

ADAPTATIONS ACTIVITY

Atlas of Common Freshwater
www.Macroinvertebrates.org
of Eastern North America

STROUD
WATER RESEARCH CENTER

Black Fly Larvae



Dragonfly Nymph



...laws & big eyes for catching prey!

Mayfly Nymph



Gills for breathing

Water Penny Larvae

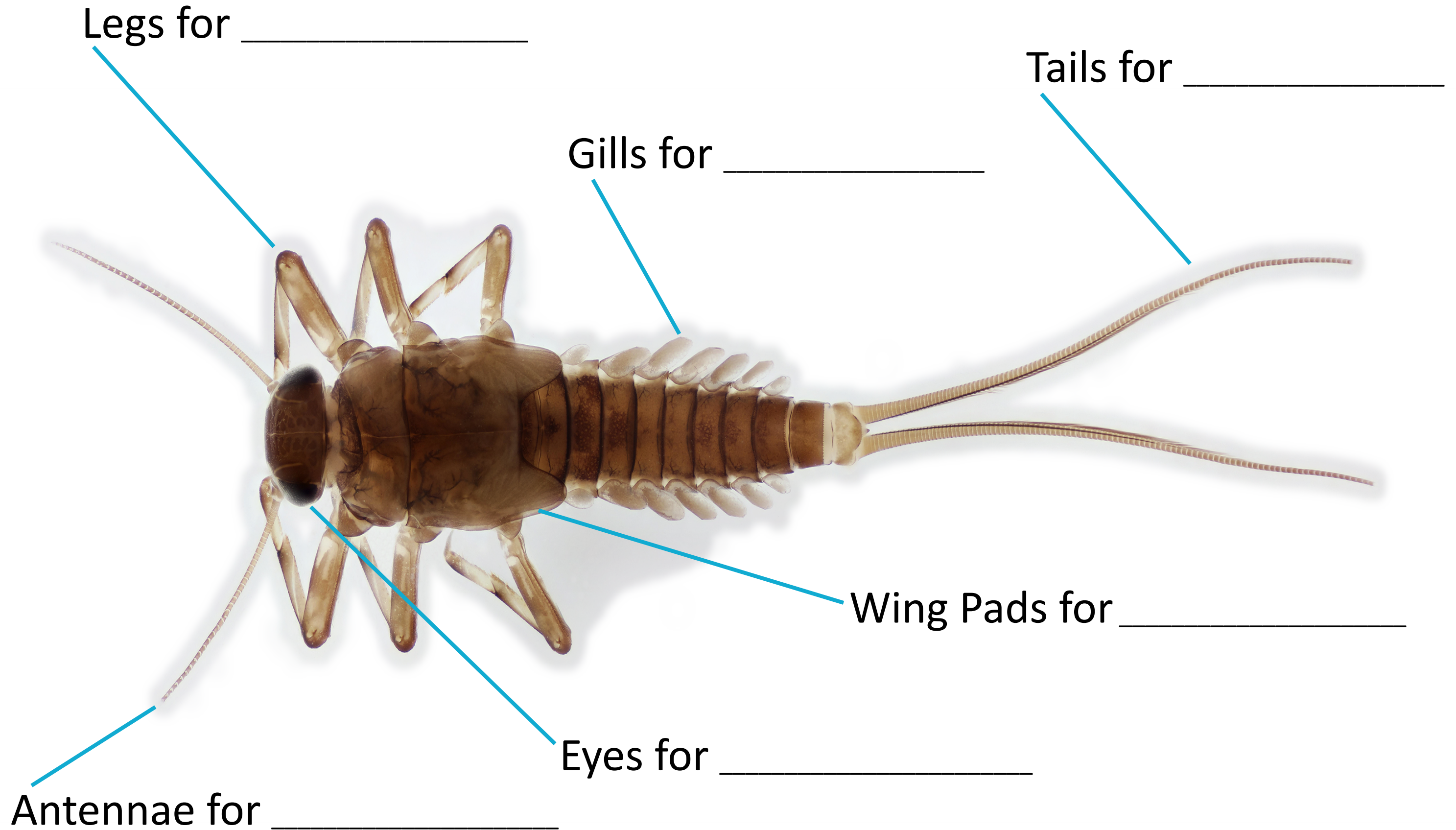


Clingers & Scrapers!

