

Get the Lead Out of Fishing Lesson Plan

Overview:

The goal of this lesson plan is for students to understand the hidden danger of lead to our birds. This lesson can be expanded with additional study time on animal physiology, environmental studies, pollution on local/national level, and legal process of passing laws. Several web sources are cited in this document to allow additional teaching time.

Lots of facts, additional sources, and citations can be found on the Get the Lead Out of Fishing website, <http://ReplaceLead.com>

Goal/Objective:

There are four goals. At the end of this lesson, students will be able to cite:

- lead is poisonous to people and animals
- the ways birds ingest lead
- alternatives to lead in fishing tackle
- ways students can make a difference in getting the lead out of fishing

Educational Lesson Tie-Ins:

This lesson could tie into the following educational lesson plans:

- Biology (animal digestion, feeding habits)
- Chemistry (lead as a toxin)
- Environmental Studies (pollution, toxins)
- Civics (legislation, legal protections, civil actions)

Helpful Lesson Plan Materials:

Review the Get the Lead Out of Fishing website for facts and information. <http://replacelead.com>

Print outs of Get The Lead Out of Fishing brochures. <http://replacelead.com>

Photos of people, animals, and birds eating

Photos of eagles and/or hawks

Photos of swans, ducks, and/or loons

Common metal household and hardware materials such as metal nuts (don't need the bolts they would attach to), metal washers, old keys, – anything with a little weight that has a hole in it – this is something students can brainstorm. Your local hardware store has dozens of items available for a few cents each. Pay attention to what the items are made of so you can discuss their impact on the environment.

Variety of sizes and shapes of lead fishing weights (make sure they remain in sealed plastic bags to prevent students from getting any lead transferred to fingers). In most states, these are available at most sporting/fishing stores for a few dollars.

Variety of non-lead fishing weights (these should also be sealed in plastic bags). These are available at most sporting/fishing stores for a few dollars.

Small, flat box filled with small pebbles (approximately 1/4" – 1/2"; 6-12mm) in size. Add one or two similar sized lead weights to the mix and shake well so that lead blends with pebbles. If you choose carefully, the weights should look like the small round pebbles in the box.

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Lesson Plan

Anticipated Lesson Time:

Twenty to thirty minutes.

Goal/Objective:

At the end of this lesson:

- Students will understand that lead is a dangerous environmental hazard to people and animals.
- Students will be able to describe how lead fishing weights kill raptors (eagles, hawks, etc) and waterfowl (swans, loons, ducks, etc).
- Students will be able to describe alternatives to lead.
- Students will be able to describe ways that they can help get lead out of fishing.

Anticipatory Set:

Teacher should hold up the box with the pebbles and lead weights. Project or hold up a picture of waterfowl (duck, loon, swan, etc).

“We are going to learn why this” (shake box and pebbles) “can endanger or kill these birds” (hold up or point to picture of birds). “And the very simple thing you can do to keep that from happening.”

Lesson:

Start off lesson by talking about how everyone and everything has to eat to survive. Show pictures of people eating, animals eating.

Question for Students: How do animals and people get their nutrients from food?

Discuss how we get nutrients from food: Put food in mouth, chew it up, goes into stomach where acids help break down food. Food then goes into intestines where nutrients are absorbed.

Have pictures of some animals: lions, bears, dogs, cats, sharks, cows, funny picture of someone eating something.

Talk about how some foods are easy to digest (bread, bananas, eggs, meat) and get nutrients and some foods are hard to digest (beans, whole grains, ice cream, grasses, leaves) and get nutrients.

Question for Students: Do different animals digest their food differently?

Talk about how different animals eat.

People and some animals have teeth meant to tear and grind food, swallow it to their stomach where acids break it down into smaller bits which can be absorbed.

Birds do not have teeth. They swallow their food whole where it goes into their stomach. Birds have special stomachs with two parts: a stomach and a gizzard which is where food gets ground up to aid digestion. Birds that eat nuts and vegetation swallow gravel and stones into their gizzard to help grind up the food. Birds that are meat-eaters do not generally swallow grit as their gizzard can digest low-fiber food.

Excellent resource for bird digestion: <http://people.eku.edu/ritchisong/birddigestion.html>

Question for Students: What happens when animals mistake something for food that is not food?

Let students talk but steer the conversation to things that get discarded or lost in the water. Talk about large things (eyeglasses, cameras, jewelry). Talk about trash (cans, snack bags). Talk about animals who are harmed when they ingest things like plastic bags or trash.

Question for Students: How can gravel be dangerous to birds?

Let students take a look at the gravel in the box – few students will notice the lead weight as it looks like a pebble – and that is the point.

Waterfowl (loons, swans, ducks, etc) scoop pebbles from the bottom of ponds. If they swallow something that is not a pebble, it can injure or kill them.

Question for Students: What happens if they swallow this? (Hold up a small lead weight that you take from among the pebbles).

Describe lead as it is used in fishing to help the hook and bait get down to where the fish are. Describe why lead is used (cheap, available, can easily be shaped around line, has been used for centuries).

