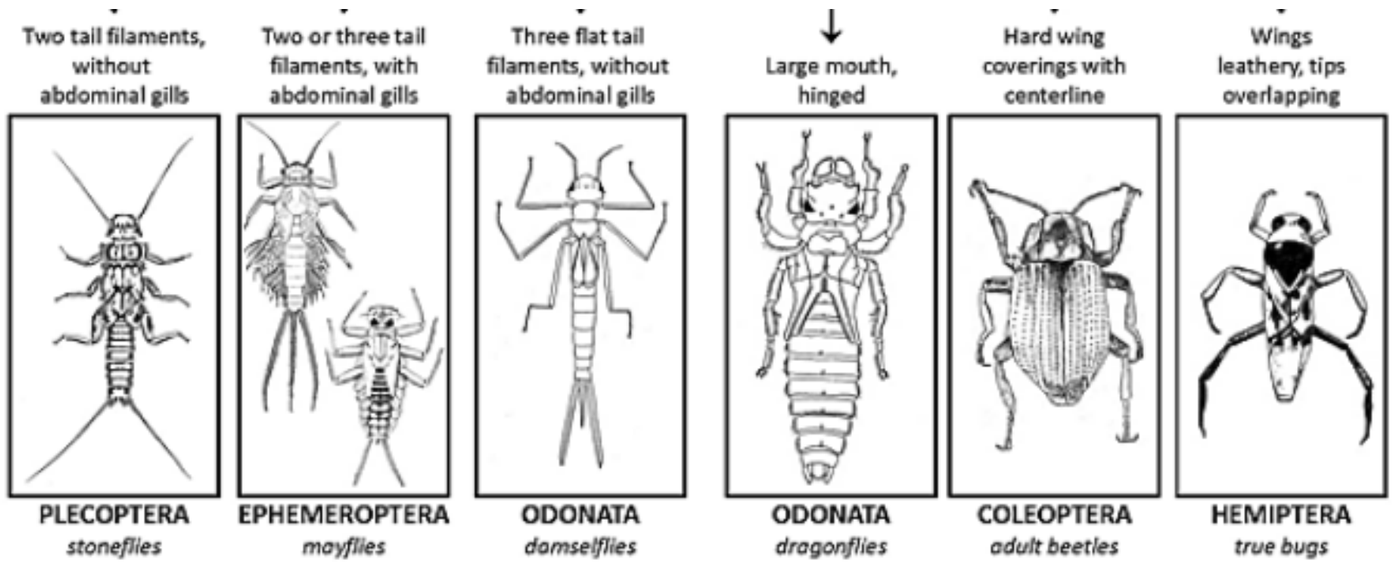
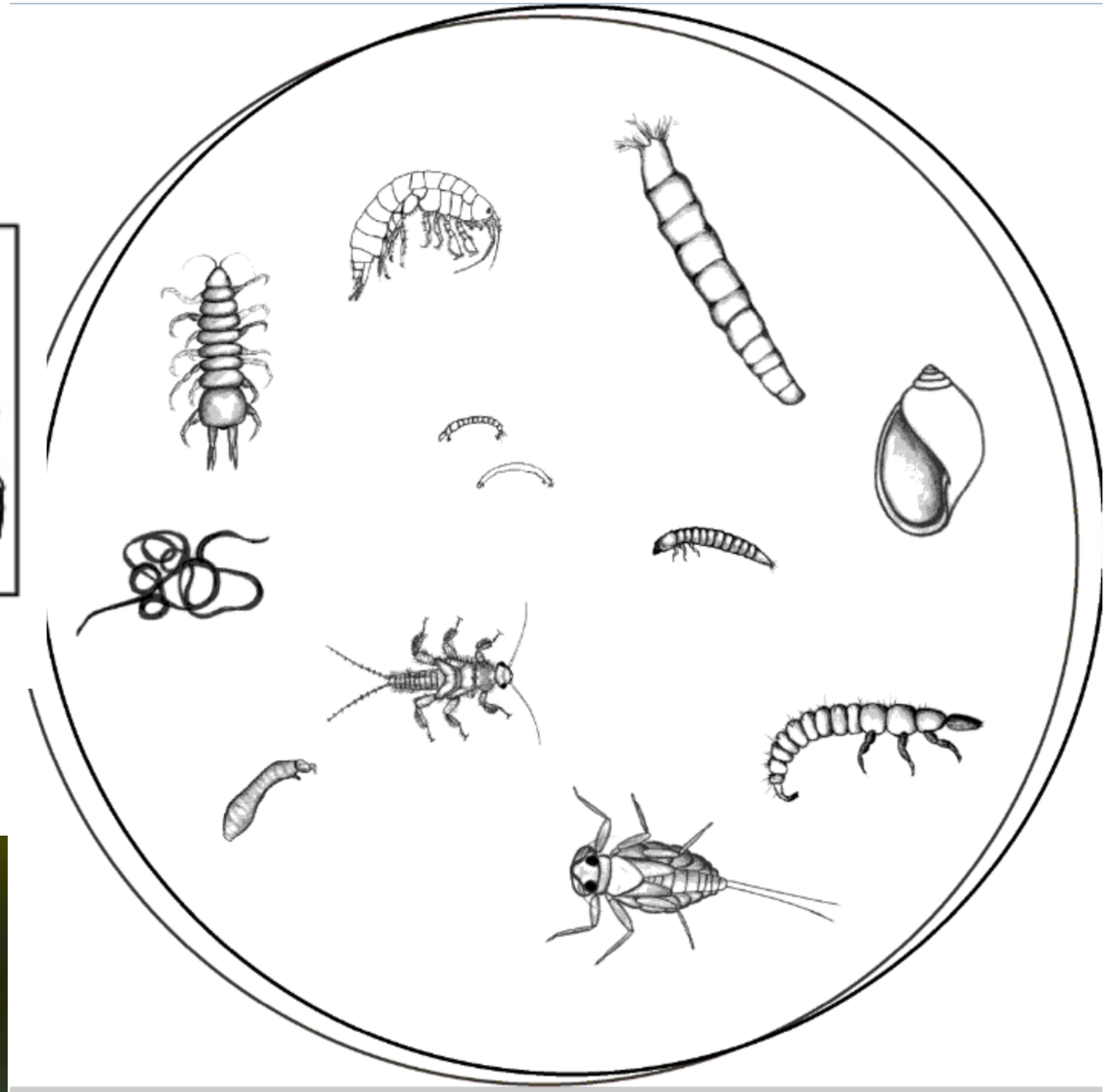
