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**Professional Development Teacher Workshop**  
*Paper Making with Mackenzie Lenhart*  
March 3, 2023

**Lesson: Uses for Recycled Paper**

**Grade level: First Grade**

**Time to complete: Two – three class periods, with at least 24-48 hours of drying time**

**Description:** The packet enclosed provides a lesson plan and an activity that are related to recycling paper. Both the lesson and the activity introduce the idea of recycling paper and show the process that is used to recycle paper. Through both the lesson and the activity the SOLs of 1.8c and 1.15 are met.

**Accommodations:** Lessons can be altered for any age group, budget, or IEP accommodation. An example of this could be using flour instead of PVA glue, or the use of table covers instead of newspaper. The information can also be implemented as a supplement for other topics such as lessons regarding natural resources and incorporate SOL's from higher grade levels.

<b>Goals</b>	<b>Virginia Standards of Learning</b>
<b>Science</b>	1.8 The student will investigate and understand that natural resources can be used responsibly. Key ideas include c) Reducing reusing, and recycling are ways to conserve natural resources.
<b>Visual Arts</b>	1.15 The student will apply motor skills (e.g., cutting, modeling, molding, tearing, weaving) to create two- and three-dimensional works of art

**Supplies and Materials:**

- Bowl (to serve as a mold, can be any size)
- Petroleum Jelly
- Plastic Wrap
- PVA Glue (Elmer's school glue or any brand will work)

- Bowl (large mixing bowl)
- Water
- Newspaper (to act as a barrier between the bowl and tabletops)
- Paint
- Brush (any type of paint brush can be bristles or foam)
- Scraps of paper (can be copy paper, construction paper, etc.)
- Mixing Utensil (this can be plastic spoons or any other utensil that can be used to mix things)
- Measuring Cups

### **Key Terms:**

- Paper-Mache: A substance that is made of pulped or torn strips mixed with glue and then pushed together.
- Pulping: This is the process where paper is shredded and then mixed with water and chemicals to make it mushy and stick together.
- PVA Glue: Elmer's school glue, or any brand of PVA glue.
- Recycle: Taking a substance, like paper, that you normally would throw away, and using it to create something new and useful instead.
- Recyclable Material: Things like paper, plastic, and cardboard that can be recycled. OR Any object that can be recycled.
- Factory: A building or set of buildings with facilities for creating products, like paper.
- Pulp: A soft, wet, shapeless mass of material.
- De-ink: The process of removing ink from paper.

### **Teaching Procedure:**

#### **Introduction:**

Every single day we use loads and loads of paper, but how often do you use every single bit of each page? Think about how many pieces of paper you used today. Did you use all of each sheet? What did you do with the extra sheets? Are you going to use them for notes tomorrow? Are you going to recycle them, or throw them away?

#### **First Activity:**

With a group brainstorm where you might be able to find paper to recycle. Then when I say go, I want everyone to find three pieces of paper that you want to recycle or use.

Examples:

- Free draw paper
- Sticky notes
- Old work sheets
- Construction paper
- Paper bags
- Paper towels

#### **Lesson:**

1. Introducing why we recycle paper.

Every single day we use loads and loads of paper, but how often do you use every single bit of each page? Probably not very often, but that is why we recycle. Did you know by recycling one ton (one ton is the same as 2000 pounds) of paper you can save 17 trees?

2. Introduce what recycling is.

Recycling is a process where materials are sorted, then they are taken to a factory. Each recyclable material has its own factory. When we recycle paper, it is taken to its special factory, then at this factory the paper is processed and turned into new materials.

3. Talk about the process of recycling within the factory.

At the factory the paper is shredded and then pulped. The paper is pulped by putting it in water and chemicals so that it will become soft and gooey. After pulping the paper, it is de-inked. De-inking is the process they use to take off all the ink colors. They do this so that the new paper will be white and blank. After it is de-inked, the pulp is about 1% fiber and 99% pulp. Then the pulp is dried and ran through a machine breaking it into long continuous sheets. These sheets are then sent to various factories to be turned into other paper products. Some of these paper products are notebook paper, construction paper, sticky notes, paper bags, newspaper, tissue paper, and so much more.

4. Explain how recycling is related to the in-class activity of paper mache.

You can use recyclable paper to do your own recycling activities. One example of this is making things with paper mache. Paper mache is the process of pulping, but before allowing the pulp to dry you form it into an object. Then when it is dry you will have an object in that shape that you can paint and decorate.

5. Closure statement to use after the lesson or after the activity is complete.

Now that we have learned about recycling and the process let's do a little recap. What is the first step in the recycling paper process? (The first step is to sort) What is the process called when the recycled paper is mixed with water and chemicals to create a soft gooey material? (Pulping) What is one activity that we can do in the classroom that we get to do the recycling paper process in? (Paper Mache) Why should we recycle paper? (To save trees and the environment) What are some types of paper we can recycle? (Notebook paper, construction paper, sticky notes, etc.) What can paper that has been through the recycling process be turned into? (New notebook paper, new tissue paper, new copy paper, etc.)

Optional Step: Here are some fun facts about paper use and recycling that you can share with your class if you do so choose.

- Every one ton of recycled paper can save 17 trees.
- 40% of landfill waste is paper.
- High grade, or copy paper, is the most wasted type of paper.
- You cannot recycle receipts.
- The average family uses 6 trees worth of paper each year.