Question for Students: How does your lead fishing weight end up on the bottom of the pond?

Describe how one fishing weight is lost every six hours per person fishing (North American Journal of Fisheries Management 26:206-212, 2006). Talk about how 3000 tons of lead fishing weights are produced every year-primarily to replace the ones lost while fishing. (Audubon Society-water bird conservation study)

Question for Students: Why is lead dangerous?

Describe how lead has serious health risks for all living creatures. Lead is a health hazard to both humans and animals. In humans, even very low amounts of lead poisoning may result in possible IQ

reduction, learning disabilities, Attention Deficit Disorder (ADD), reduced growth, kidney damage, and hearing impairment.

Higher levels of lead poisoning can cause mental retardation, coma, increased blood pressure, fertility problems, nerve disorders, muscle and joint pain, irritability, concentration problems-and even death.

Talk about lead has been banned in most countries as an additive in paint and gasoline. Lead used to be commonly used as plates and cups because it was easy to shape and cheap. Lead was used for toys such as molded figures and in the paint.

Excellent resource material about lead poisoning: <http://www.health.ny.gov/environmental/lead/>

Question for Students: What happens if a duck swallows this weight? (Hold up tiny weight)

Animals with lead poisoning will exhibit physical and behavioral changes, such as loss of balance or tremors. This makes the animal more vulnerable to predators. Birds have trouble taking care of their young, feeding or nesting. Lead poisoning often kills the birds 2-3 weeks after ingesting the lead.

Question for Students: How do birds and fish get poisoned?

Waterfowl such as ducks, swans and loons scoop food and pebbles off the bottom of ponds. They ingest lead fishing weights thinking the lead sinkers are stones that will aid in their digestion. The lead gets into their stomachs and dissolves, poisoning the bird.

Fish become poisoned when they swallow lead fishing weights on fishing lines. Birds of prey such as eagles and falcons eat the poisoned fish and waterfowl, the lead ends up in their stomachs where it can slowly poison the birds.

Question for Students: Do you think this happens to a lot of birds? Is this a big hazard?

Research studies in New Hampshire, Minnesota, Wisconsin and Michigan estimate that up to:

- 57% of loon deaths
- 31% of Trumpeter Swan deaths
- 25% of Bald Eagle deaths

are due to lead poisoning.

Studies done by Tufts University, over the last 30 years, show that up to 52% of adult Loon deaths are caused by lead poisoning. 25% of Bald Eagles that die died due to lead poisoning. 31% of endangered Trumpeter Swans deaths were caused by Lead poisoning At least 25 species of birds are affected by lead poisoning New Hampshire, Wisconsin, New York, Minnesota, Maine, and Vermont have already banned or limited the use of lead sinkers in fishing. Massachusetts has only banned the use of lead in the Quabbin and Wachusett reservoirs. Massachusetts currently has a bill in the works (Senate Bill 466) that would ban the use of lead in all fresh water bodies.

Question for Students: Are non-lead fishing weights available?

Hold up packets of non-lead fishing weights, pointing out the notices on the package which describes them as environmentally safe.

Question for Students: What if fisherman can't find safe weights or don't want to buy non-lead weights? Can fishermen use something besides lead for fishing weights?

Dump out the hardware (nuts, washers, keys, other hardware store finds) into an empty box and have students describe how they could use common household items. Talk about how steel, iron, brass are much less harmful for the environment and for our wildlife.

Question for Students: What should fishermen do with their old lead weights?

Talk about how important it is to find a responsible recycling program that will safely dispose of the lead. Talk about how important it is to not throw lead in the trash as it will end up in landfills and can pollute the ground water we all drink.

Question for Students: Now that you know how lead weights poison our birds, what can you do?

Go to <http://replacelead.com> for many ideas

Legislative: Talk about getting laws passed. Discuss writing their local, state, regional, or national government representatives.

Public Awareness: Set up a booth at a fishing derby, community event, or an environmental fair and ask people to turn their lead over for safe recycling.

Personal: Talk to fishermen you know (parents, family, friends, neighbors, community leaders) and have them check their tackle boxes and replace their lead with non-lead weights.

Conclusion:

Question for Students: Why is lead dangerous?

Review neurotoxicity of lead and how it can cause a number of serious health problems.

Question for Students: What have we learned about how fishing weights end up in our ponds?

Review how weights are lost while fishing. Review how much lead ends up lost every year.

Question for Students: What have we learned about how the lead weights poison our birds?

Review how waterfowl need pebbles to help them digest their food. Swallowing a lead weight will poison most birds within a couple of weeks, leaving them unable to care for themselves or their young and leaving them vulnerable to predators.

Review how raptors eat fish and waterfowl that may be poisoned and unable to protect itself. Eating poisoned fish or birds can mean that a raptor or other predator can be poisoned as well.

Question for Students: What have we learned about how we can get lead out of fishing?

Review the options for legislative and public awareness campaigns.

Review how you can make a difference just by asking people they know to safely get the lead out of their tackle box.