

WATER SAFETY CODE

1. Always take an adult with you when you go near a river, pond or canal.
2. Don't fool around near water and keep off frozen ponds and canals.
3. Learn how to swim. If you already can - learn to lifesave.
4. Keep away from slippery, steep or crumbling banks and don't go in the muddy areas or plants at the edge of the water.
5. Get an adult to put a waterproof plaster over any cuts, bites, scratches or itches you have before you go in the water.
6. Always wear the safety clothing you are given, and never go in the water over the tops of your wellies.
7. Don't go in the water until you are told it is safe to do so.
8. Don't splash water at other people or push them over in it.
9. Don't drink the river water or put anything that has been in it (including your fingers!) into your mouth.
10. Don't pick up anything out of the river or off the banks unless you have been told it is safe to do so.
11. Stay close to the rest of the group and where your leader can see you.
12. Have fun and remember the water safety code!

What did you find?

Choose one of the creatures that you found during your river dip. Try to answer the questions below by looking carefully at your creature. You need to put a tick in the circle beside the answer you think is right.

1. How many legs does your creature have?

- None ☐
- 2-4 legs ☐
- 6 legs ☐
- More than 6 legs ☐

2. How does your creature move around?

- It crawls ☐
- It swims ☐
- It glides or creeps along ☐

3. What is your creature's body covered with?

- A shell ☐
- A case made of stones or twigs ☐
- A hard, shiny case ☐
- It has a soft body ☐

4. What colour is your creature?

5. How many feelers or antennae can you see?

- None ☐
- 2 feelers ☐
- More than 2 feelers ☐

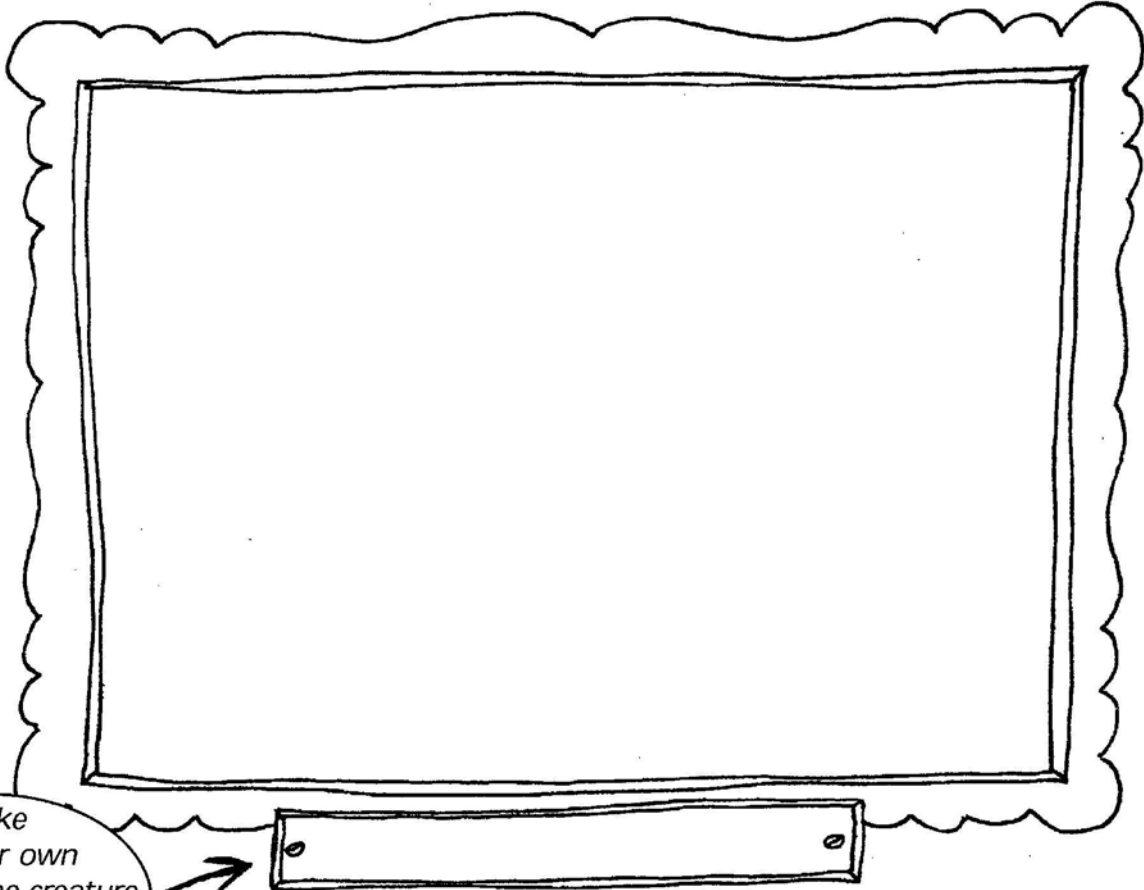
6. How do you think the creature protects itself?

- It camouflages itself with its colour ☐
- It grows a hard case or shell on the outside of its body ☐
- It makes a case for itself out of small stones or twigs ☐
- It covers itself in slime making it difficult for other animals to grip ☐
- It hides under rocks or stones ☐

7. Now draw a large picture of your creature in the frame on the back of this sheet. Write down the name of the creature in the box underneath the picture.

What did you find?

Choose one of the creatures that you found during your river dip. Draw a picture of the creature in the box below.



Make
up your own
name for the creature
based on what it
looks like.

How many legs does your creature have? _____

How does your creature move around? _____

What colour is your creature? _____

What is its body covered with? _____

Are there any feelers / antennae? How many and where are they? _____

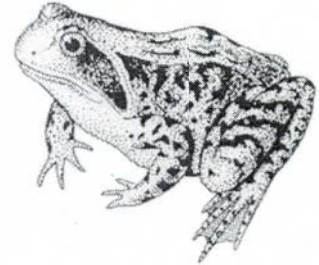
Describe how you think your creature protects itself. _____

Ponds - Amphibians

Identification and habitats - frogs and toads

Common frogs

Identification - they have a smooth moist skin which is variable in colour. They are often brown or grey with darker blobs, but are sometimes more colourful in shades of yellow or orange. All frogs have a distinct brown patch behind each eye which actually surrounds the ear drum and is not present in toads. Frog noses are more pointed than that of toads and the hump on the back is more pronounced. When disturbed frogs will leap away to safety and sometimes if they are alarmed they utter a weird shriek.

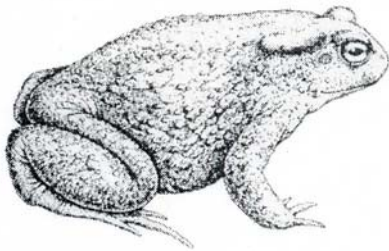


Habitats

In summer they are often found in long grass. Habitats include, open pasture, woodland edge and gardens. Frogs like pools with shallow edges to lay their spawn in preferably without fish since these will eat most of their tadpoles. Frogs choose their breeding ponds on the basis of which type of algae is growing in them as this is their tadpoles main food source.

Status

Common frogs are found throughout Britain and Northern Europe. The only protection given to common frogs is that it is illegal to sell them.



Status

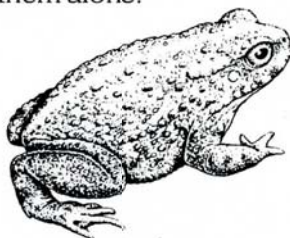
Widespread distribution in Britain, Europe and across Asia. The only protection afforded common toads is that it is illegal to sell them.

Common toads

Identification - they are plump warty creatures with uniform brown grey background colours. They tend to waddle or crawl along although they can make a few feeble hops. They have short back legs when compared with a frog.

Habitats

Toads are usually found under things such as logs and stones. They are more fussy than the frog in their choice of breeding pools. Toads prefer deeper pools and do not mind the presence of fish as their tadpoles are equipped early in life with a range of unpleasant tasting poisons that quickly persuade fish to leave them alone.



Natterjack toads

Identification - they are small warty toads with pale skin and a distinctive yellow stripe which runs the length of the body from snout to vent. The function of this stripe is not precisely known but it could be for camouflage. They have short back legs and get around by running. Males have loud voices which can be heard up to a mile away.

Status

Natterjack toads are rare and specially protected. They only occur in sand dunes in North West England and south west Scotland, with smaller colonies in East Anglia and southern England.

