

Build-A-Dragonfly Activity

Head

Antenna (up to 2 participants)

Explanation = Their two short bristly antennae are thought to function as windssocks or anemometers, measuring wind direction and speed, thereby giving them a method with which to assess their flight.

Action = pretend to lick finger and hold up in air

Verbal = "Winds out of the SW 10-20"

Compound Eye (up to 2 participants, 1 for each "eye")

Explanation = Each of the two compound eyes are made up of up to 30,000 individual "sub-eyes", called ommatidia. As each "sub-eye" points in a slightly different direction, the dragonfly sees lots of slightly different views of its surroundings. They are particularly sensitive to movement as a moving object passes from the vision of one "sub-eye" to another.

Action= hold two hands somewhat together with fingers crossed over one another to simulate multiple lenses

Verbal= "The better to see you with my pretty" (or "I see you, I see you")

Mouthparts (up to 2 participants)

Explanation = translation of the word Odonata is "toothed ones", a reference to the toothy mouthparts which work together to hold the prey while it is chewed up.

Action = use hands to make side to side and up and down chewing motions

Verbal = "Chomp, chomp, yum, yum"

Thorax

Legs (up to 6 participants)

Explanation = Legs are used for capturing prey and for perching, but not for walking. The legs are held to form a basket in which prey is caught.

Action = use both arms in scooping motion toward mouth

Verbal = "Scoop 'em up, scoop 'em up"

Muscles inside thorax (4 participants preferred)

Explanation = Large muscles in the thorax power the wings, legs, and head.

Action = raise arms and show your muscles

Verbal = "Welcome to the Gun Show" or "We're going to PUMP.... you up!"

Wings (4 participants preferred)

Explanation = Each of a dragonfly's four wings operates independently, providing great maneuverability.

The flight muscles are anchored directly to the ends of the wings.

Action = One hand resting on a "muscle" participant, other arm flapping

Verbal = "Fly the friendly skies"

Abdomen

Abdominal Segments (up to 10 participants, 1 for each of the ten abdominal segments)

Explanation = The abdomen is very flexible and can bend up and down or side to side for balance as well as for mating and thermoregulating behaviors

Action = rock gently with slight forward and back motion while holding one arm out straight toward segment in front of you

Verbal = "long and straight, let's balance and mate!"

Prop

Connection to Odonata

For Larval Dragons & Damselfly:

Balloon or toy jet plane or jet ski	jet propulsion of larvae
Folding pick-up tool (reacher/grabber)	hinged mouthparts of nymph
Rubber fish or Picture of Fish Gills	dragonfly nymph breathes by gills; larvae eat some fish and vice versa
Picture of Mosquito larvae	typical prey of dragon/damselfly larvae
Picture of Greek mythology naiad/nymph	naiad, or nymph of dragon/damselfly

For Adult Dragons & Damselfly:

Plastic Dinosaur	dragonflies pre-date dinosaurs
Piece of yarn/rope 30 inches	wingspan of fossilized Carboniferous dragonflies
Mosquito or Fly, rubber bug or picture	typical flying prey items
Insect eye simulator (e.g. bug eyeglasses), wrap-around sunglasses, or goggles	large compound eyes
Helicopter or Picture of Dragonfly Micro Unmanned Aerial Vehicle	aircraft inspired by observing dragonfly flight
35 mph speed limit sign	proven recorded speed (although estimated maybe to 50 mph)
Basket or shopping cart/basket	way dragons hold legs to scoop up prey out of the air
Long hair comb	bristles on legs help "comb" flying insects out of the air
Fake Teeth	Insect order name "Odonata" means "toothed ones", named for teeth on mouthparts (e.g. serrated mandibles)

Cutting pliers	side-to-side cutting/chewing mouthparts (e.g. mandibles)
Tongs or clamps	mouthparts (e.g. labrum and labium) to hold food while other mouthparts cut and crush
Drinking Straws	singly can represent tracheal "tubes" and spiracle openings; cluster of straws could be used to make compound eyes
Something heart-shaped (e.g. Heart shaped box or plastic heart)	mating wheel
Egg carton	adult female lays eggs/odonates start life as egg
Rubber frog, fish, praying mantis, or puppet bird (e.g. kestrel)	predators of dragonflies
Picture of male & female cardinal	sexual dimorphism in most dragons & damsels
Miniature knight in armor	exoskeleton, or could represent guarding behavior of male
Picture of Washington Monument (or other obelisk)	obelisking behavior
Mouth guard or other protective guard	hover guarding by males
Horse	"horse stingers"
Darning needle	"Devil's darning needle"
Hummingbird puppet, or a Twig	dragons specialized for flight such that, like hummingbirds, do not walk around -- just perch
Airport wind sock	small antennae of dragons used for wind speed and direction
Suitcase	a few species of dragons migrate