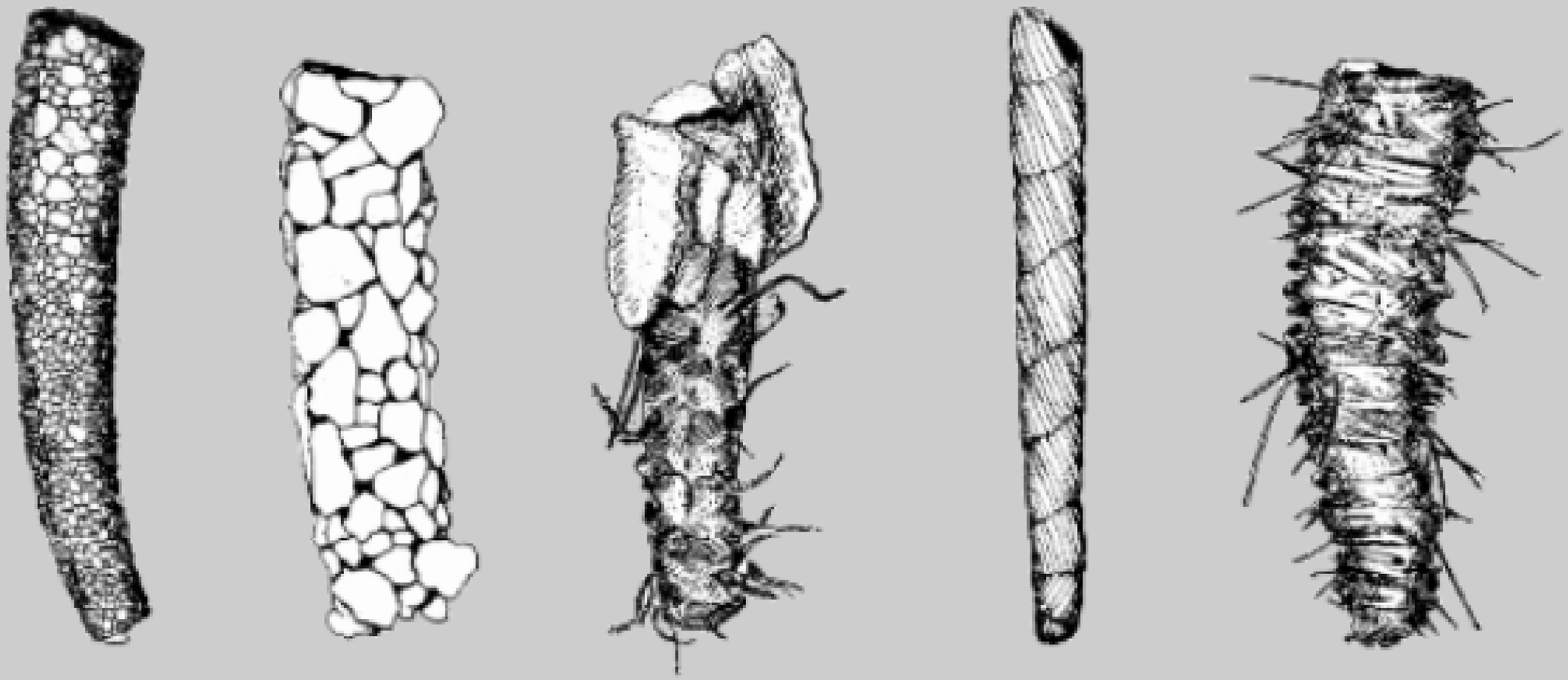
AQUATIC INSECTS