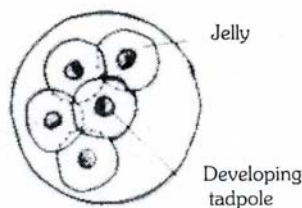


Ponds -Amphibians

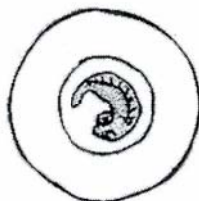
Life cycles

Frogs and toads

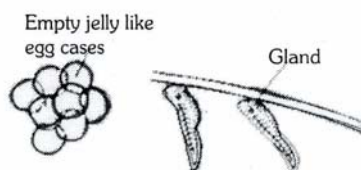
1. Spawning takes place between March and April.



2. Tadpoles are formed inside the egg



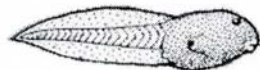
3. Newly hatched tadpoles are attached to plants by sticky slime from a gland.



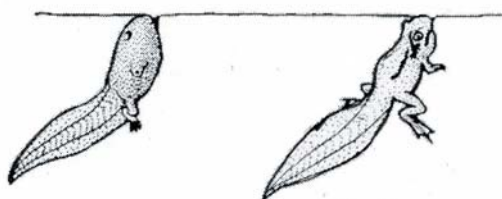
4. Tadpoles swim freely and feed by sucking decaying leaves and stems



5. Jaws with horny teeth grow and the tadpole begins to eat small animals as well as plants. A flap of skin grows back over the gills.



6. Tadpoles come to the surface to breathe air through their mouths when their lungs grow.



Back legs begin to grow

Front legs appear

7. Tail disappears and the small frog leaves the water. (June-July)

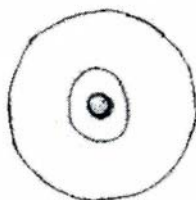


Toads - follow the same life cycle except they produce jelly strings, instead of balls for their tadpoles to develop in.

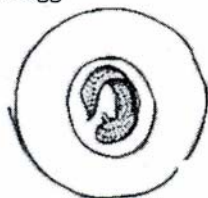
Newts

Newt tadpoles feed on water fleas and very small worms

1. Egg



2. Tadpole formed inside egg



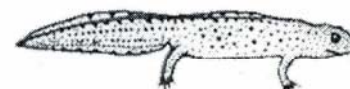
3. Gills for breathing grow



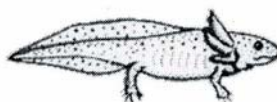
4. Front legs grow

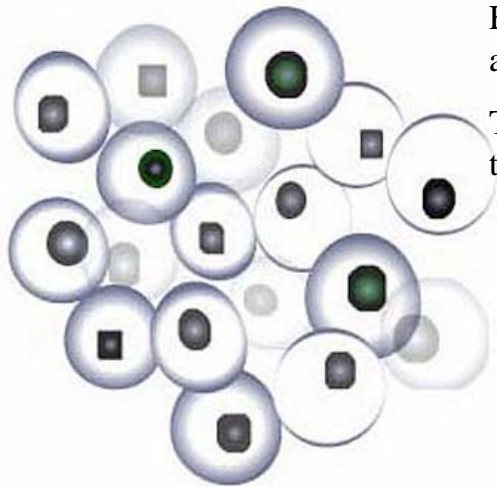


6. When the gills have been replaced with lungs the young newts leave the water (mid-August).



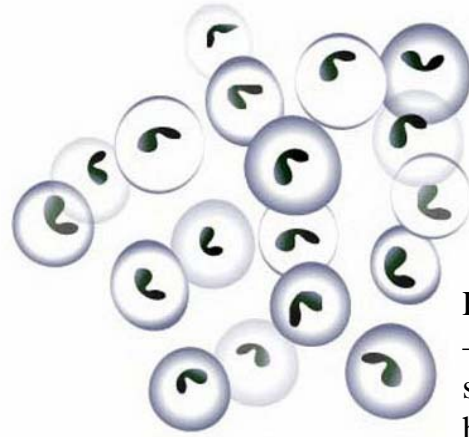
5. Back legs grow



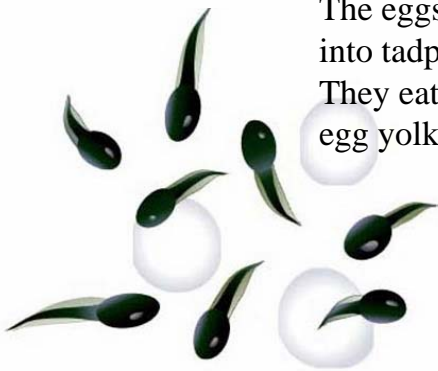


Frog spawn-
a 'ball' of eggs

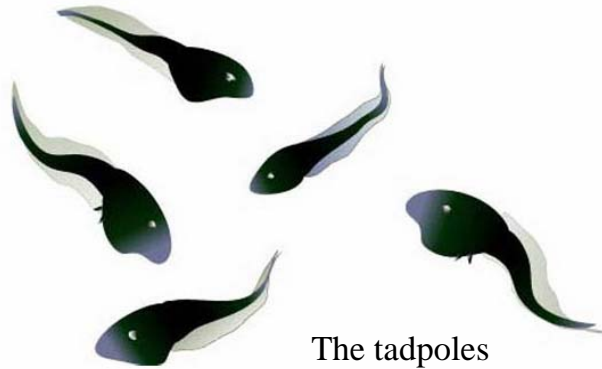
Toad spawn is in
threads or lines



Frog spawn
-the eggs
start to
hatch out



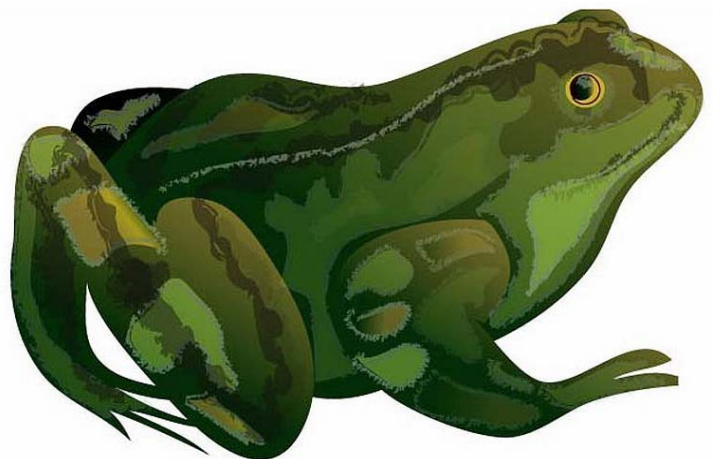
The eggs turn
into tadpoles.
They eat the
egg yolks