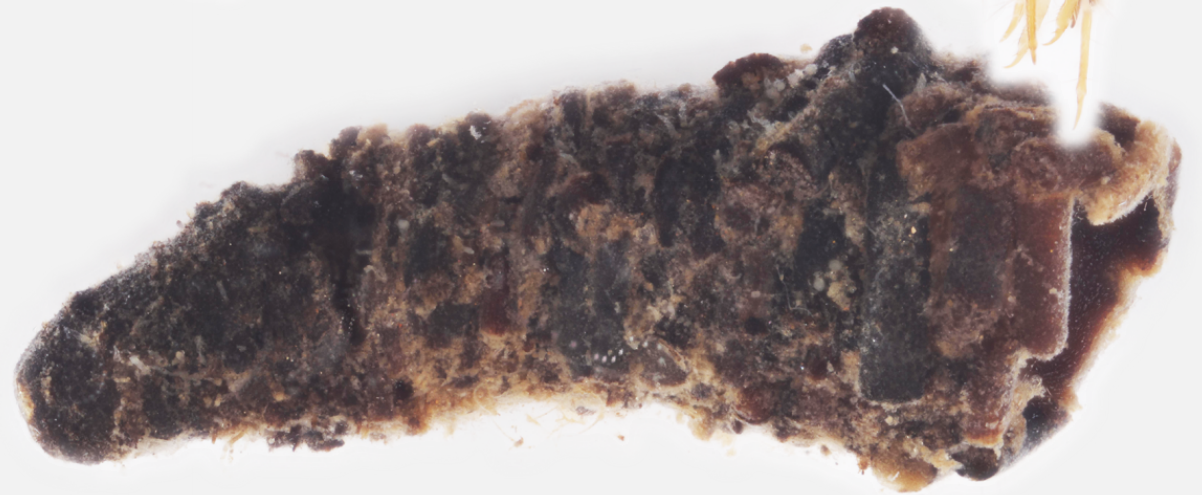
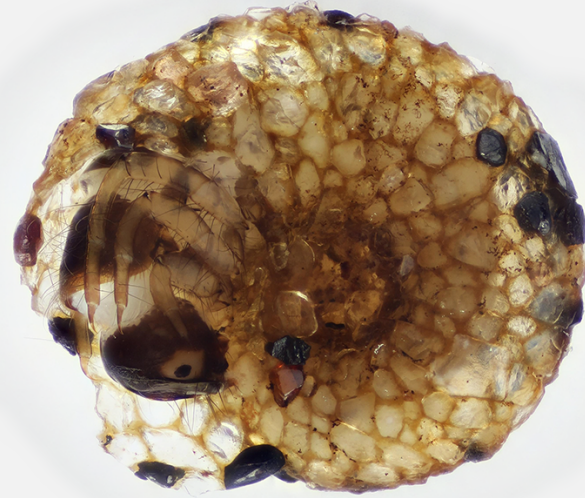


- 4th- 5th grades
- Use live critters (if possible), hand lenses
- Adaptations + Morphology lessons
- Images from site + macro sheets to learn from!

MAYFLY ADAPATIONS ACTIVITY



Caddisfly Larva



// Builds own house

Caddisfly

- **Glands** in their lower lip to make a double strand of silk
- Make **retreats** or **cases** by binding stones, mud, or sticks together with silk*
- Cases provide **camouflage** and **protection**
- Cases are portable, so they can **climb, cling, burrow**
- **Breathe** through their skin*

**most kinds of caddisflies*

Black Fly Larva



// Filter Feeder

Black Fly

- Ring of **tiny hooks** at the end of abdomen
- Can **cling to rocks, wood or plants** in flowing water.
- Put **silk** on the substrate and hold on with the **hooks on the abdomen**.
- Have a set of **food-trapping fans** on the **head** of their body.

Mayfly Nymph



// Gills for breathing

Mayfly

- Have **gills for breathing** on the abdomen
- ‘Swimming mayflies’ are **streamlined** (narrow)
- ‘Crawling mayflies’ are **flattened**
- ‘Burrowing mayflies’ have **large, strong legs**
- **Claws** at the ends of the legs help the mayfly to **cling** to the stream bottom or to plants

Dragonfly Nymph



Adult



// Jaws & big eyes for catching prey!

Dragonfly

- **Predators** with **large, shovel-like lower lip** that can be folded away and shot out quickly to catch prey!
- **Large eyes** to see prey
- **Gripping jaws** with **bristles** to hold prey
- Usually **live** in slow moving or standing water
- **Gills** are at back end of abdomen (butt)-nymph can pump water across the gills to **breathe** and “**jet propel**”

Water Penny Larva



Dorsal



Ventral

// Clingers & Scrapers!

Water Penny

- Body is **flat** so water can flow easily over them, and larvae **cling to rocks**
- **Live** in fast moving water
- **Hard shell** covers their head and legs
- Brown in color and well **camouflaged**
- Larvae **feed on algae**
- The water penny is a type of **beetle**

Stonefly Nymph



// “Push-ups” help me breathe!

