

Why Should We Recycle Plastics?

Grade Level: Intermediate

Materials:

Small trash can with lid

Soil - enough to fill trash can 1/4 full

Various small pieces of plastics (soda bottle cap, foam coffee cup, piece of old polyester fabric, etc.)

Biodegradable materials (paper, leaves, banana peel, etc.)

Outside location to place trash bin

Background:

Plastics are petroleum-based man-made products. Because of their chemical composition, they do not biodegrade at the same rate as other natural materials. In fact, there are some types of plastics that do not break down at all.

Each day, we are bombarded with plastics. In all reality, they are very useful in many aspects of our lives. From plastic bottles and foam coffee cups, to plastic bumpers and synthetic clothes, plastics are all around us. They are used as food containers because they do not shatter if dropped. Plastics are used in newer automobiles to be safer and more ding and dent resistant. Polyester and nylon clothes are made from plastics, and are more durable than traditional cotton clothing.

All of the plastics that are around us today will be there when our grandchildren are our age. Because of the extremely slow rate of decomposition, plastics do not disappear and add up quickly.

Getting Ready:

This lesson will take quite some time, and should be used as an extension to environmental awareness and recycling lessons. Secure permission from the principal and grounds crew of your school before placing the trash bin outside. Because you will be making compost, pay attention to the mixture and follow the guidelines set forth for proper composition techniques (found at www.cambriarecycles.org/compostingmain.html).

Before you begin, cut holes for ventilation and drainage in the trash bin. Air and water will need to get in and out.

Procedure:

Ask the students what items are made of plastics. What are the benefits of plastics in our lives? Explain to them that although plastics are helpful, they do not biodegrade as fast as other products we use and end up in our landfills. In order to save space in our landfills, we should discover why plastics should be limited or recycled, and not thrown away.

Explain to the class each of the items for the experiment.

1. The trash can will serve as a small compost bin that allows materials to decompose and return to the soil.
2. Products such as paper and food items are biodegradable, and will eventually break down into nutrients for other plants.
3. Plastics, on the other hand, are synthetic materials. Will they also break down?

For the experiment, put all of the items in the trash bin. Stir to get a thorough mixing so the dirt is in contact with or covers the majority of the items. Place outside and add enough water to wet the contents, but only to make it moist, not to soak.

After a few weeks, or months, reopen the container to see how the decomposition went. Examine the plastic items and see if there was any change in the mass of each item. You may need to use a scale for this. Continue the project to see how the food material changes and if there is any affect on the plastics.