The tadpoles
start to grow
legs



The
tadpole
grows legs



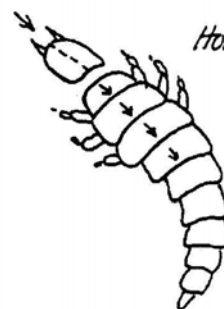
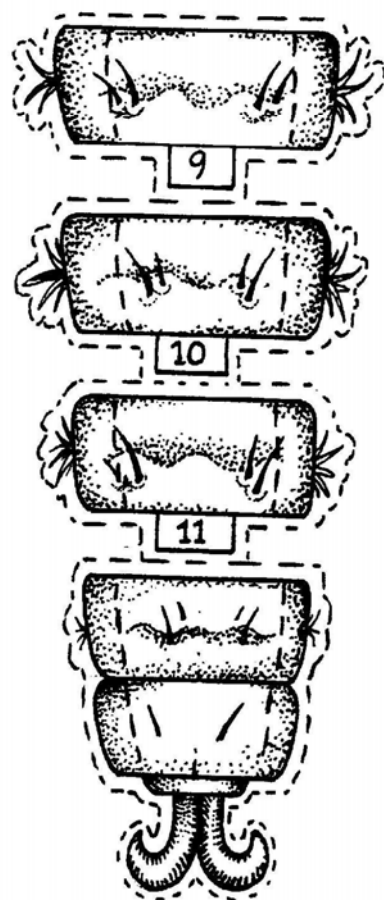
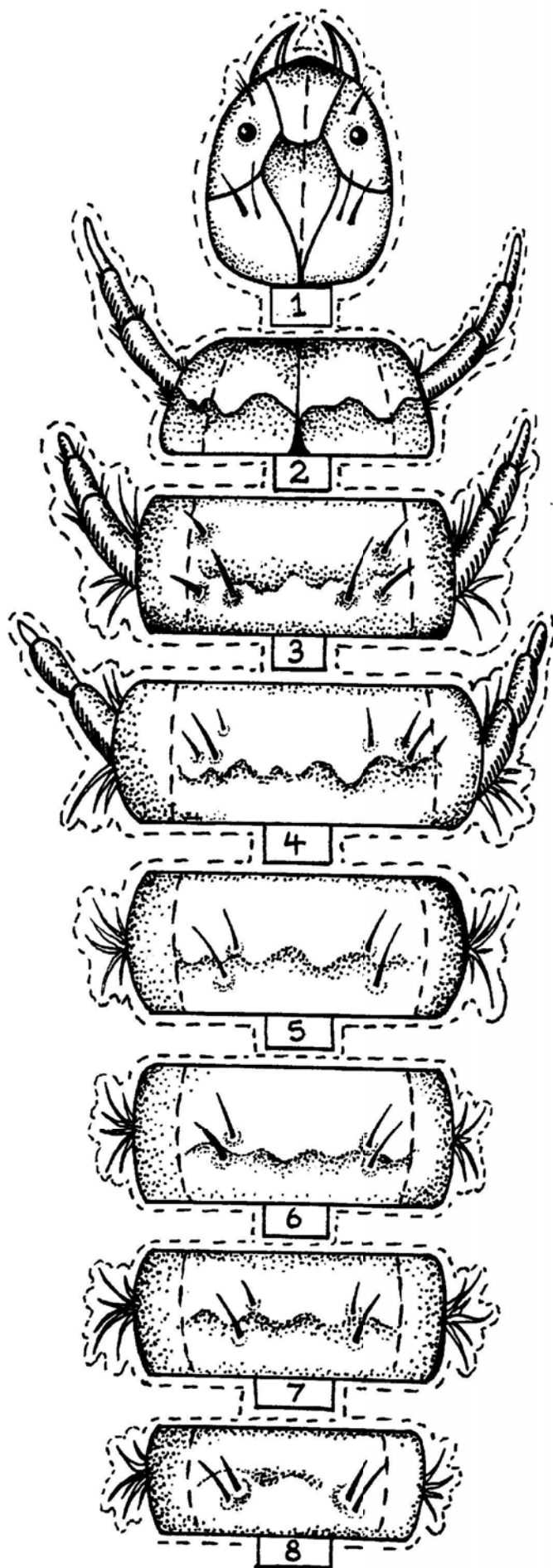
The full grown frog
comes out of the
pond



Almost full
grown but
still has tail

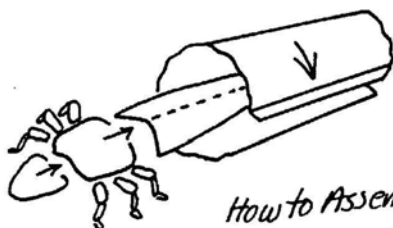
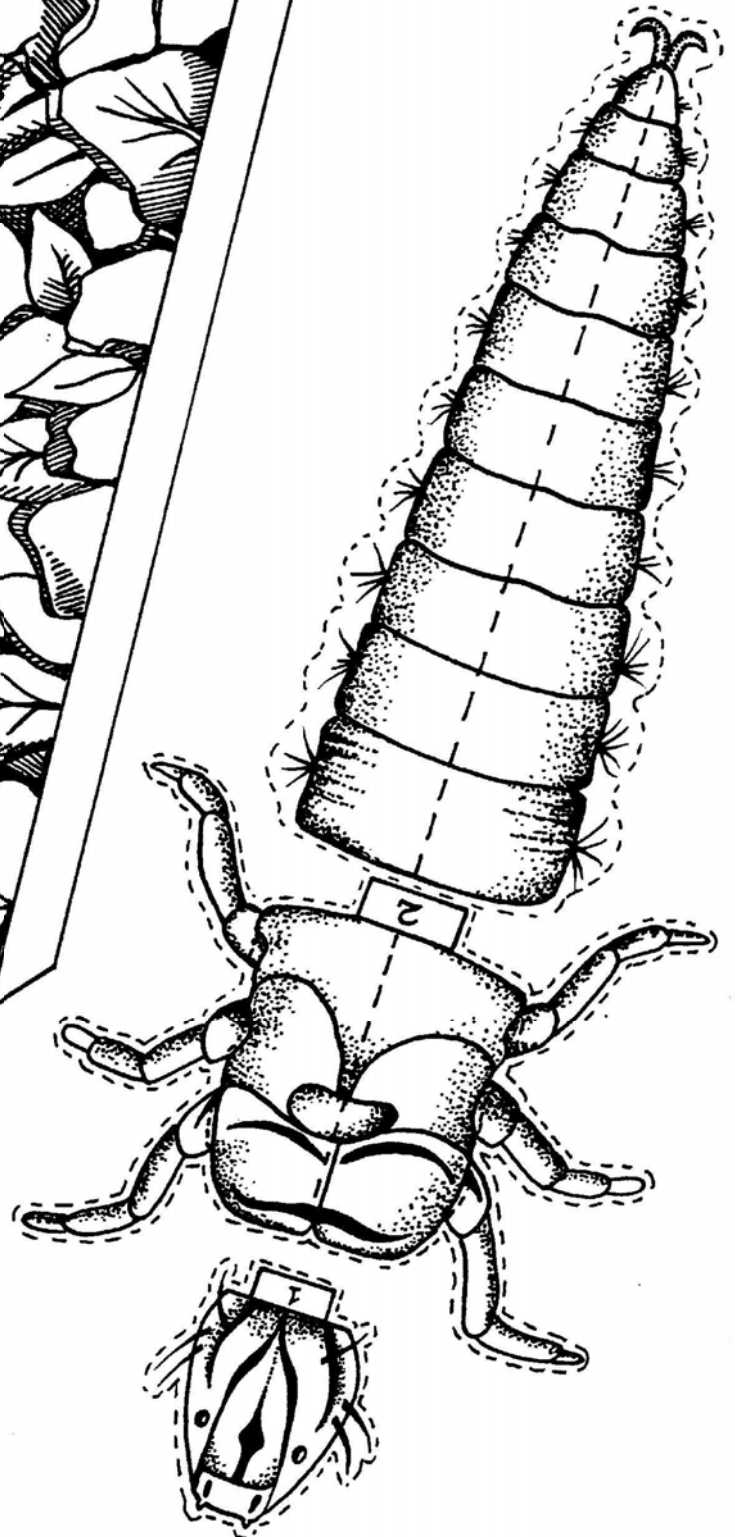
How a frog
becomes a frog

Colour & Make Caddis Larvae.



