

Biodegradable Plastics

Standards of Learning

Science 6.1, 6.6, 6.7, 6.9, LS.4, LS.12

Math 6.9

Objective

The student will

- provide examples of the states of matter and explain that corn may be used as a renewable resource.

Materials

- Cornstarch
- Water
- Corn Oil
- Zip-lock baggies (quart size)
- Measuring spoons
- Dropper
- Food coloring

Background Knowledge

Corn is a versatile crop. It is grown in every county in Virginia. It not only is used for food but also for manufacturing. Today corn has over 200 different uses in manufacturing. Corn is used in cosmetics, crayons, wallpaper, leather, firecrackers, paper manufacturing, paper board, and pharmaceuticals. Another way corn is used is in packaging-think of all those packing peanuts. Some packing peanuts are made up of a biodegradable starch-based material that is renewable and easily dissolves in water.

Procedure

1. Place tablespoon of cornstarch in a plastic zip-lock bag.
2. Add 2 drops of corn oil to cornstarch.
3. Add 1 tablespoon of water to the mixture.
4. Mix cornstarch, corn oil, and water in plastic bag by rubbing the outside with your fingers.
5. Add 2 drops of food coloring and mix again.
6. Place the bag in a microwave oven on high for 20-25 seconds.
7. Do not completely seal the bag. Careful, it is hot!

Extension

Have students record their observations as the plastic is hardening (include the day it was made and the next day.) Has the consistency changed?

Have students place their “homemade plastic in water.” How long does it take to disintegrate?

Have students research other products made with corn (ex; corn syrup used in Coke, ethanol used in gasohol.)

Have student discuss the life cycle and the parts of a corn plant.



Have students discuss natural resources. What are the advantages of using renewable resources?

Have students define ethanol, biodegradable, and capital, human, natural, and renewable resources.

Websites (viable as of August 2003)

<http://www.eco-foam.com/welcome.asp>

http://students.concord.edu/hsmith/lesson_plan.htm (lesson plan)

<http://www.ageds.iastate.edu/outreach/academy/pdf/sgsy.pdf> (lesson plan)

<http://www.siu.edu/~agem/agcurriculum/crpprev.html#TOP> (lesson plan)

http://www.nhusd.k12.ca.us/Nutrition_Serv/shape_grant/Corn_lesson.pdf (language arts lesson plans)



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