

B5.2 Making new from old: Making paper



Mia and Ben's father comes home from shopping with new notebooks for both of them. "The paper looks totally different," Mia discovers to her amazement.

Ben explains to his younger sister, "Of course, that's because it is recycled paper. It's made from paper that was thrown away. It might not look like new paper, but trees didn't have to be cut down for it."



How is new paper made from already used paper (old paper)?



Write down your ideas and guesses:

You need the following for the experiment:

- 1 bowl
- 1 cotton cloth
- Disposable gloves
- 1 frame with screen
(It consists of two wooden frames, one of which is like a large, flat sieve.)
- 1 large plastic tub
- Scrap paper (newspapers)
- A few liters of water



Required materials.



How to set up the experiment:

Lay out all the materials as shown in the photo.



How to conduct the experiment:

Wear gloves during the entire experiment. You will see why.

1. Tear the collected scrap paper into the smallest possible pieces and gather the pieces in the bowl.
2. Pour water into the bowl until the paper is covered with water.
3. Now you and your team partner must mix the paper really well with the water.
 - Use your hands to do so (wear the gloves!).
 - Make sure you don't immerse your hands too deeply in the water so that no water gets into the gloves.
 - Stir and knead the paper until you have a uniform paper pulp. This can take a while.
4. Afterwards, pour the pulp into a plastic tub.
5. Add some water to cover the pulp.
6. Pick up the frame with screen. The wooden frame without the screen is on top of the wooden frame with the screen.
7. Dip the frame with screen vertically into the tub.
8. Slide the frame with screen into the tub so that it is fully immersed and parallel to the water's surface.
9. Then wait for a moment.
10. Slowly lift the frame upward out of the tub, keeping the screen parallel to the water's surface.

You now have paper pulp on the screen.
11. Spread the pulp evenly on the frame. Let the pulp drain well. You can facilitate the process by dabbing a cloth on the bottom of the screen and also dabbing it carefully on the pulp on top of the screen.
12. Now you can remove the wooden frame without the screen, leaving you with a nice even edge.
13. Then, while the sheet of paper is still wet, carefully tip it onto a cotton cloth and let it dry overnight in a warm location.
14. Your paper is finished!

**Write down your observations:**

Test the recycled paper. Write your name on it. What do you notice?

Describe what the recycled paper looks like and compare it with paper from your writing pad.

**Evaluate your observations:**

1. How much scrap paper did you use and how much recycled paper did you make from it?

2. Mia was surprised by the appearance of the recycled paper. Describe the differences between new paper and recycled paper.

3. Find an explanation for why you had to wear gloves while conducting the experiment.



Doing further research:

Investigate your home. You will need a sheet of paper (perhaps the paper you made?) and a pen.

1. For one day, write down everything that ends up in the trash can in your home. Have your family members report to you if they throw anything away that you don't notice. You do not have to rummage through the trash can.
2. For each piece of "trash" thrown away, consider whether you could reuse it and for what purpose. Write down your ideas.
3. Guess what happens with the individual discarded items after the trash bin is picked up and write down your guess in your list.



What is your opinion?

You spend many afternoons at your grandmother's house. She frequently sits in her armchair because she can no longer get around very well. One day she tells you that she finds it bothersome to have to gather her scrap paper and toss it in the designated recycling bin. She finds it much easier to throw her wastepaper in the normal trash bin instead of using the paper recycling bin. She says it's much more practical and, besides, your grandmother always did that in the past.

Think about it: What do you think about your grandmother's behavior?
