



# High Touch High Tech®

Science Experiences That Come To You

## Catching Insects

### Ingredients & Supplies:

- 3 small bowls
- single hole punch
- 12" piece of string
- small 1" X 1" square of soft sponge
- 2 oz. plastic cup
- brown sugar
- tsp. of Flavored Extract (i.e. coconut)
- container of Unfiltered Apple Juice
- measuring spoons
- measuring cup

### Instructions:

Frogs and toads are great predators. They have a good sense of smell, sneaky eyesight, and sticky tongues. But, you can also catch some insects with a little sweet-tasting bug bait. The best time to catch some insects is at night. Perhaps you can snag a moth or two.

First, you need one 1"X1" square-piece of plain sponge. You also need a single hole puncher. Punch one hole into your sponge. Set your sponge aside.

You need 3 bowls and a measuring cup. Measure 1-½ cups of unfiltered apple juice and pour it into one bowl.

Next, measure ½ cup of brown sugar. Add the brown sugar to the second bowl.

Now, measure 1 teaspoon of a very sweet extract, such as coconut extract. Drop the extract into the apple cider.

Finally, mix all the ingredients (apple cider, brown sugar, and coconut extract) together in the 3<sup>rd</sup> bowl. Stir well. This is your moth bait! Set your moth bait aside.

Ask an adult to help you cut 1 foot long piece of string. Put your string through the hole in your sponge. Tie a knot on one end of the string so it will not fall through the hole.



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Next, you need a 2 oz. plastic cup. Put your sponge in the cup. Carefully pipette your moth bait mixture onto the sponge. You want your sponge to soak up the sweet moth bait.

Finally, tie your string with the sponge around a tree branch, or a birdhouse, or someplace your parents would safely let you hang it. The sponge should hang down from the tree branch.

This sweet-tasting sponge will attract moths searching for something yummy to eat!

## The Science Behind It:

Did you know that frogs and toads are both carnivores?! That's right. Frogs and toads are extremely important predators in their habitats. These amphibians eat insects, spiders, worms and slugs. Depending on their size and habitat determines what they eat. In fact, some large frogs and toads even munch on tiny rodents and reptiles!

However, these amphibians will only eat live prey. If they come across a dead insect or worm, they will pass. Frogs and toads will starve before they eat anything that's already dead.

Most frog species have teeth to help grind food. Their small teeth are located only on the upper jaw. Most toads, however, do not have teeth. Toads swallow their food whole!

Frogs have a great sense of smell. Their nose is located on top of their head. Therefore, they can submerge their body into the water with only their eyes and nose peeking out above the surface. This is a great position for the frog to catch unsuspecting prey! When a frog catches an insect or worm, its eyes drop to the back of its mouth to help the tongue push food down its throat.

A frog's tongue is extremely vital for eating food. A mucus gland in the frog's mouth creates a sticky substance. This mucus coats the tongue making it very sticky. The tongue is connected at the front of the frog's mouth instead of the back (like yours.) This allows the tongue to fold out and back inside the mouth. The frog quickly flicks its tongue out, grabs its prey with the sticky glue-like mucus, and then snaps back into its mouth to push the food down its throat. This quick motion is faster than we can see!



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## Moist vs. Dry Skin

One of the biggest differences between frogs and toads is their skin. Toads have rough, dry, bumpy skin. (Getting “warts” from a toad is a myth!) Frogs, however, have smooth, moist skin. Frogs often look slimy. (Kissing a frog to turn it into a prince is a fairytale!)

Frogs actually absorb oxygen into their bloodstream through their moist skin. This is called *cutaneous gas exchange*. Although they breathe in oxygen through their mouth and nose while on land, frogs absorb 100% of their oxygen through their skin while underwater.

Frogs also “drink” through their skin –not with their mouth. The frog’s skin is *permeable* allowing both oxygen and water to enter their bodies.

About once a week, frogs *molt*. This means they shed their skin. They wriggle around and loosen the dead skin off their bodies. Why don't you find this dead skin on the ground? .... Because the frogs eat the old skin!

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