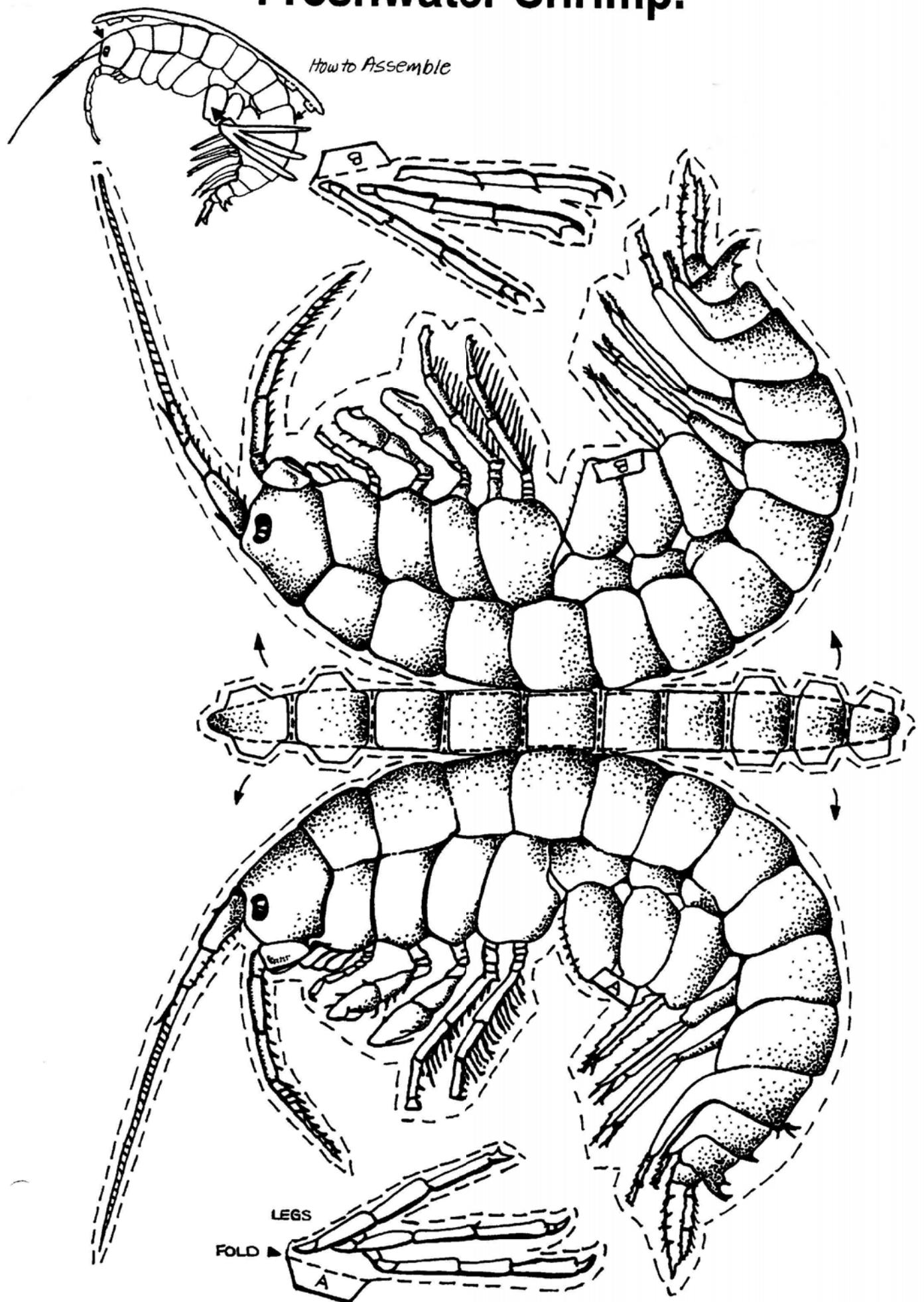
How to Assemble.

Colour & Make Caddis Larvae & case.

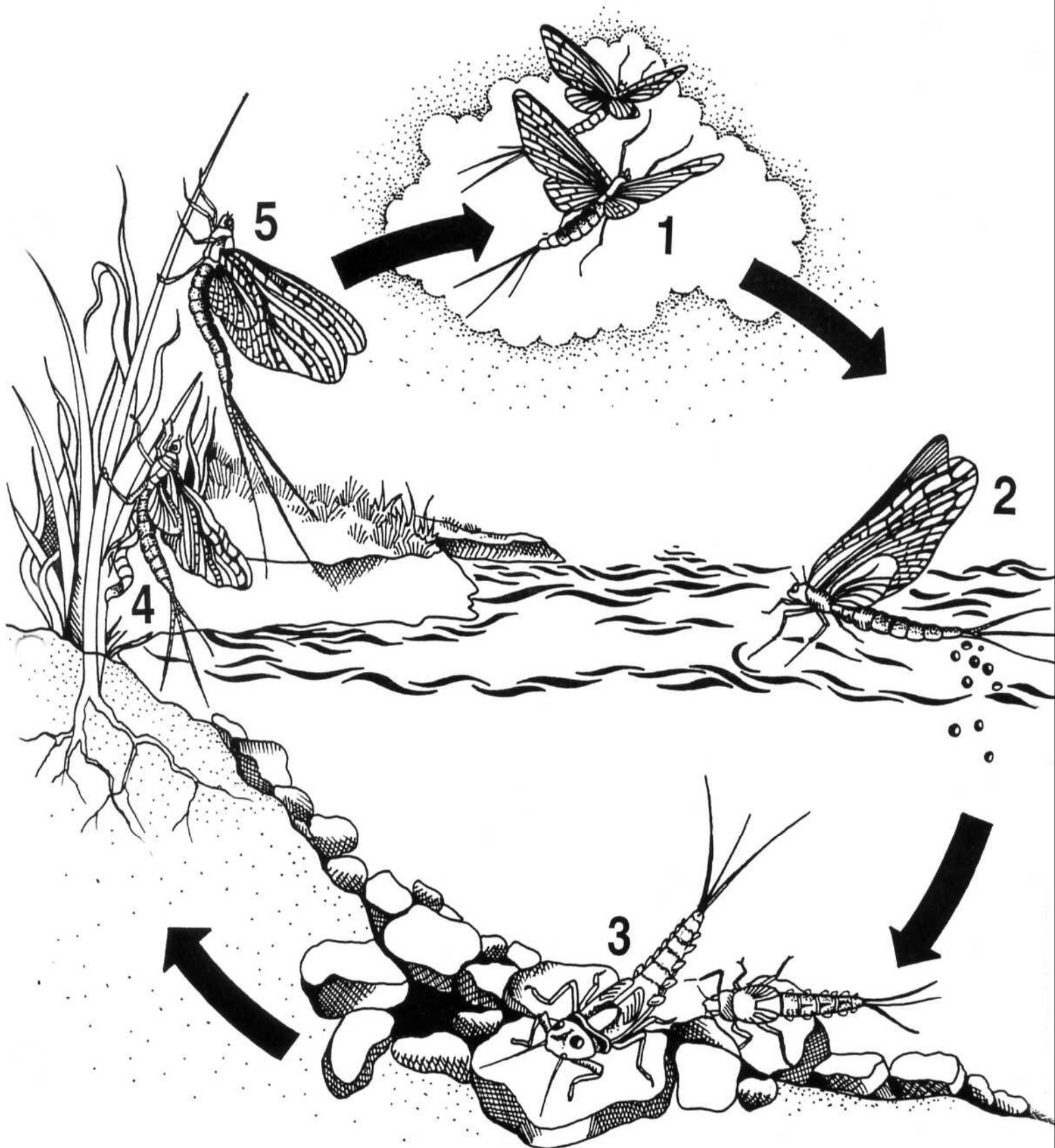


How to Assemble

Colour & Make Freshwater Shrimp.



Life Cycle of the Mayfly.



The Life Cycle of the Mayfly

A

The eggs are laid shortly after the adult mayflies mate.

The eggs are either dropped one at a time or in small batches into the surface of the water

B

After just a few hours, the duns find a place to rest and they moult. These true adult flies are shiny and are called spinners.

C

When the nymphs are fully grown they stop eating. They swim to the surface or climb up a plant stem. Then almost straight away their skin splits and a sub-adult fly emerges. It is not the mature fly. These are called duns. They are dull, because they have a fine coat of hairs all over. They can fly straight away.

D

The mature adults only live for a very short time. Some live for a week, but most die in one day. They do not feed.

They emerge in the evening and take to the air.

The males swarm over the water and mate on the wing with the female flies. Then they die.

The females lay their eggs in an hour or so and then they also die.