GOING BUGGY


Two tail filaments, without abdominal gills
Two or three tail filaments, with abdominal gills
Three flat tail filaments, without abdominal gills
Large mouth, hinged
Hard wing coverings with centerline
Wings leathery, tips overlapping
PLECOPTERA
stoneflies
EPHEMEROPTERA
mayflies
ODONATA
damselflies
ODONATA
dragonflies
COLEOPTERA
adult beetles
HEMIPTERA
true bugs



Examples of Caddisfly Cases



DID YOU KNOW……The caddis fly

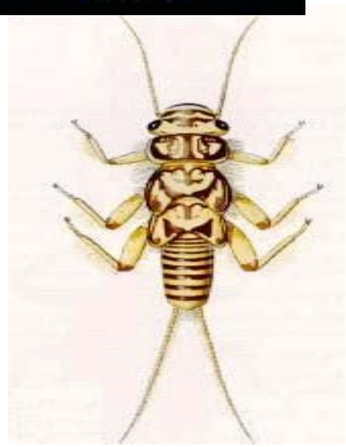
- Builds its own home (case) by gluing stream pebbles or sticks together with a silk it makes
- named after 15th century ribbon (caddice) sellers who pinned many ribbons to coat
- Female lays up to 800 eggs

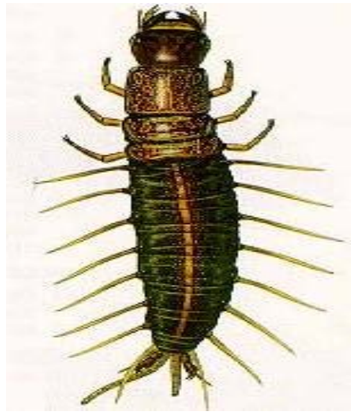
AQUATIC INSECTS

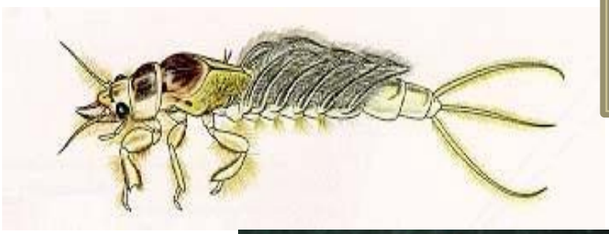
What are they

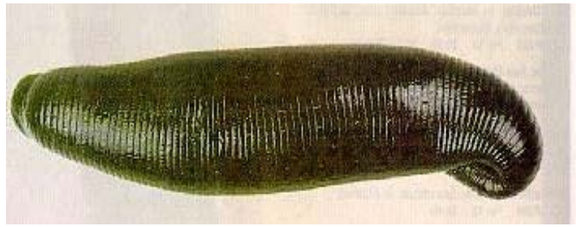
AND

what are they good for?









