GRADE 3-6: AGRICULTURE CREATIONS

BIODEGRADABLE PACKING PEANUTS SUPPLIES

- PACKAGE OF FROZEN CORN
- IODINE
- TABLESPOON
- TEASPOON
- PIECE OF CHEESECLOTH
- WATER
- PAPER CUPS
- SLOTTED SPOON
- POTATO MASHER

BIODEGRADABLE PLASTIC FROM CORN SUPPLIES

- CORNSTARCH
- PAPER CUP OR PLASTIC BAG
- CORN OIL
- FOOD COLORING

SOY CRAYONS SUPPLIES

- 600 ML BEAKER
- HOTPLATE
- CANDY MOLDS
- 166 G (ABOUT 1 ½ CUPS)
- FULLY HYDROGENATED SOYBEAN OIL (SOYFLAKES)
- 14 G (4 TEASPOONS) PIGMENT

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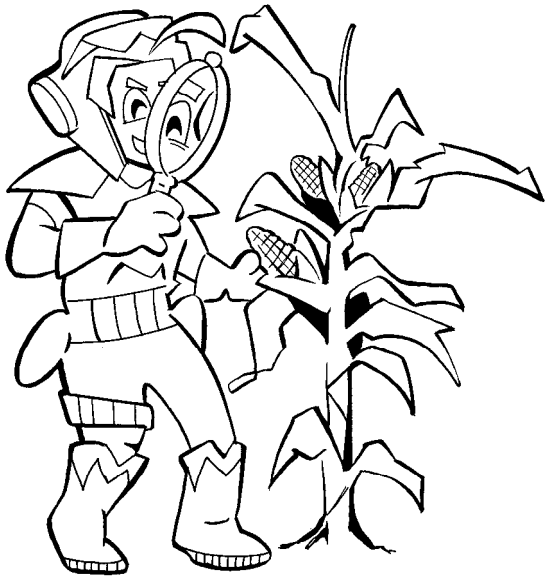
RECIPE 1: BIODEGRADABLE PACKING PEANUTS

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. 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.

SUPPLIES

- PACKAGE OF FROZEN CORN
- IODINE
- TABLESPOON
- TEASPOON
- PIECE OF CHEESECLOTHWATER
- PAPER CUPS
- SLOTTED SPOON
- POTATO MASHER
- STIR STICK



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.

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RECIPE 2: BIODEGRADABLE PLASTIC FROM CORN*

DIRECTIONS

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!

SUPPLIES

- CORNSTARCH
- PAPER CUP OR PLASTIC BAG
- CORN OIL
- FOOD COLORING

*Recipe Courtesy of the Illinois Farm Bureau: www.ilfb.org

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RECIPE 3: SOY CRAYONS*

DIRECTIONS

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.

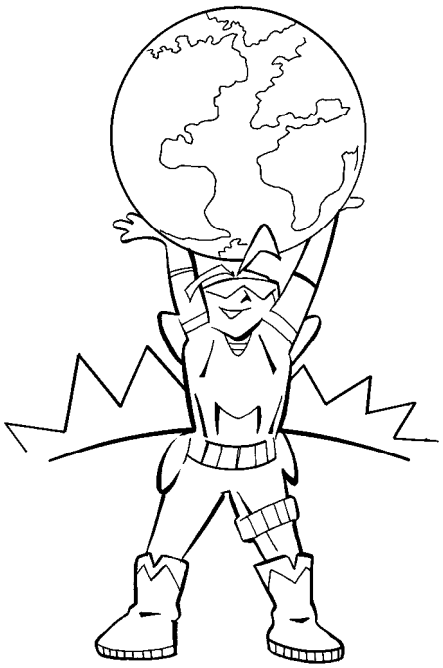
Follow the recipe below to make your own soy crayons!

SUPPLIES

- 600 ML BEAKER
- HOTPLATE
- CANDY MOLDS
- 166 G (ABOUT 1 ½ CUPS) FULLY HYDROGENATED SOYBEAN OIL (SOYFLAKES)
- 14 G (4 TEASPOONS) PIGMENT

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 may be found at many major craft and hobby stores.

*Recipe Courtesy of the Illinois Farm Bureau: www.ilfb.org