

Grades 3-6: Ag Creations

Make Your Own Biodegradable Packing Peanuts

From: The Kentucky Corn Growers Association, www.kycorn.org.

Packing Peanuts are made of nearly 100 percent corn. These peanuts are totally water soluble and biodegradable.

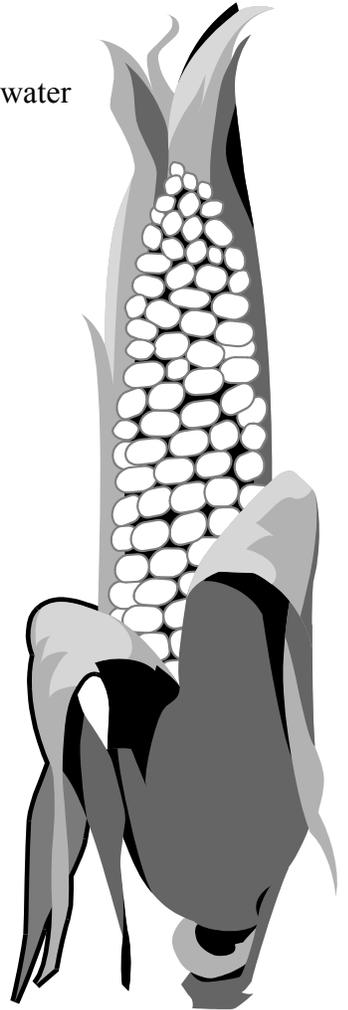
Materials:

Package of frozen corn
Iodine
Tablespoon and teaspoon
Piece of cheesecloth
Paper cups

Slotted spoon
Potato masher
Stir stick
Water

Directions:

1. Thaw a package of frozen corn and place in bowl.
2. Crunch up the corn with a potato masher and cover with water. Let stand for 24 hours.
3. Remove from bowl with slotted spoon. Allow water to stand for another 15 minutes.
4. Gently pour off the water through a piece of cheesecloth, allowing the starch to become trapped in the cloth.
5. You can see and feel the starches left in the cloth. Use a small portion of the cheesecloth to demonstrate the presence of starch. Place a drop of iodine on that portion. If starch is present, the iodine changes from reddish-brown to blue-black. Allow the remainder of the cheesecloth to dry overnight.
6. The starch has now dried overnight and turned into powder. Feel and taste the powder. Now mix 1 tablespoon cornstarch and 1 teaspoon water in a paper cup. Stir with a stick until it forms a workable paste. If you microwave the mixture on high for 15 seconds, it will provide a more consistent product for examination. You have made a biodegradable packing peanut!
7. Study your peanut and compare it to a Styrofoam peanut by putting both in separate glasses of water. Watch what happens. Which peanut would be best for the environment and why? Also try burying them in soil and compare results.



Make your own biodegradable plastic from corn

From: Illinois Farm Bureau www.ilfb.org

1. Place a tablespoon of cornstarch in a paper cup or plastic bag.
2. Add 2 drops of corn oil to the cornstarch.
3. Add a tablespoon of water to oil and cornstarch.
4. Stir.
5. Add 2 drops of food coloring to the mixture and stir.
6. Microwave your plastic for 20-25 seconds on high.
7. Form your plastic into a ball and describe what it will do!

Make Your Own Soy Crayons

From: The Illinois Farm Bureau, www.ilfb.org

Soy Crayons are similar to regular crayons, except they are made from biodegradable and renewable soy oil! In fact, soy crayons are 85% soybean oil. Most crayons are made from paraffin, which is a petroleum product. Follow the recipe below to make your own soy crayons!

Materials

600 ml beaker
hotplate
Candy molds
166 g (about 1 ½ cups) fully hydrogenated soybean oil (Soyflakes)
14 g (4 teaspoons) pigment

Instructions:

1. Fill the beaker with 166 g fully hydrogenated soybean oil.
2. Place the beaker on the hot plate on the low setting.
3. Allow the solid oil to liquefy while stirring occasionally.
4. Add 14 g of pigment after the oil is liquefied. Stir until it is evenly distributed in the oil.
5. When the pigment is evenly distributed, remove the beaker from the heat.
6. Pour into candy molds.
7. Cool ½ hour.
8. Remove the crayon.

Note: Soyflakes can be found at many major craft and hobby stores.

