

Lesson Time:  
60 minutes

# Papermaking

A large, rectangular area with a light gray, textured background. In the center, the words "The New York Times" are printed in a classic, black, gothic-style serif font, representing the newspaper's masthead.

The New York Times

## Objective

Students will construct a sheet of paper from discarded newspaper.

## Standards

E.12.C.4 Students know processes of obtaining, using, and recycling of renewable and nonrenewable sources. E/S

N.12.A.4 Students know how to safely conduct an original scientific investigation using the appropriate tools and technology. E/L

N.12.A.5 Students know models and modeling can be used to identify and predict cause-effect relationships. I/S

N.12.B Students understand the impacts of science and technology in terms of costs and benefits to society.

## Materials Needed

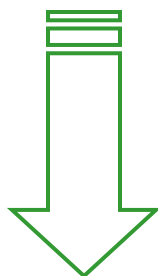
30	Handouts or an overhead
6	Dry erase markers
1	White board
6	Pre-filled grocery bags with materials
2	newspapers

## Anticipatory Set

Write the lesson objective and/or standards on the white board. Discuss with the students what the objective and/or standards of the lessons are.

Objective: You will construct a sheet of paper from discarded newspaper.

Distribute handouts or prepare overhead.



## Introduction:

“We are now going to make recycled paper.”

## Modeling / Guided Practice

1. The students should be divided into groups of 5, depending on class size.
2. Arrange the desks of each group to form one “square” table.
3. Have one student from each group come up to the front of the room to get a pre-packed paper bag containing a papermaking kit.
4. Have the students unfold the newspapers and cover the desktops.
5. Have the students place the plastic container containing the mashed paper pulp in the middle of their table and remove the lid.
6. The students should randomly select a Zip-Lock bag from the kit that contains the sponge, drywall patch, and marker.
7. Have the students with Zip-Lock bag #1 (bottom number) begin mashing the pulp in the plastic container.
8. After 1 minute, have the mashing student trade places with the student with Zip-Lock bag #2 to continue mashing.
9. This rotation should continue until all 5 students have had a turn at mashing.
10. Have the students arrange their 2-quart collection bucket in front of them.
11. Have the students place the drywall patches on top of the bucket.
12. Starting again with the student with Zip-Lock bag #1, have them scoop out paper pulp, using the handheld strainer, onto their drywall patch.
13. Water should drip from the pulp through the patch and down into the collection bucket.
14. Have the students use the sponge to help remove excess water and shape their new sheet of paper.
15. When student #1 has enough pulp, student #2 begins making their sheet of paper, and so on.

## Modeling / Guided Practice

16. When the new sheet of paper is ready (somewhat squeezed dry of moisture), help the students transfer the new sheet of paper onto a piece of waxed paper.
17. When transferring the new sheet to the waxed paper, place the waxed paper on top of the recycled paper.
18. Lifting a corner of the recycled paper, the rest should peel off easily.
19. Have the students write their name on the piece of waxed paper with a marker.
20. Have the students put their materials back into their Zip-Lock bag.
21. Have the student dump the excess water from the collection bucket into the sink
22. Have the students replace their materials into the paper bag.
23. The lid of the plastic pulp container should be replaced.
24. Have the students bring the materials back up to the front of the room.
25. The newspaper on the desks should be collected and returned to the teacher for recycling.

## **Discussion**

26. Draw attention to the color of the new paper. Discuss de-inking.
27. Ask the students to describe the pulp.



### **Closure:**

1. Add any other facts that did not get presented.
2. Check for understanding.
3. Discuss handout questions.

### **Independent Practice**

1. Not applicable for this lesson.
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