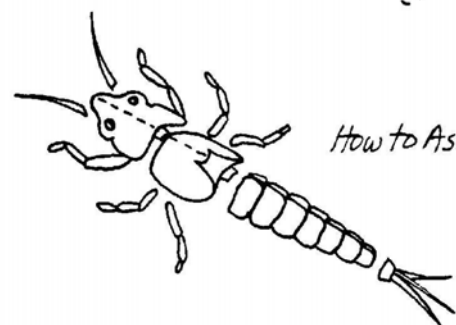
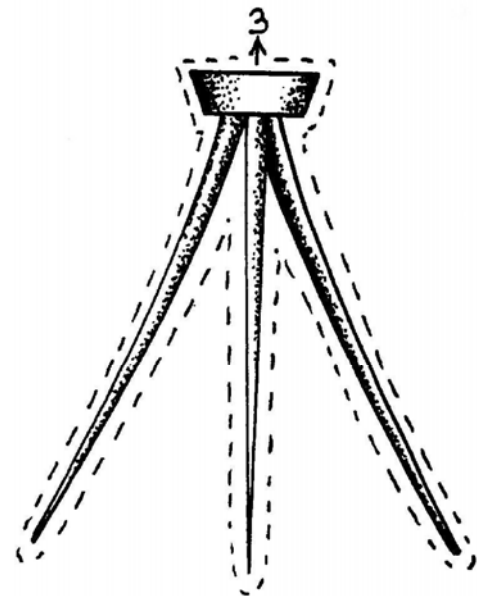
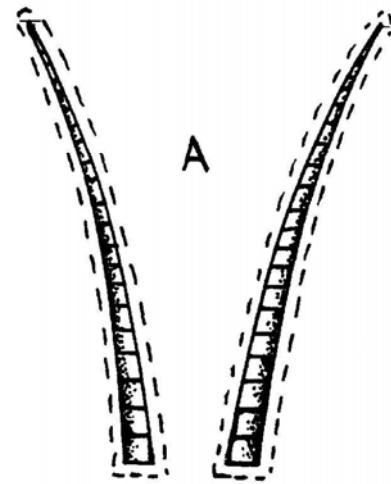
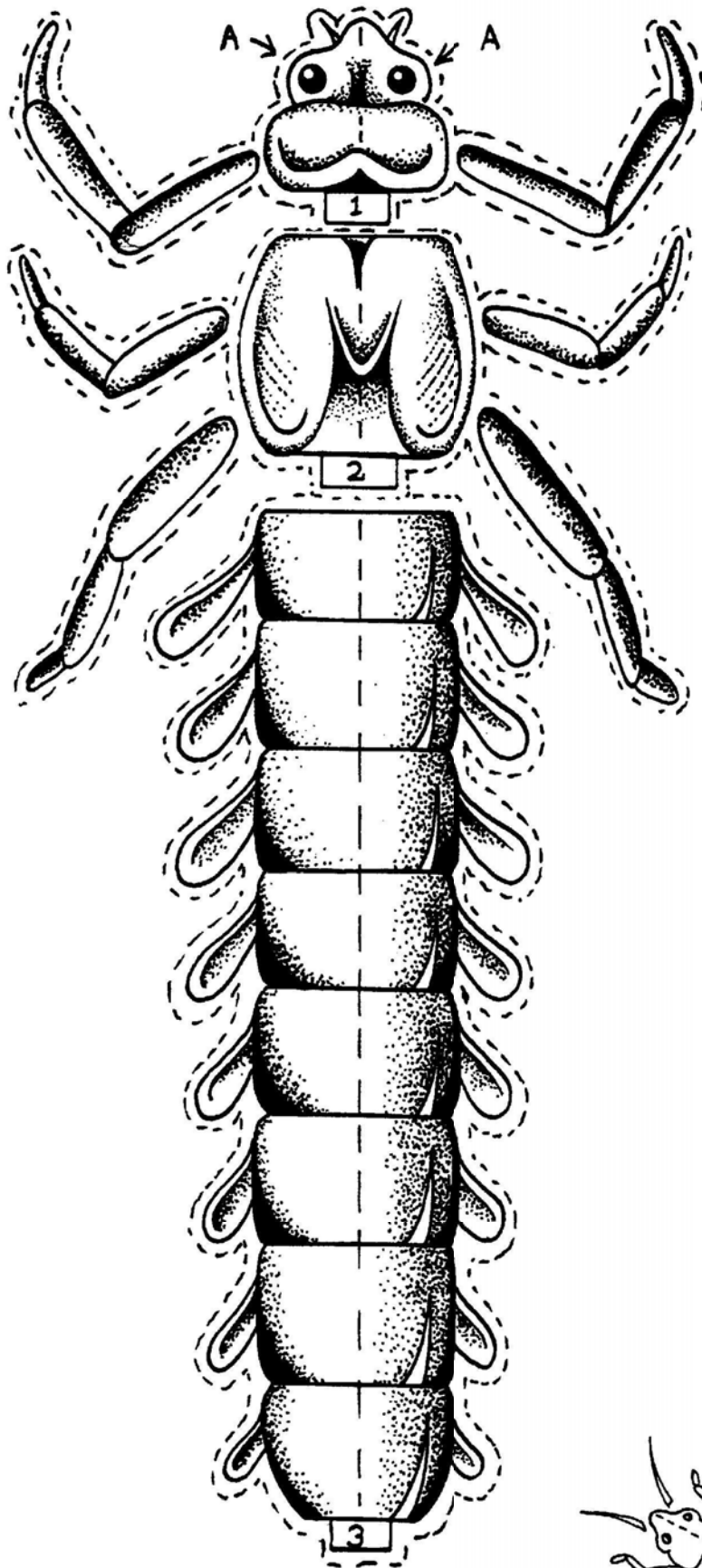
E

The nymphs feed on plants and algae. They breath using external gills.

They have hard exoskeletons, so they have to moult several times as they grow in size. Some mayfly larvae moult 27 times.

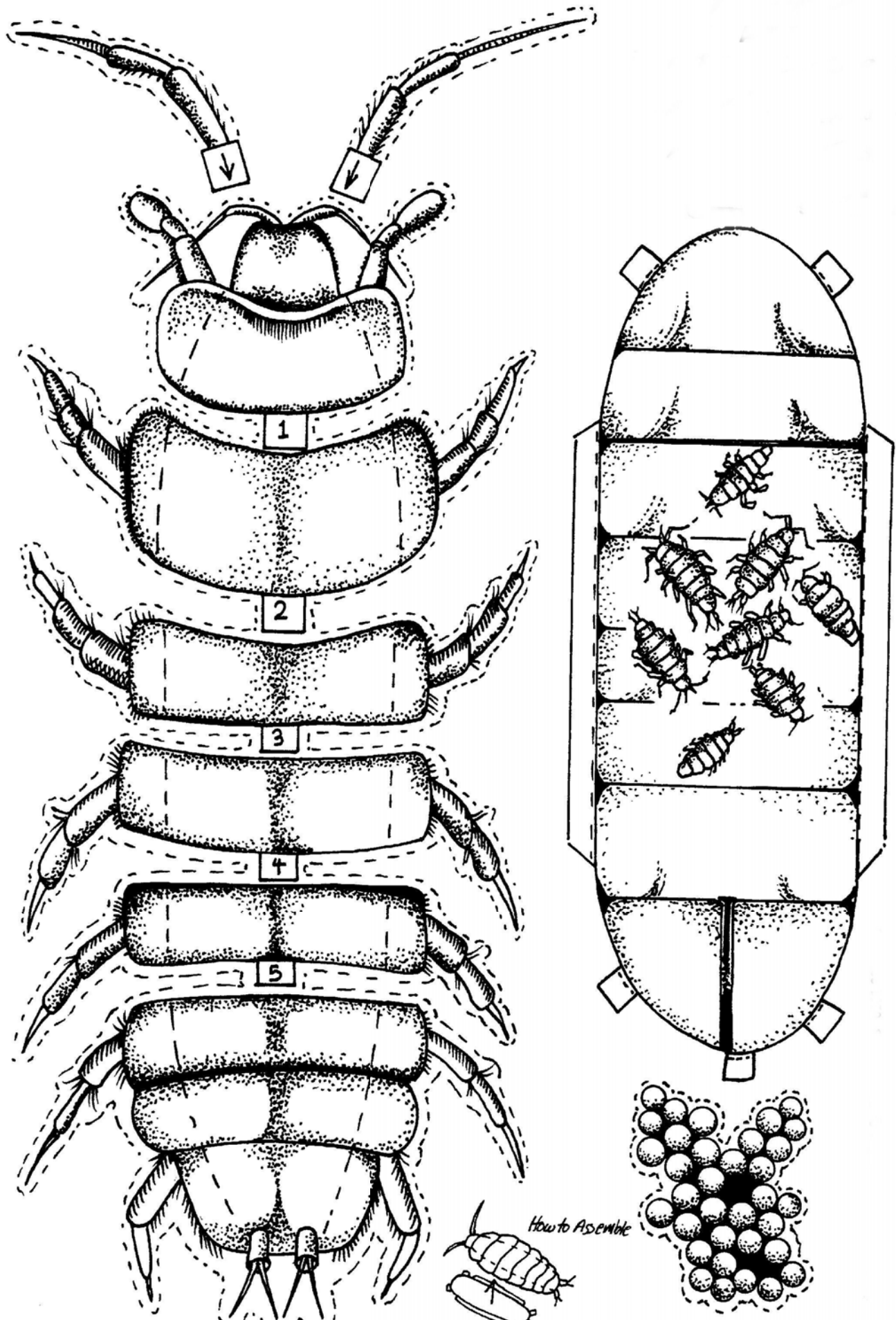
They may take up to two years to grow to their full

Colour & Make Mayfly Nymph.