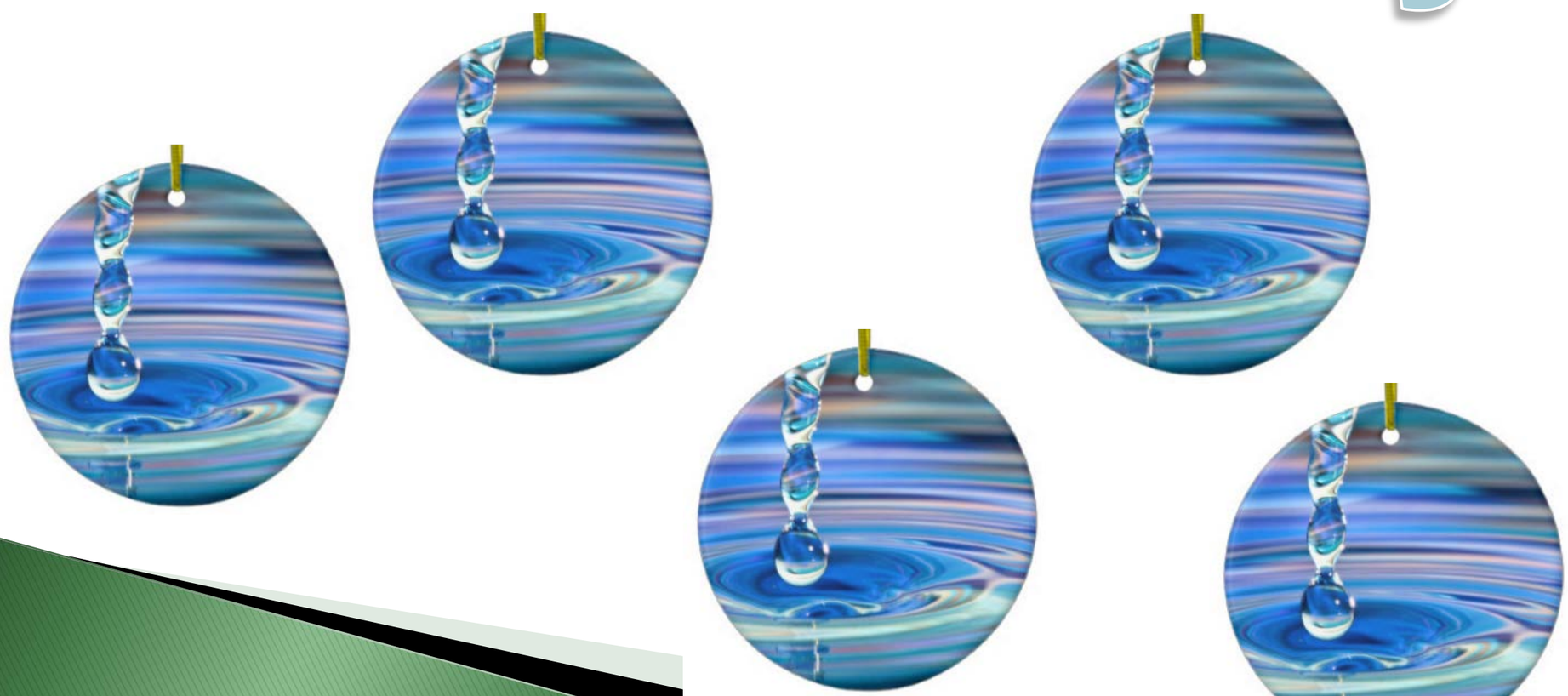
WHAT ARE THEY?