Dragonfly Families

Petalails	<p>Named: for male cerci that are expanded and flattened like a flower petal</p> <p>Body Color: Only large gray and black dragonfly in Ohio (gray thorax and gray & black abdomen)</p> <p>Eyes: widely separated; dark, somewhat blackish</p> <p>Habitat: Woodland seeps</p> <p>Other: Primitive family dating back to Carboniferous Period (250 million years ago)</p>
Darners	<p>Named: for the long slender abdomen - like a darning needle</p> <p>Body Color: Most are brown or black, striped and spotted with blue, green, or yellow Thorax often patterned with frontal stripes and two lateral stripes usually blue, green, or yellow</p> <p>Eyes: very large eyes joined by a long seam</p> <p>Habitat: diverse group – some ponds/lakes, some streams/rivers</p> <p>Other: Abdomen with a noticeable pinch on S3 in most males Perch by hanging vertically</p>
Spiketails	<p>Named: for long pointed spiked ovipositor in females of most species</p> <p>Body Color: field i.d. by contrasting black/dark brown and yellow patterns dark thorax with two bold yellow stripes on top and two more on each side abdomen black or dark brown with bright yellow patterns males and females are similar in color</p> <p>Eyes: tear-shaped eyes which barely meet at top of head blue or green</p> <p>Habitat: streams</p> <p>Other: early and short flight period - late May through June</p>
Cruisers	<p>Named: for strong flight cruising up and down large rivers and streams looking for mates and prey</p> <p>Body Color: Dark thorax with single yellow or white lateral stripe on each side and very long legs Thoracic stripe extends up and across width of dorsal thorax; males and females similar colors</p> <p>Eyes: Have eyes that meet at a long seam (darners seam is longer)</p> <p>Habitat: streams and rivers</p> <p>Other: Abdomen with slightly widened segments at end, resembling a club, which is more pronounced in males</p>
Emeralds	<p>Named: for glowing emerald green jewel-like eyes in many, but not all species</p> <p>Body Color: Some have green or bronze metallic iridescence on the body; sexes similarly patterned</p> <p>Eyes: meet at a seam</p> <p>Habitat: most are uncommon as they inhabit rare wetlands like bogs; the common ones (Prince Baskettail and Common Baskettail) use ponds/lakes</p> <p>Other: Wings generally clear but may develop slight amber tint Males often have a spindle-shaped abdomen, narrowed toward both ends Are “flyer dragons”, seldom perching</p>

Dragonfly Families

<p>Clubtails</p>	<p>Named: Most species with abdomen segments 7-9 enlarged and clublike (male usually larger club) (Note: there are other dragons in other families that have club-like abdominal tips)</p> <p>Body Color: Generally have a "camouflage" pattern, usually brown or black background marked with yellow or green</p> <p>Eyes: widely separated eyes, usually green or blue</p> <p>Habitat: ponds/lakes for the common species; many others inhabit flowing water</p> <p>Other: Often hard to i.d. to species in field</p> <p>Often perched horizontally on low, flat surfaces like the ground or a rock</p> <p>Do not soar, nor feed in swarms, nor lay eggs in tandem</p>
<p>Skimmers</p>	<p>Named: for the behavior of females skimming across the water surface periodically dipping the tip of their abdomen into the water to deposit eggs</p> <p>Body Color: Often have bright bodies and conspicuous wing patterns; many species exhibit sexual dimorphism, however in some species the immature male color pattern looks like female but changes as mature (e.g. Eastern Pondhawk, Dot-tailed Whiteface), and in some species as females age they change to male-like colors (e.g. Dot-tailed Whiteface, Blue Dasher, Slaty Skimmer)</p> <p>Eyes: meet at a seam in the center of the head, giving a helmet-like appearance</p> <p>Habitat: usually slow-moving waters like ponds & lakes</p> <p>Other: Largest group of odonates in NE OH, divided into ten subgroups.</p> <p>Most skimmers are "perchers"; they hunt from a perch, making quick aerial sorties, returning habitually to that same perch.</p> <p>Many have dark wing bands (not just spots).</p> <p>Some exhibit pruinosity – powdery gray covering that develops on the bodies with age.</p> <p>Most mate in midair rather than while perched.</p> <p>In some species the male will "hover guard" ovipositing female, while in others the pair will fly in tandem while laying eggs (only other dragon to do this is Common Green Darner).</p>