

# Crayfish program

The crayfish program has 3 stations:

Station 1: Touch tank: behavior and lots of topics

Station 2: Traps and crayfish diversity

Station 3: Drawing: anatomy

In this program, students move among stations, which allows smaller groups and greater interaction. This program is good for all age groups, including mixed ages.

Supplies for each station are:

## **Station 1: Touch tank**

- live crayfish (we have reared crayfish in the past but have gotten lazy and catch them soon before programs and release them back afterwards – don't wait to collect until the last minute, in case they are harder to find than expected).  
Note: smaller crayfish are less intimidating to kids; though some like the big ones
- touch tank: the under-bed plastic storage bins work great
- ice chest or other container to transport crayfish
- water containers to carry water for the touch and drawing station tanks
- a couple of old towels

## **Station 2: Traps and crayfish diversity**

- 3 or 4 Gee minnow traps
- lots of colored plastic drinking straws, cut into approximately 2" sections
- a poster or 2 showing crayfish diversity (be sure to laminate them!). Try to find one that shows local crayfish. For us, this is: the Crayfish of Oklahoma poster: <http://biosurvey.ou.edu/OBSposters.html>

## **Station 3: Drawing: anatomy**

- one to three live crayfish (we had a blue one that we kept for this)
- drawing supplies: cardstock, mechanical pencils, colored pencils or crayons
  - Note: The sturdiness of cardstock works well and mechanical pencils are a hit where kids aren't allowed mechanical pencils in school.
- a camera for photographing some of the kids' pictures is good, since the kids keep their drawings
- plastic or glass tanks to hold the crayfish (use the same water brought for the tanks)
- a plastic model of a crayfish or lobster is helpful

## **Station 1: Touch tank**

Don't handle the crayfish right away. Instead, start off with:

- Ask the kids if they have ever seen these and what they are

- answers like crawdads or crayfish are fine
  - Has anybody caught any? Where? (streams, ponds,...) (in town, on vacation,...)
- How many legs do they have?
- versus insects
    - both insects and crayfish have an exoskeleton with joints on the legs, allowing movement (otherwise it would be like walking with plastic straws as legs)
  - Do they use all their legs for walking? (legs used for walking are ‘walking legs’)
    - the big pinchers aren’t used for walking (technical name: cheliped)
  - What are the big pinchers for?
    - defense, but notice that they don’t use them against the other crayfish
    - catching and holding food
    - as signals to other crayfish

Place a finger near the front of a crayfish

- What does the crayfish do? Why? (hopefully, the crayfish will whip an antenna over)
  - touch & taste – What do we use for touch (mostly our hands – wouldn’t it be neat to be able to taste with our hands also?)

Show the kids how to scoop up a crayfish with both hands – the crayfish will not be aggressive and will sit or walk across your hands.

Demonstrate picking up a crayfish by the carapace- is the behavior different? (They have been grabbed by a giant monster and are very defensive- as you would be.)

Explain that we will be scooping them up and let the kids handle the crayfish.

To keep the crayfish safe:

- make sure that they don’t have sanitizer on their hands!
- have the kids hold the crayfish over the water

Expect to scoop up the crayfish for several kids. Encourage the kids to scoop up crayfish for the more timid kids.

→ While kids are handling the crayfish, here are some possible discussion items:

- How many legs have pincers at the end? Why do so many legs have pinchers?
  - (the pincers help gather and handle food)
- Why are there so many different kinds of mouthparts
  - (one reason is for handling food – there’s no cheeks to contain food)
- Notice that bubbles sometimes come out from the exoskeleton when the crayfish get back in the water
  - Crayfish have gills under the carapace. The space with the gills may empty out when the crayfish are out of water. The gills are attached to the legs, so as the crayfish moves around, so do the gills.
- What do crayfish eat?