- We all know what they are, right?
  - They are insects!
  - That live in water or near water
  - Usually found in clean and polluted water

- They breakdown plant and animal matter in the water.
- Serve as food for fish, amphibians, water birds
- Are used to determine the health of water
- So they are GOOD bugs

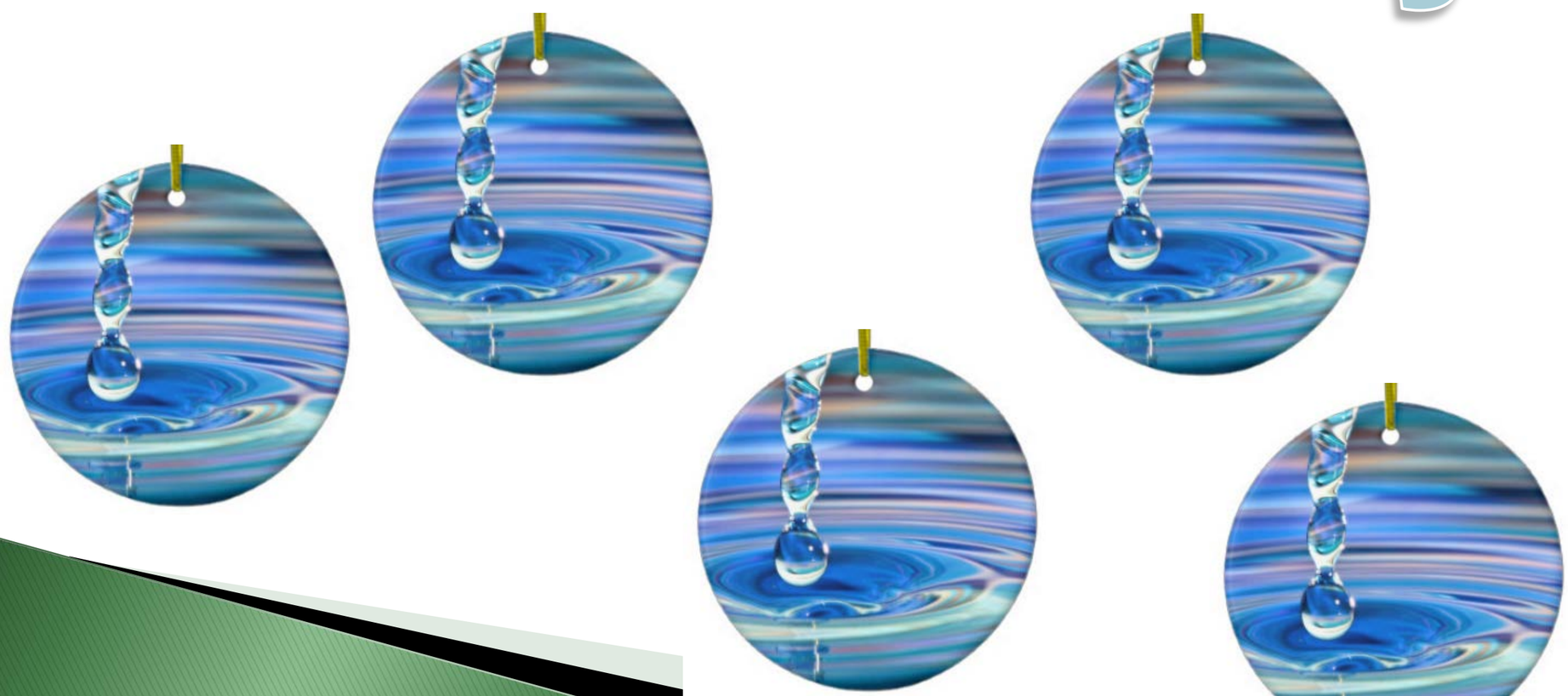
WHAT ARE THEY GOOD FOR?

Indicators of Water Quality



Explain to the students that they will be collecting and studying aquatic insects as INDICATORS OF WATER QUALITY