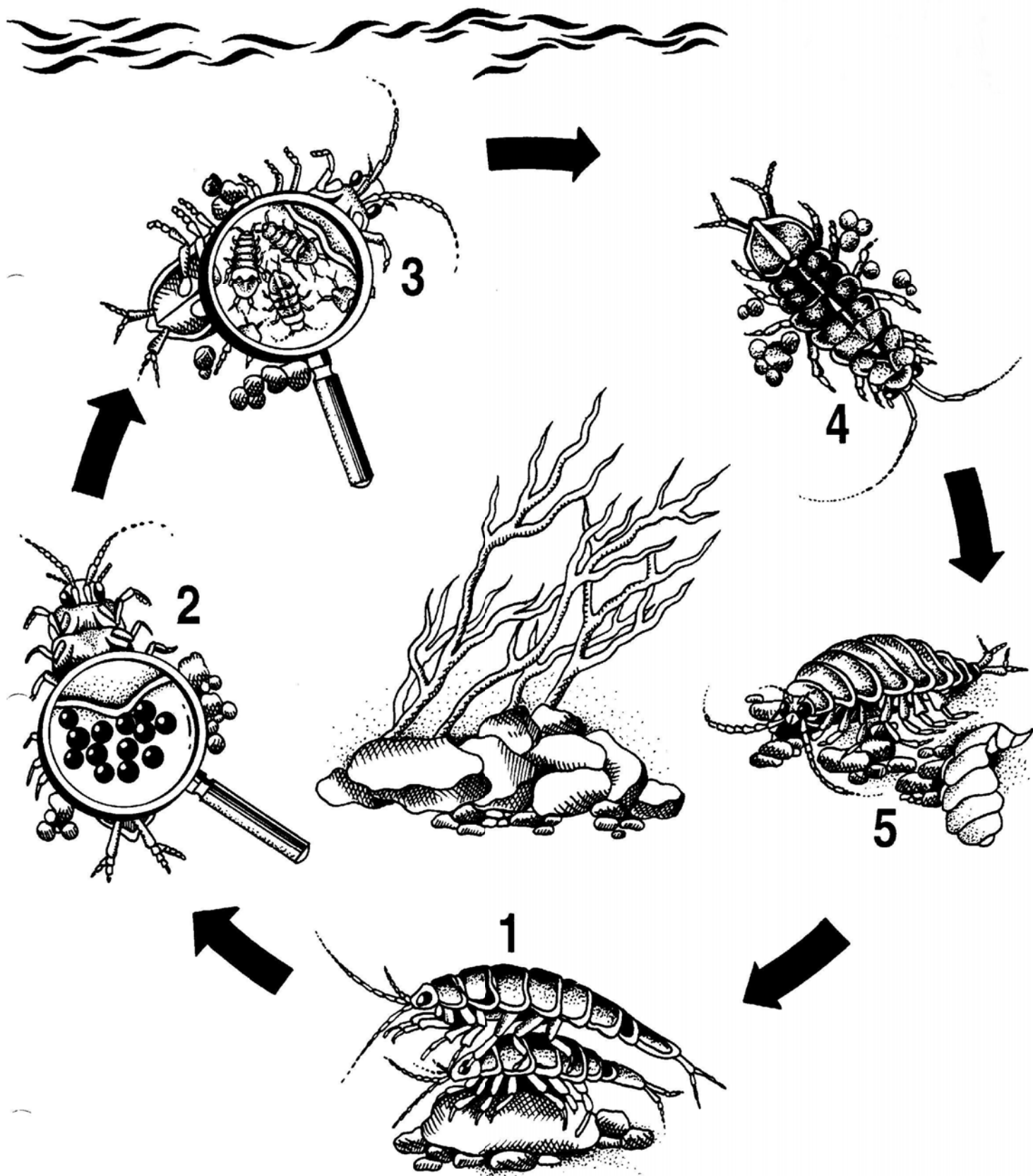


How to Assemble

Colour & Make Water Hog Louse.



Life Cycle of the Water Hog Louse.



The Life Cycle of the Water Hoglouse

A

The eggs are laid and are held either in a pouch or glued to the underneath of the female water hoglouse

B

The adult water hoglouse lives on the river bed. It does not swim. It crawls along the floor of the river, clinging on to the rocks and pebbles. Its' body is flattened so that it can press itself against the rocks. This stops the current in the river washing it away

C

The baby water lice hatch before they leave their mother and remain under the mothers body for a few days before leaving to scavenge plant debris from the river bed.

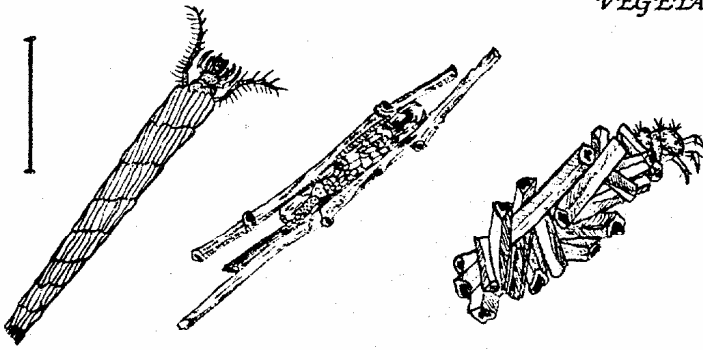
D

The water hoglouse must moult to grow, because it has a hard exoskeleton. Each moult is called an instar. The louse will moult several times before it is fully grown.

E

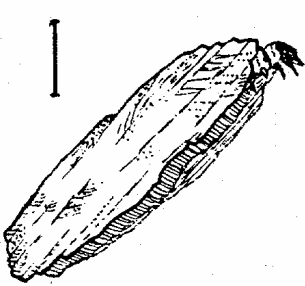
The adults may mate two or three times in a year. Each pair may produce 12 to 20 young each time. Many of these will not survive to become adults, but become food for the river predators, such as caddis fly larvae.