- Crayfish are generalists (omnivorous), eating dead stuff (e.g., leaves; insects), live animals (e.g., insects, small fish), algae, or anything else that they can find.
- Show them the swimmerets (the small legs under the abdomen)
- If crayfish are older, demonstrate how to tell males from females. Let the kids sex some crayfish.
  - The modified swimmerets of males transfer sperm packets.
  - Females hold eggs and newly hatched young with the swimmerets (under the abdomen)
    - Females with eggs are ‘in berry’ because their clusters of round eggs look like berries
    - Females ‘in berry’ hide out
- Molting
  - Tell the kids that as they grow, their skin grows – but the exoskeleton of a crayfish (and insects,...) doesn’t grow with the animal.
  - Do your clothes grow as you grow?
    - What do you do when your clothes get too small? (Get new, BIGGER clothes)
    - This is what a crayfish does.
  - When the exoskeleton is getting tight, crayfish start making a new one underneath – but this new one is not hard.
  - The old exoskeleton splits along certain places and the crayfish comes out, leaving the old skin (which looks a lot like a dead crayfish).
  - At first the crayfish is soft and it stretches out, ‘blowing up’ the new exoskeleton.
  - This is a dangerous time for the crayfish. Why?
    - soft crayfish can’t protect themselves. Pincers aren’t strong,...
    - so they hide out.
  - Soon the new exoskeleton hardens.

## **Station 2: Traps and crayfish diversity**

This station covers 2 topics.

Topic 1: How Gee minnow traps work. (this is a physical activity for the kids)

Hint: replace the clips with twist-ties (these are a lot easier to remove).

- hand out traps (kids will take turns, so only a few traps are needed)
- give the kids a handful of colored straw segments
  - there are ‘crayfish’
- stand up the traps on end and have the kids drop in the crayfish
  - explain that the traps are easy to enter
    - by crayfish as they wander about, investigate new objects, or look for places to shelter
    - traps can be baited with bacon or other foods

- Now have the kids pick up the traps and shake out the straw segments. (Kids get very active and are pleased when a straw comes out.)
  - once in, crayfish have trouble getting out
- Make sure that the traps rotate among the kids.
  
- What else might get caught? (these are ‘by catch’)
  - fish (explain that these are actually ‘minnow traps’)
  - tadpoles
  - large water beetles
  - water snakes
  - frogs
    - the water snakes, beetles, and frogs need to breathe air and will drown if the traps are all the way under water
    - What can be done to prevent drowning?
      - leave part of the trap above water

## Topic 2: crayfish diversity

We bring 1 or 2 laminated posters that show a variety of crayfish.

Are all crayfish plain brown? What other colors do crayfish have?

- Some crayfish, like birds, can be distinguished by colors and color patterns. Can you tell different kinds of birds apart?
- Crayfish are harder to distinguish than (most) birds, though. The colors can vary (especially how light or dark they are). Even the color pattern can vary.

Knowing where a crayfish comes from is also helpful in distinguishing species.

- Crayfish can move up and down a stream, but it’s hard to go from one stream to a distant one
  - Most species of crayfish are found in a pretty small area.
- Knowing the habitat is also helpful.
  - Cave species look white because they lack color.
  - Some species are burrowers and may live in dry-looking ditches or fields
  - Some are found only in small streams; others only in large rivers
  - Some can live in lots of places (ponds or streams)

Oklahoma has about 30 species of crayfish. At any one place with crayfish, there are fewer species (generally 1 to 4 species).

Sometimes crayfish are moved by people to a new area (making them ‘introduced species’)

- Introduction is most common when crayfish are used as bait.
  - crayfish are often moved before or after sale
  - crayfish escape, get off the hook, or are dumped out by the fisherman
- Crayfish are also introduced when they are brought in for raising for food in ponds – because some always escape!

- Introduced crayfish can hurt the normal crayfish by eating them or eating their food – or even by introducing diseases.
  - (Note: disease is a real problem in Europe, where a disease from the USA is killing off the native crayfish- US crayfish are immune)

Other problems that crayfish can have (besides introduced crayfish)

- water pollution
- loss of habitat
  - Examples:
    - draining ponds or even getting rid of plants
    - piping water from springs for cities
    - building dams
      - reservoirs are very different from streams
      - downstream water flow and temperature are changed

### **Station 3: Drawing: anatomy**

Kids are provided with drawing materials, crayfish in tanks (placed, for example in the center of tables, so that kids can sit on both sides and see the crayfish).

A realistic plastic lobster is helpful for the kids to see and handle, but explain that it is not a crayfish and that lobsters live in the ocean.

The helper at this station can point out characteristics and answer questions.

Kids keep their drawings.