**Activity**  
**How to Make a Paper Mache Bowl Using Recyclable Paper**

**Materials:**

- Bowl (to serve as a mold, can be any size)
- Petroleum Jelly
- Plastic Wrap
- Measuring Cups
- PVA Glue
- Bowl (large mixing bowl)
- Water
- Newspaper
- Mixing Utensil (this can be plastic spoons or any other utensil that can be used to mix things)
- Paint
- Brush
- Scraps of Paper

**Teaching Procedure:**

**Step 1:**

Start Prepping

Begin by laying down newspapers for the students to work on. Then assign each student the bowl they will be using for their mold. Cover the outer round part, or the bottom, of the bowl with petroleum jelly and a piece of plastic wrap. Then give each student their large mixing bowl to make paste in, these should be empty for now. Consider putting another layer of plastic wrap down on top of the newspaper, this is because the newspaper may stick to the bowl if it is wet.

**Step 2:**

Tear some sheets of paper into strips. These strips should be tiny and shredded. These strips should be left out of the mixing bowl for now and kept dry.

**Step 3:**

Pour some glue and water into the empty mixing bowl. Mix the glue and water together until it looks like heavy cream. Use a one-to-one mixture of glue and water. ( $\frac{1}{2}$  cup of water mixed with  $\frac{1}{2}$  cup of glue.)

**Step 4:**

Then dip the strips of newspaper into the glue and water mixture and start to paste the pieces onto the bowl. Continue this step until there are about three layers on the bowl.

**Step 5:**

Leave the bowl, now covered in strips, to dry for a night or two.

**Step 6:**

Once it is dry remove the paper-mache by peeling the plastic wrap off the bowl. If this gets stuck to the newspaper or plastic below, flip the bowl over and put a whole in the middle and cut around the edges, then remove the plastic wrap.

**Step 7:**

Trim the edge of the newly formed paper-mache bowl round with scissors. You can do this as many times as needed to reach the edge length you want.

**Step 8:**

Paint the bowl and decorate it as desired.

**Tips:**

- The finer the strips of paper, the smoother the finish
- When dipping the strips in, encourage the students to try and remove all excess mixture so that it is not dripping.
- After putting all the strips in the mixture, the students can dip their fingers in the mixture and smooth it out if wanted.
- When removing the plastic wrap, it may be easier to pull the plastic wrap away from the mold bowl, towards the rim. Then try to slide the mold bowl out of the wrap on its side or upside down.
- When removing the plastic wrap from the mold bowl be sure to go slow and carefully, to not rip the new paper bowl.
- Once the mold is removed the inside of the new paper bowl may still be wet, if so let this dry before trying to paint the inside.
- When painting the bowl, you may need to do two layers to achieve an even finish.
- Leave the bowl to dry layers of paint.
- There are many different recipes for paper mache, this specific one uses PVA glue because it is friendly for individuals who have allergies to gluten and or wheat.
- Students can share a large mixing bowl with the glue and water mixture.
- Each student should receive their own molding bowl, and paper to make their own strips.

**Step-by-step pictures**



### Step One: Prep

This shows the bowl after being covered in petroleum jelly before being wrapped in plastic wrap.



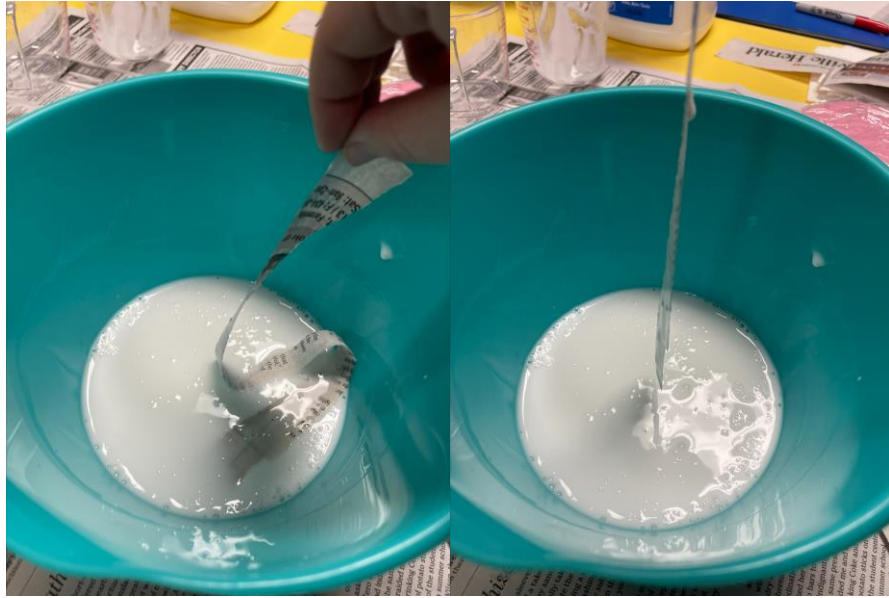
### Step Two

This shows the bowl covered in plastic wrap along with the strips that will be used to dip into the liquid mixture.



### Step Three: Creating Liquid Mixture

This shows the consistency you want for the mixture. This specific picture shows a ½ cup of water and ½ cup of glue. It should be the thickness of heavy cream.



#### **Step Four: Dipping Strips**

This shows the process of dipping the strips into the liquid mixture before placing them on the mold bowl. These strips should be saturated, but any excess dripping should be tried to remove.



#### **Step Five: Placing the strips**

Then you place the saturated strips of the mold bowl, this should be down to make three layers. Leave it to dry once completed.



**Step Seven: Removing Plastic Wrap**

Once the paper-mache strips have dried turn the bowl over and remove the mold by lifting the plastic wrap. If the newspaper below gets stuck to the bowl flip it over then cut the middle out. It was easiest to remove the new bowl from the mold by pulling the plastic wrap out and away from the mold as shown.



This is what the bowl will look like after removal of the mold.





**Step Eight: Decorate**

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