Name: _____

Group:_____ Date:_____

Biodegradable Materials

FIG 1. Paper Towels

At the end of 'BIODEGRADABLE MATERIALS'

I will be able to:

- ✓ Compare biodegradable qualities of materials
- ✓ Tell the importance of biodegradation
- ✓ Appreciate the concept "Reduce, Reuse, Recycle."

Today we will complete a short module- we'll be investigating the properties of biodegradable materials! Biodegradable means that something can be broken down without any assistance. So, we can throw away biodegradable materials and not worry about their long-term impact on the planet, because they will break apart through natural mechanisms (exposure to the elements such as rain water, freezing/cooling cycles, and so on) and return to the earth.

Why is using biodegradable materials important? Today we'll be comparing two materials – paper and plastic. After being thrown away, one of these materials will last a matter of weeks while the other will last years. One of these materials is

biodegradable. Before we get started, could you guess which one?

Fig 2: Plastic Water Bottles

_____

What other material(s) do you know are biodegradable?

_____

In front of you, you should see empty beakers, a beaker of water, a beaker of vinegar (acetic acid), a piece of plastic, a piece of toilet paper, a hotplate and a small magnetic stirring rod. Please follow the instructions as closely and carefully as you can. It's important to note two things: (1) We are using vinegar in this module simply to speed up the process. (2) The earth is capable of breaking things down through long periods of time (using earthworms, bacteria and other insects and animals).

Experiment 3: Which Degrades Faster?

Procedure –be sure to read and follow the instructions very, very carefully

PART A: Toilet Paper

1) Start out by measuring out 500mL of water and putting it into the beaker labeled A.
2) Measure out 120mL of vinegar and add it to beaker A.
3) Add toilet paper to beaker A.

4) Put beaker A on the hotplate. Turn the hotplate up to setting number **5** and the stir button up to setting **3**.

5) Observe and record all of your observations in the correct column of the chart **on the next page**.

PART B: Plastic

6) Start out by measuring out 500mL of water and putting it into the beaker labeled B.

7) Measure out 120mL of vinegar and put it into beaker B.

8) Add plastic to beaker B.

9) Put beaker B on the hotplate. Turn the hotplate up to **5** and the stir button up to **3**.

10) Observe and record your all observations in correct column of the chart **on the next page**.

We had a lot of fun working with all of you girls.

Keep it up with the stellar schoolwork and good luck in everything you do!

OBSERVATIONS:

Plastic	Toilet Paper

Based on the chart:

- Which of these polymers (paper or plastic) is biodegradable? _____

- Which polymer should we make more of an effort to reuse or recycle? _____