer this question?

LEAF PACKS!!

Streams depend on the trees around them for inputs in the form of leaves and wood material. Scientists call this detritus.

Why are these leaves important to the stream?

The detritus has many roles in the stream ecosystem, including providing habitat and food for stream organisms

A few examples of the macroinvertebrates you might collect…

Group 1: These are sensitive to pollutants. Circle each animal found.

Stonefly Larva

Dobsonfly Larva

Alderfly Larva

Water Snipe Fly Larva

No. of group 1 animals circled: ☐

Relative Size Key:

= larger than picture

= smaller than picture

Group 2: These are semi-sensitive to pollutants. Circle each animal found.

Caddisfly Larva*

*All Caddisfly Larva = 1

Dragonfly Larva

Water Penny

Crawfish

No. of group 2 animals circled: ☐

Crane Fly Larvae

Freshwater Mussel or Fingernail clam

Mayfly Larva

Damselfly Larva

Damselfly tail (side view)

Riffle Beetle Larva*

Riffle Beetle Adult*

*All Riffle Beetles = 1

Group 3: These are semi-tolerant of pollutants. Circle each animal found.

Black Fly Larva

Non-Red Midge Larva

Snails: Orb or Gilled (right side opening)

Amphipod or Scud

No. of group 3 animals circled: ☐

Group 4: These are tolerant of pollutants. Circle each animal found.

Pouch Snail (left side opening)

Isopod or Aquatic Sowbug

Bloodworm Midge Larva (red)

Leech

Tubifex Worm

No. of group 4 animals circled: ☐

Water Action Volunteers

It's time to make a prediction or hypothesis for our experiment:

- Will there be different organisms living in the leaf packs that were placed in different microhabitats (riffle vs. pool)?

- What are characteristics of these microhabitats that might affect what lives there?

- *Why do you think so? What might be important to consider when you make this prediction?*

Remember to think like a scientist!

- Take complete and descriptive data
- Follow directions
- Have fun!

Dr. Dave Strayer of the Cary Institute conducting research in the Hudson River