Introduction to Recycling

Lesson 1

**Purpose**: To create urgency in students around the need to recycle, reuse, repurpose and refuse.

During the first work of school, let students throw out their garbage without interference. Try to save it so that you can look at it as part of a garbage audit. Details to follow in lesson 3.

**Materials:**

\*YouTube video (<https://www.youtube.com/watch?v=B-nEYsyRlYo>)

\*plastic bottle

\*second YouTube video (<https://www.youtube.com/watch?v=_6xlNyWPpB8>)

\*slideshow entitled Problems with Plastic RDN Updated

**Procedure:**

1. Show the first YouTube video about how quickly society has created the environmental problems we currently face. Discuss with students what they found most shocking/interesting/concerning, etc.

2. Show the class the plastic bottle. Have them brainstorm (they could write it down) everything they know about it (how it is made, problems with it, what happens to it, etc.)

3. Watch the second video about the life cycle of a plastic bottle. Discuss.

4. Begin the slideshow. Use any way that works. It often works best to go through the slideshow in batches while continuing with the other lessons in this introductory unit.

Discuss recycling versus banning. Is recycling the answer or do we have to stop producing plastic all together?

**Extension:**

Make casein plastic with your class. See recipe and steps below. Turn it into an experiment by using different types of milk (skim, 2%, homogenized and heavy cream)

Note: True casein plastic is soaked in a formaldehyde solution to harden it, and its uses are limited so it is not a true plastic solution. However, showing students how to make casein plastic can inspire them to try other solutions.

**Materials (per group):**

* Two jam jars
* One spoon
* Mini strainers (purchased from the dollar store)
* 4 teaspoons (tsp) of vinegar
* 5-6 pieces of paper towel
* Mini cookie cutters

**Procedure:**
•     Add four teaspoons (tsp.) of vinegar to one of your jars.

•     Add one cup of hot milk to the jar

(You should see the milk form white clumps that are called curds.)

•     Mix the milk and vinegar slowly with a spoon for a few seconds.

•     Stack four layers of paper towels on your desk.

•     Once the milk and vinegar mixture has cooled a bit, put the strainer over the top of your second jar.

•     Slowly pour the contents of the first jar into the second jar. The strainer should catch the curds, leaving the liquid to pass through into the second jar. Collect as many curds as you can in this way and put them on top of the paper towel stack.

•     Fold the edges of the paper towel stack over the curds and press down on them to absorb as much liquid as possible. Use extra paper towels if needed to soak up the remaining moisture.

•     Knead all the curds together into a ball, as if it were dough. What you have in your hands is casein plastic. The dough must be thoroughly kneaded to shape the plastic into objects.

 •    You can then roll it out and cut it with cookie cutters, or you can form the dough into small balls (a little harder). If you poke holes into the balls with a toothpick you will have beads that you can use to make jewelry.

**Leave what you have made to dry on paper towels for at least 48 hours. Flip them once so both sides dry thoroughly. Once your objects have dried, the casein plastic will be hard.**

**Tip:** If you want to use the casein plastic to make something colourful, you can color it using food dye. Food colouring, or glitter can be added to the wet casein plastic dough, and dried casein plastic can be painted or colored with markers.