VEGETATION

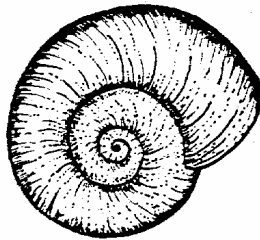


Caddis fly Larvae

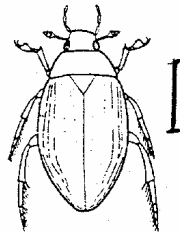
Lake Limpet



China mark moth larva



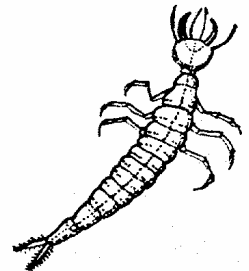
Ramshorn Snail



Scavenger Beetle

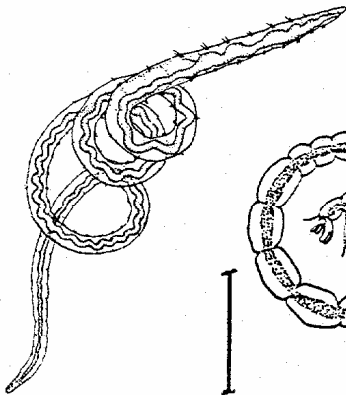


Beetle Larva

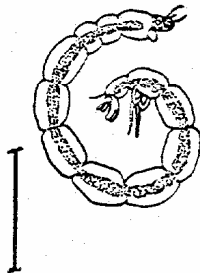


Great Diving Beetle Larva

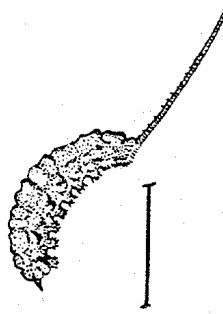
MUD



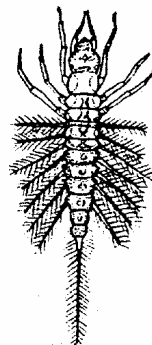
Bloodworm



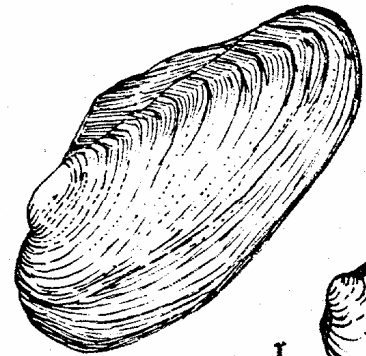
Midge Larvae



Rat-tailed Maggot



Alderfly Larvae

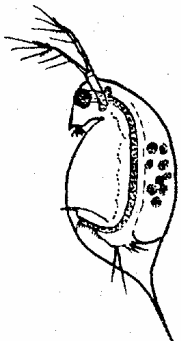


Swan Mussel

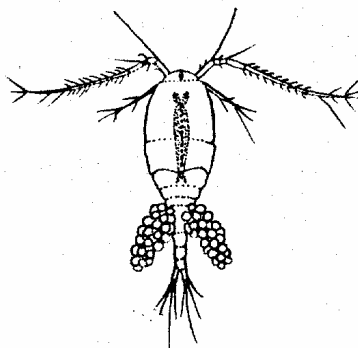


Orb Shell Mussel

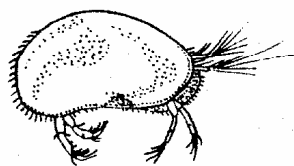
OPEN WATER



Daphnia



Cyclops

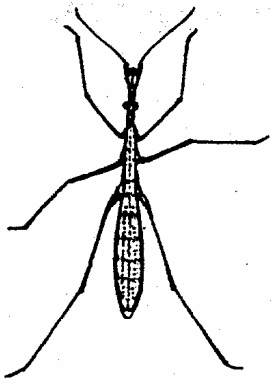


Pond Flea

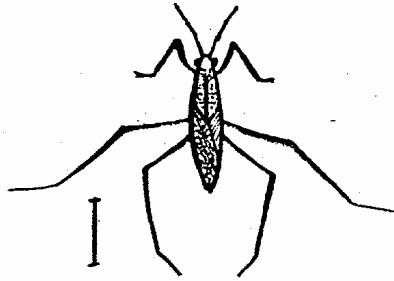


Water Mite

SURFACE



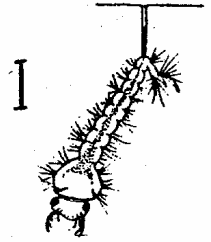
Water Measurer



Pond Skater

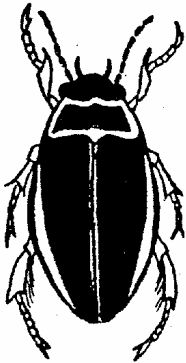


Whirligig Beetle

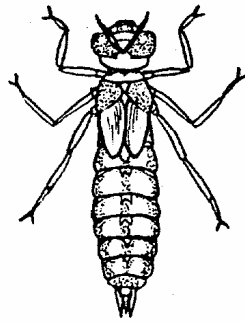


Gnat Larva

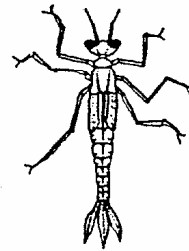
VEGETATION



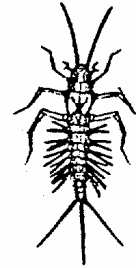
Great Diving Beetle



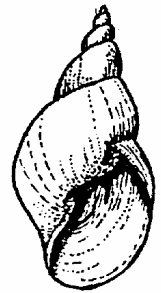
Dragonfly Nymph



Damselfly Nymph



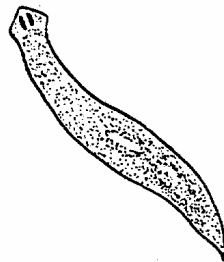
Mayfly Nymph



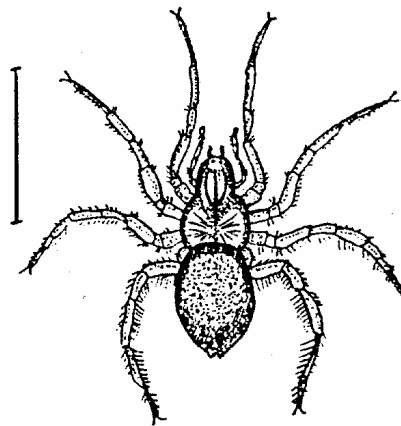
Great Pond Snail



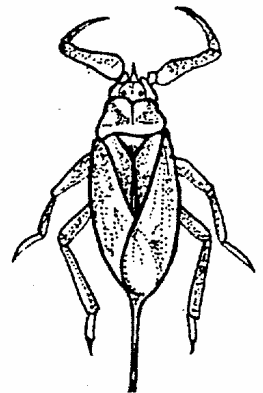
Leech



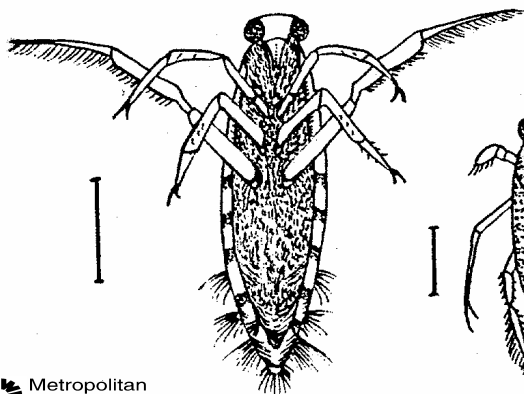
Flat worm



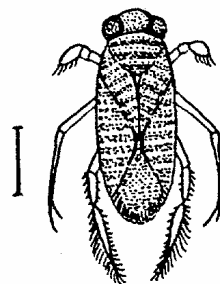
Water Spider



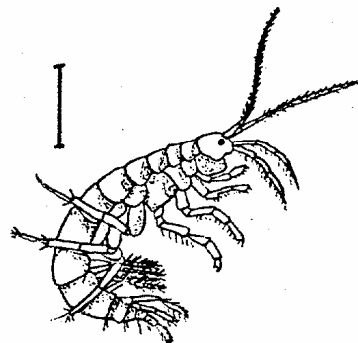
Water Scorpion



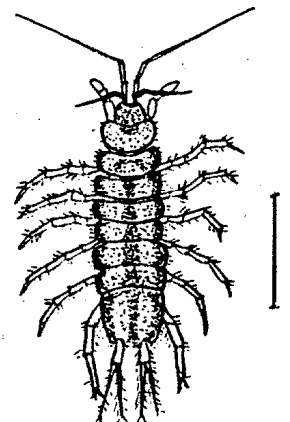
Water Boatman



Lesser Water Boatman

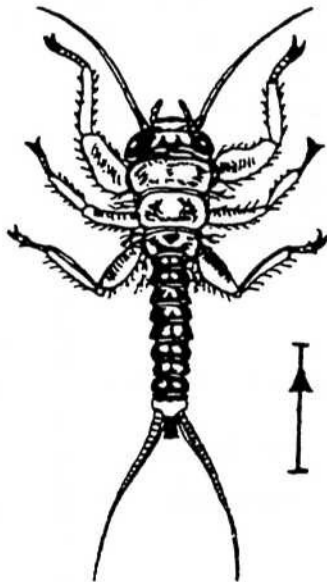


Fresh water Shrimp

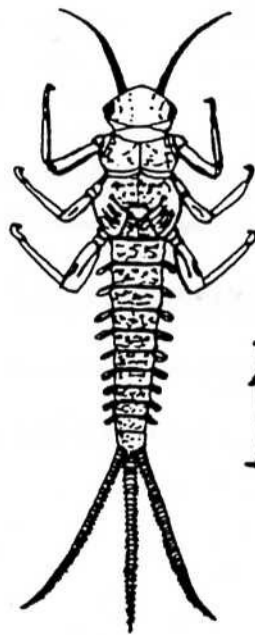


Water Louse

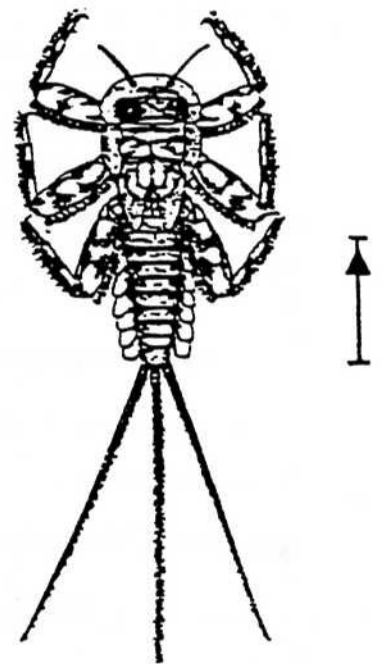
STONEFLY NYMPH



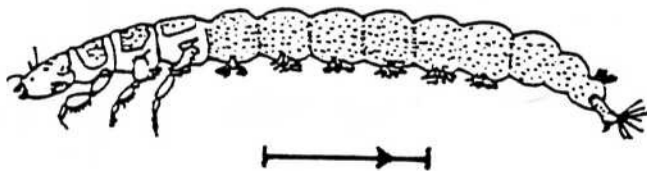
SWIMMING MAYFLY NYMPH



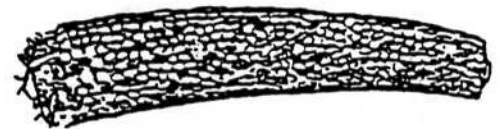
FLATTENED MAYFLY NYMPH



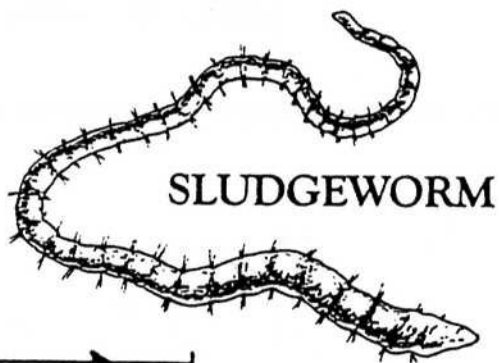
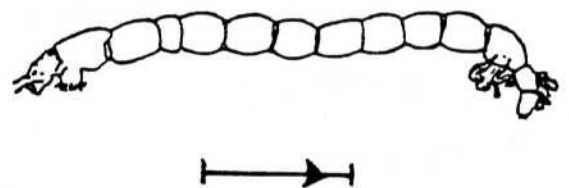
CADDIS FLY LARVA