Indicators of Water Quality

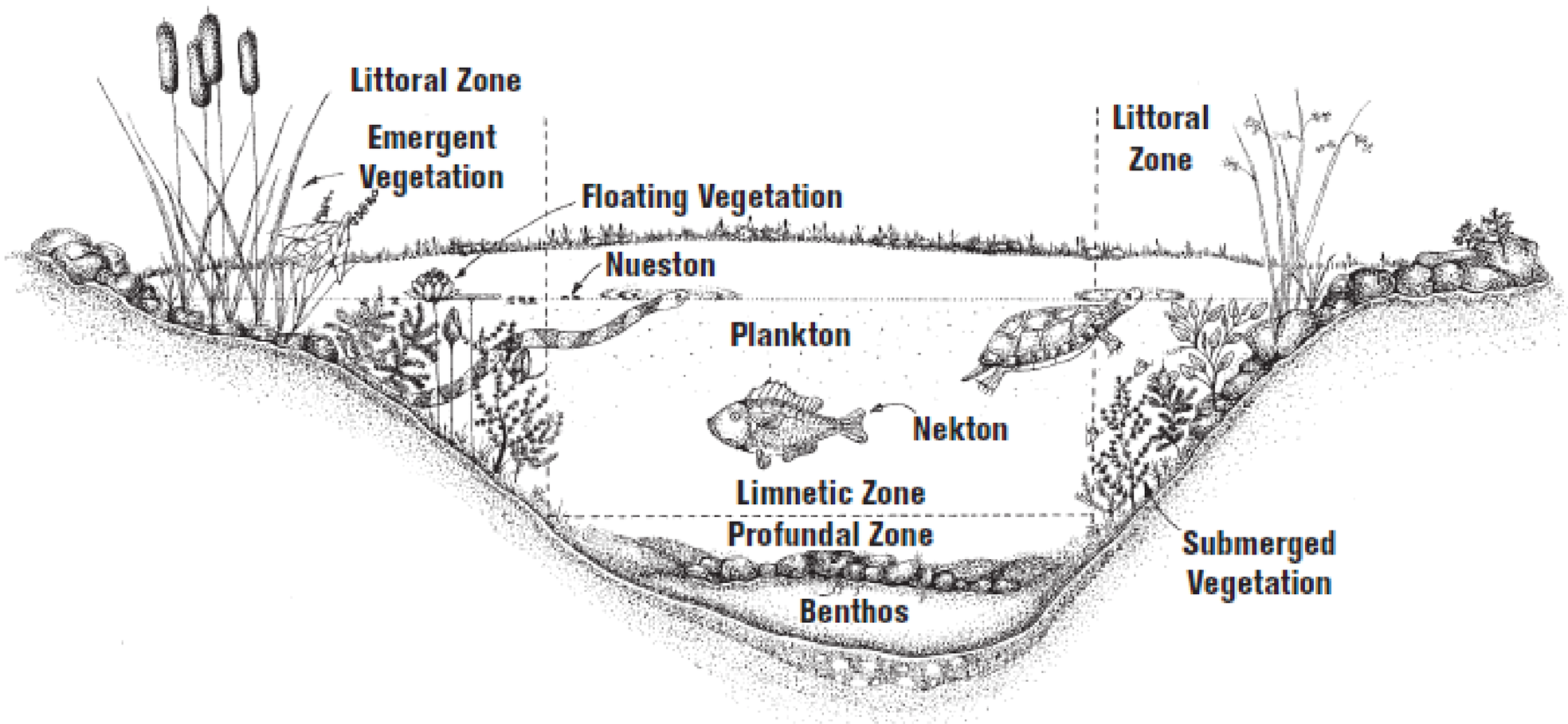


WHERE TO FIND THEM

Look at the picture, where are some places in the pond that we can look for aquatic insects?

- On floating vegetation
- Submerged vegetation
- Under rocks & loose rocks
- In the soil
- On top of the water
- On, in, or near moist banks

Standing Water Habitats



Recovery of a Stream

Zones of Pollution					
	Clean Water	Degradation	Active Decomposition	Recovery	Clean Water
Dissolved Oxygen SAG Curve	Origin of Pollution				
Physical Indices	Clear, no bottom sludge	Floating solids, bottom sludge	Turbid, foul gas, bottom sludge	Turbid, bottom sludge	Clear, no bottom sludge
Fish Present	Game, pan, food and forage fish	Tolerant fishes– carp, buffalo, gars	None	Tolerant fishes– carp, buffalo, gar	Game, pan, food and forage fish
Bottom Animals					
Algae and Protozoa					

- The chart you are looking at shows that some aquatic insects are very sensitive to the stresses of pollution, habitat modification, severe natural events, while others are more tolerant.
- Looking at the chart, what are some indicators of a degraded stream or water supply?

