



WONDER WIRE

November 2004 ideas to inspire curious children Vol. 1 No. 3

EVER WONDER . . . WHERE TURKEYS LIVE? (AND OTHER PRESSING THANKSGIVING QUESTIONS!)

C-ZONE NEWS

Registration is now open!

Register for a class or party before Dec. 1 and get a free membership (a \$50 value!)

Classes start Jan. 17:

Creative Chemistry
(January 17 – April 8)

Fabulous Physics
(April 11 – June 17)

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- ◆ Crafty Concoctions
- ◆ Slime Time
- ◆ Bubblemania
- ◆ Secret Science Agents
- ◆ Dino Dig
- ◆ Mission to Mars

Construction Update:

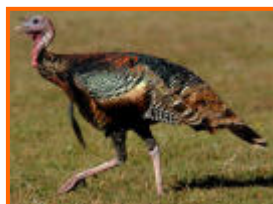
Facility build-out is going well; our sign should be up soon. Look for us as you drive along Claiborne!

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EXPLORE. Year after year, we go through our Thanksgiving rituals without stopping to think about the wonders involved. This year, ask some questions! Like -- where exactly do turkeys live? Would you know how to find one in the wild? How about those flaky, puffy rolls – what’s in them that makes them go from wet, flat goo to brown, fluffy bread? And what about the sweet, creamy butter you put on those rolls? Where does that come from, and could you make it yourself? These are all things our founding fathers and mothers knew about – but most of us today have no understanding of at all (because we just buy these things at the store!). While progress is a beautiful thing, there is much to be said for remembering the basics. So grab your kids, roll up your sleeves and learn some science from the early American settlers!



DISCOVER. Find a turkey (or at least learn how to recognize one!) Wild turkeys live in open woodlands and forests with lots of clearings and meadows. They move around during the day looking for food, and they travel in small flocks. At night they roost in trees, especially in oaks and pines. They can fly, are remarkably fast runners, and make a lot of different noises. Virginia has about 180,000 wild turkeys; they live all over the state, and are especially common in the Tidewater, South Mountain and South Piedmont areas.



Wild turkeys have brown, black and white feathers, strong feet, short wings, a large tail, and a strong beak. Most males (and some females!) have a “beard” that hangs down under their beak – which can be up to a foot long! Wild turkeys are usually 3-4 feet long (including their tail) and weigh 15-19 pounds. Wild turkeys are thinner than turkeys raised on farms, and their tails are tipped with brown, not white. Now that you know where to look and what to look for, bundle up the kids and go for a hike – Claude Moore Park would be a good spot – and see if you can spot a turkey!

Make bread. This activity takes a while (about 4.5 hours, much of it waiting time), but kids love this project, and there are some great chemistry lessons involved. It’s a great project for a cold, rainy day. Makes 2 loaves of bread.

Ingredients/Materials: 1 package active dry yeast (in the baking section at the store), 1 tablespoon sugar, 1 tablespoon salt, 6 cups flour, vegetable oil, large bowl, 2 loaf pans.

Directions: Put 2 cups warm water in a large bowl. Use a thermometer (or test on your wrist) to be sure the water is between 100° F and 110° F. (Too cool, and the yeast won’t be active enough. Too hot, and you’ll kill the yeast!) Add the yeast to the water, stir, then let sit for 5 minutes. Add the sugar and salt to the water and stir well. Add the flour by small amounts and stir well. Stop adding when the dough has stopped sticking to your hands in clumps. (continued on next page)



WORD OF THE MONTH: GOBBLE. USE IT IN A SENTENCE AT LEAST ONCE A DAY!

Now it's time to "knead" the dough on a lightly floured surface for 4 minutes. ("Knead" = press the dough out into a round, fold it in half, turn it ¼ turn, repeat.) Roll the dough into a ball and put it in a medium bowl that is lightly coated with vegetable oil. Roll the dough around in the bowl so the dough also has oil on it. Cover with a damp towel and put in a warm place for 1-2 hours. When you can poke your finger in the dough without it springing back, it's time to "punch" the dough. ("Punch" = press dough out into a round, pull it up on all sides, fold it over the center, then knead out the bubbles for 1 minute.) Cut the dough in half and pat each half into a loaf pan. Cover both pans with a damp dish towel and place in a warm location until the dough doubles in size (about 1 hr). Bake for 30-40 mins. at 350° F. (Finished bread should be brown and sound hollow when tapped.)



Make Butter. This takes a lot of energy – it's a great workout for kids! Time: 20 mins.

Ingredients/Materials: 1 cup warm, heavy whipping cream, glass jar with lid, marble (optional).

Directions: Place whipping cream in a large glass jar with a lid. If you have one, add a marble – it will help to agitate the cream. Now shake, shake, shake the jar until a solid starts to form. This solid is butter; the left-over liquid is buttermilk. (If your shakers get tired, a short-cut is to whip the cream with an electric blender – you'll get whipped cream at first, then it will turn to butter and buttermilk!)

LEARN. The wild turkey (*Meleagris gallopavo*) likely originated 2-3 million years ago in the Pliocene epoch. There are two species in the genus: the wild turkey of the United States, southern Canada and northern Mexico; and the ocellated turkey of the Yucatan region of southern Mexico, Belize, and northern Guatemala. (Can you find these places on your globe?) Male turkeys are called gobblers, and females are hens. Young turkeys are poults.

Wild turkeys were everywhere when the pilgrims first got to America. But as the turkeys were harvested more and more for sale in the 1800s, and the forests were cleared to build towns, wild turkeys became rare. By the 1920s, turkeys had gone away completely from 18 of the 39 states where they had originally lived! In the last 80 years, scientists have worked really hard to increase the number of turkeys living in the wild, and have brought the number back from just tens of thousands in a few remote areas to almost 4 million now living in most of the eastern United States and the forested western states.



Yeast is a living fungus that literally "eats" the sugar in the bread recipe, then gives off carbon dioxide gas. This gas is what makes the bread rise, and causes the little holes you see in the bread once it's baked. Dry yeast is yeast that has been dehydrated to about 8% of its usual moisture content, which keeps it alive but dormant. Yeast has been used to make bread since at least the time of the ancient Egyptians, about 4000 years ago.

Warmth increases the reaction rate between the yeast and the sugar (as it does for all chemical reactions). To demonstrate this, take three packets of yeast and combine with cold water, warm water and hot water in three separate bowls. Observe the bowls for 5 minutes. What differences can you see in the reaction rates?

Butter is formed from cream when the air bubbles in the cream are broken and the liquid fat starts to stick together in the warmed liquid. This process is called "churning" and has been around for thousands of years. In the old days, the cow would be milked, then the milk would be strained, poured into a can and stored in cool water (like a well or river). After several hours, the cream would rise to the top. The cream would be skimmed off (leaving behind "skim milk"), allowed to become warm and slightly sour, then churned until it was turned into butter. The butter was then washed, and sometimes combined with salt to preserve its freshness. The leftover buttermilk was used for drinking or baking. The leftover skim milk was fed to the livestock or made into cottage cheese. (Who knew there was so much chemistry in milk?)



SECRET SCIENCE AGENTS: NOVEMBER MISSION

Download the Turkey Fence Challenge from www.CuriosityZone.com and see if you can complete it! This is a very tricky mathematical mission.

COMING IN DECEMBER: EVER WONDER HOW CRYSTALS ARE FORMED?

Parents and Teachers: register to receive the Wonder Wire™ by email each month at www.curiosityzone.com/wonderwire.
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