CASED CADDIS FLY LARVA

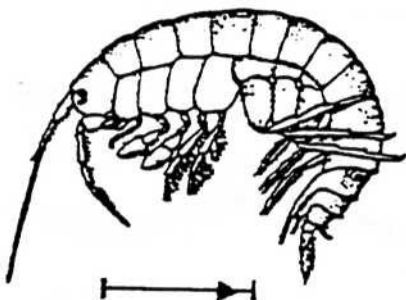


MIDGE LARVA
(RED ONES ARE CALLED
BLOODWORMS)

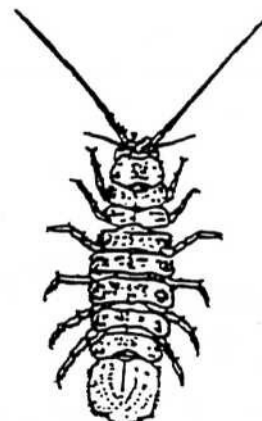


SLUDGEWORM

FRESHWATER SHRIMP

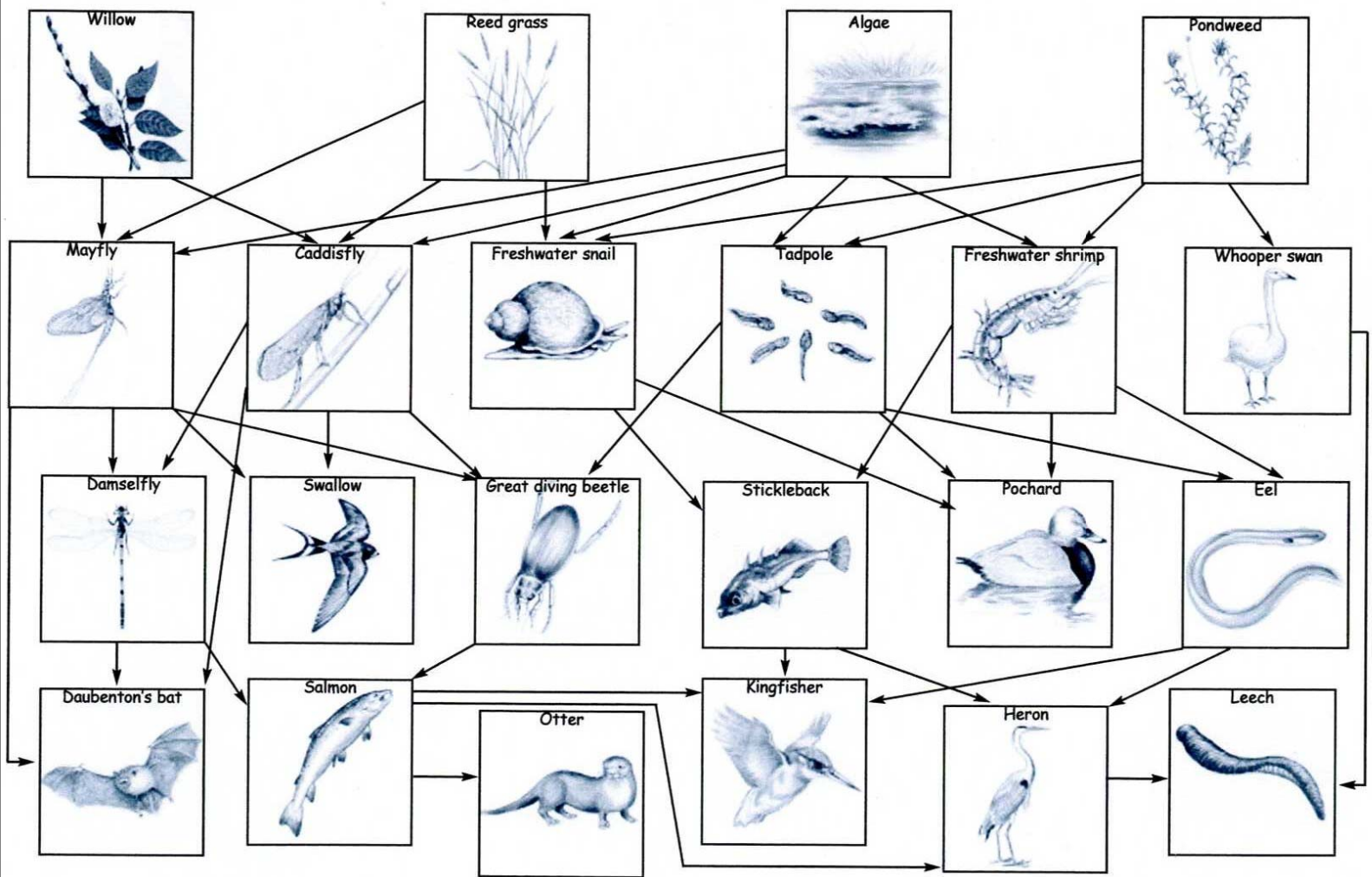


WATER LOUSE



The lines show how big they can grow.

Example of a River Foodweb



Dibbinsdale River Survey

Welcome to Dibbinsdale Local Nature Reserve.

Please remember to leave the reserve as you found it and respect the countryside and wildlife around you.

Remember to keep safe close to the water

Where is the area we are studying on the map?(Mark the site on your map)

What is the depth of the river here ? (In the middle of the river)

Site One

How deep could the river be here-before it floods? (Measure up to the top of the bank)

Site One

What is the width of the river here ?

Site One

What is the speed of the river here ? (Use a clear object to float on the water and time)

Site One.

Near the edge

The middle of the river

Which direction is the river flowing here ? (Use your compass to tell you)

Site One

What is the temperate on the water ?

Site One

What is the air temperate ?

Which is warmer the water or the air ?

What is the vegetation like in the water , or on the banks of the river

Site One-(tick one off)

None

Little

Good

Is the water clear? Take a sample of the river water in a container and let the sediment settle first

Site One- (tick one off)

Clear

Cloudy

Very Cloudy

On which bank is there deposition of river sediment ? (Use your compass to tell you)

Site One

What signs of insect and animal life can you find in the water.

Can you collect any carefully with nets to identify. (Remember they need to go back where they were found !)

Look around to see if there is anything we could look at more closely back at the centre.

Collect it and put it in a container.

Remember to wash your hands after you have finished back at the centre.

MINIBEASTS AND POLLUTION INDICATOR CHART

The minibeasts found in a stream can be used to indicate how polluted it is. When you have identified the pollution indicator animals in your sample, using the pictures over the page, you can use the chart below to decide how polluted your stream is. The animals higher on the list are more sensitive to pollution so look at the animal highest on your list to find your pollution level. For example if you found a mayfly nymph and a waterlouse your water is clean because the mayfly nymph is the highest on the list.

POLLUTION INDICATOR CHART		
One or more of these types present	Animals found (✓)	Pollution Level
Swimming Mayfly Nymph Flattened Mayfly Nymph Stonefly Nymph		Clean Water
Cased Caddisfly larva Caseless Caddisfly larva Freshwater Shrimp		Some Pollution
Water louse Bloodworm		Moderate Pollution
Blanketweed Sludgeworm Rat-tailed maggot		High Pollution
No Life		Lethal Pollution