Recovery of a Stream

	Zones of Pollution				
	Clean Water	Degradation	Active Decomposition	Recovery	Clean Water
Dissolved Oxygen SAG Curve	Origin of Pollution				
Physical Indices	Clear, no bottom sludge	Floating solids, bottom sludge	Turbid, foul gas, bottom sludge	Turbid, bottom sludge	Clear, no bottom sludge
Fish Present	Game, pan, food and forage fish	Tolerant fishes– carp, buffalo, gars	None	Tolerant fishes– carp, buffalo, gar	Game, pan, food and forage fish
Bottom Animals					
Algae and Protozoa					

TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

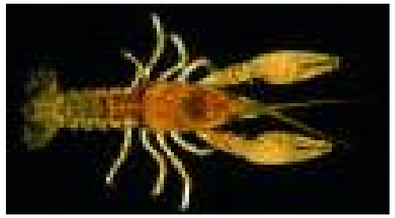
The macroinvertebrates are divided into groups based on their tolerance of poor water conditions.

Group 1 – indicators of good water quality. These have low tolerance of pollutants.

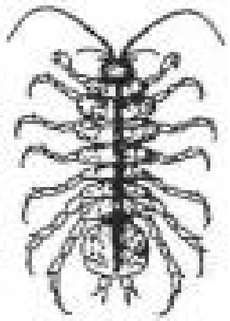
GROUP 1 – SENSITIVE

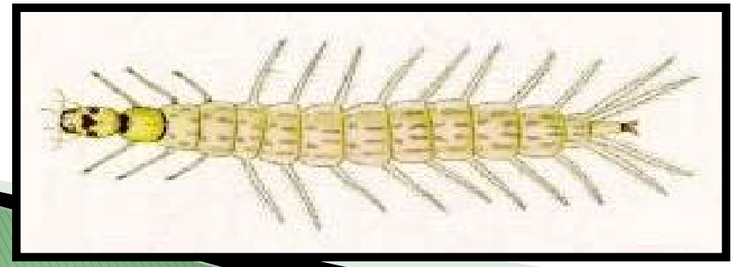
The macroinvertebrates are divided into groups based on their tolerance of poor water conditions.

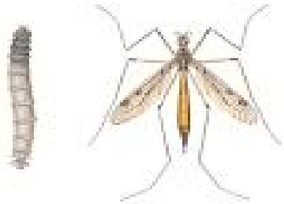
Group 2 – indicators of fair water quality. These have moderate tolerance of pollutants.



GROUP 2 – SOMEWHAT SENSITIVE

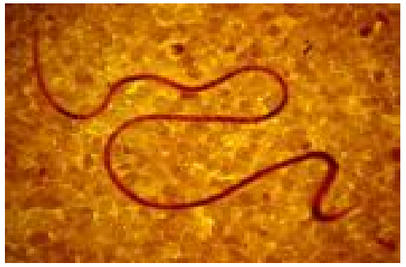


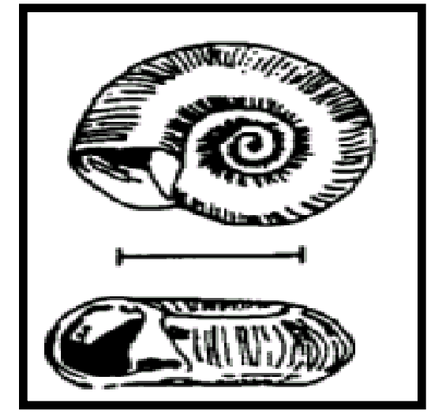


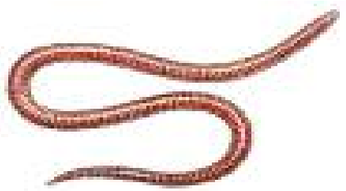


The macroinvertebrates are divided into groups based on their tolerance of poor water conditions.

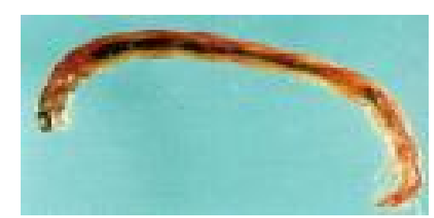
Group 3 – indicators of poor water quality. These have high tolerance of pollutants.







GROUP 3 – TOLERANT



PREP FOR ACTIVITY

- If the pond has water –
  - have a volunteer fill a bucket or buckets with pond water and bring back to the station
- If the pond does not have water –
  - Give each student the aquatic insects ID card and magnifier.
  - Have them tell you where in and around the pond they can find each aquatic insect on the card.