



## Tips for Teaching Aquatic Ecology and Biology

Make the teaching activity **relevant** to youth lives and daily activities

1. One method is to explain how you use the information being presented.
2. Ask youth how they could or would use the information or concept. This is best done before digging too deep into a subject. This way, the topic has greater value. They can see the use or benefit before getting into the activity.

**Use the known to teach the unknown.** Professional educators call this technique ‘bridging.’ In bridging you use terms or situations members are all familiar with, then compare/contrast that to the unknown subject you are teaching.

**Don’t get caught up in scientific terminology, jargon or scientific names.**

There are simple terms that often mean the same exact thing. A good example is the term *benthic macroinvertebrates*. These are the small critters that live on the bottom. Which is easier to understand? It is as technically accurate to refer to the Salmonidae family of fish as the “trout and salmon!” Often, we end up spending time memorizing terms and definitions rather than important concepts

**On the other hand, don’t water down important, real concepts** with fake easy answers. Kids want the truth and appreciate being challenged at the level that seems age- and developmentally-appropriate. Likewise, there are many ecological clichés out there that don’t make sense (like “the balance of nature”) Use the information found in this introduction, each lesson, references and resources to give good, sound definitions. Also follow this curriculum so that activities are sequenced in a good, workable order for your learners.

Take advantage of **teachable moments**. These are unplanned opportunities to teach that often come up when we are outside. For example; on a fishing trip a club member catches a bluegill, or other fish with spiny rays. They notice how sharp the spines are - or maybe they don’t notice. Take advantage of the *teachable moment*, point out the spines and ask the all important question -**WHY?**

**Its okay to say “I don’t know.”** Don’t attempt to make up answers to questions you don’t know. When you don’t know, say it and then make it a *teachable moment* by saying, Lets find the answer to that question together.

**Weave aquatic ecology into other youth activities.** Concepts are boring and useless ideas (unless you play trivial pursuit) if they are not tied to something important and concrete. So what if mayflies and some other aquatic insects go through incomplete metamorphosis? This concept takes on a whole new meaning when linked to fly tying activity. Likewise, the way a sunfish build a nest in particular spots on a lake and guard their young can be pretty boring stuff. However, tie that in with selecting a spot to fish on a lake in early summer and you are on you way to building good anglers, stewards and young people!

**Challenge members to investigate on their own.** Exploration, individual or in small groups, is an important scientific idea and is important to youth development. So is collaborationBwhere the group works together to solve a problem.

**Get older youth involved in mentoring younger youth.** Many 4-H programs have groups of youth of various ages. One way to challenge other youth is to have them plan for, teach and mentor activities with the younger members. Older members could make models they use in teaching, and can learn more about these topics. In turn, younger youth benefit from the mentorship of teens closer to their own age than adults.

**Find ways for families to be involved.** Look for and suggest opportunities for short or even long-term extended study activities families can do between your more organized meetings or events. These can be simple neighborhood/watershed investigations or long-term stewardship or science projects. Be sure to welcome family members to your meetings and events. Have ways that adult family members can help.

**Practice makes perfect.** Don’t expect the activities and simulations to work on the first try. Practice them before hand. Set everything up and try the experiment or activity before demonstrating it for your youth. This is a great role for your older youth - they can pilot - or test pilot activities and experiments.