Stonefly Nymph

- Get their name from their **habitat** because they **live** under stones, leaves, and twigs in fast-moving water
- Have **gills** for **breathing** on the **thorax** (none or very few gills on abdomen) = “hairy armpits”
- Sometimes do “**push-ups**” to increase the flow of oxygen over their gills and bodies
- Two tarsal **claws** or “peace signs” on each leg to help them hold on tight in swift currents and **crawl** over rocks and leaves

Crane Fly Larva



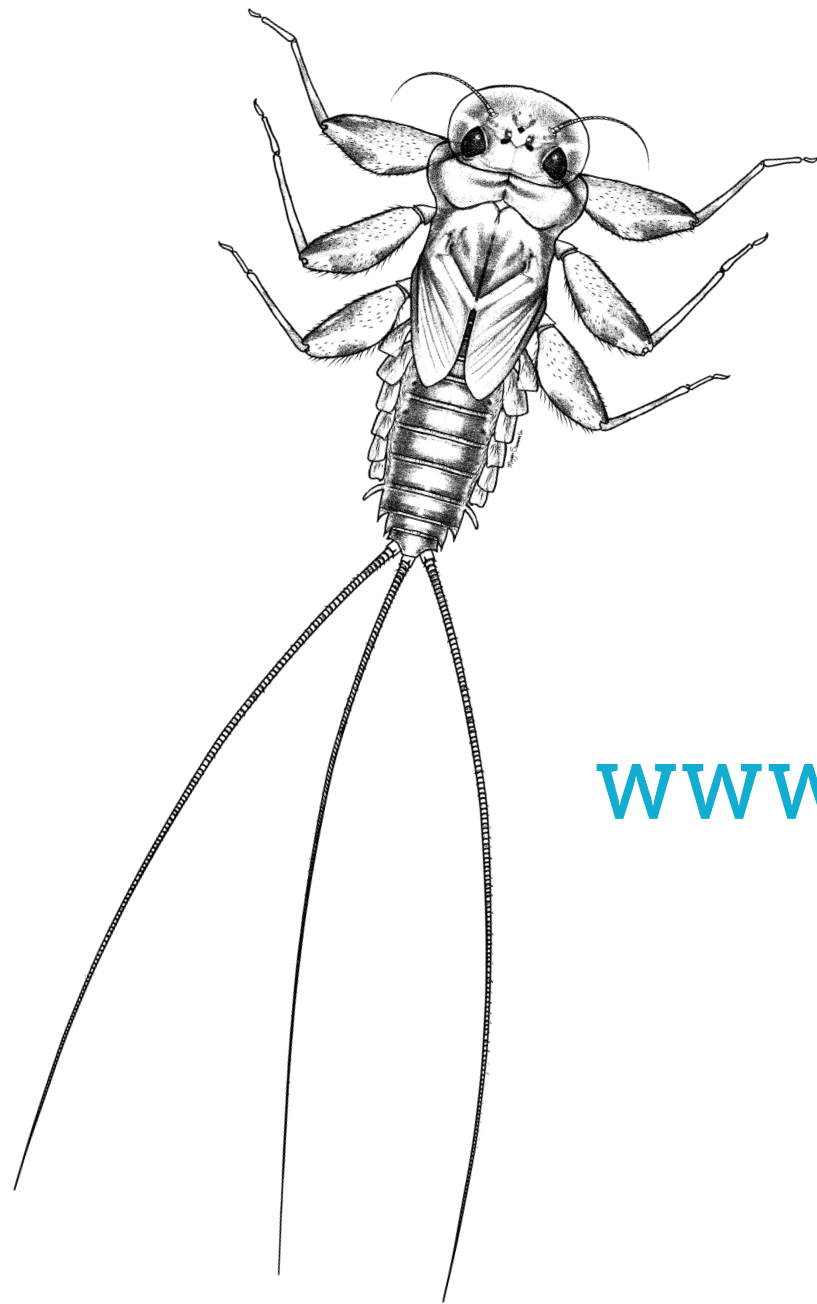
// Shredder of leaves and twigs!

Crane Fly Larva

- Many larvae are **shredders** and feed on leaves and twigs that fall into streams
- Bodies shaped for **burrowing** in leaf packs, woody debris, or the stream bottom
- Very **tough** gray, green, brown, and even **translucent skin** provides **camouflage** and **protection**
- Fleshy ring of **tentacles** at end of abdomen surround the pores they use to breathe, or **spiracles**

Fun fact:

Adult crane fly are nicknamed “mosquito hawks” but do not eat blood or mosquitoes! Adults hardly eat at all, and only nectar is on the menu when they do.



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