

18. Paper



Title	Paper
Content/ Subject areas	<ul style="list-style-type: none"> • Science: Making paper • Crafts and technologies: Preparing the wooden frame for the paper making • Language: discussion – setting the criteria and writing a letter
Target group	Grade 5-7 (10-13 years old) 20 students
Learning objectives / competences	<ul style="list-style-type: none"> • Understanding how paper is made • Ability to make paper using re-usable materials • Ability to provide arguments • Problem solving, • Communication and co-operation • Critical thinking
Description of overall activity	<p>The overall idea of this activity is to make paper from recycled materials as practical example of paper saving, recycling and sustainability. Activity takes 3 days: Day 1 - preparing of all materials needed; Day 2- the making of paper; Day 3 - presenting of self-made paper followed by discussions.</p>
Description of the process and teaching/ learning strategies used	<p>Day 1:</p> <p>1 The shredded materials are brought to school in the glass or plastic jars; the water is poured over dry mixture in the classroom and left there to soak in over the night.</p> <p>2 Building the frame with a mosquito net: The teacher shows how to do it. Students follow the instructions. Students are encouraged to help each other. Students can use a ready-made frame or build it by themselves using smooth wooden planks (2x30 cm long and 2x23 cm long). The mosquito net is tightly spread over the frame and firmly fixed to it using staples.</p> <p>Day 2. Instruction:</p> <ol style="list-style-type: none"> 1. Pour the content of the jar into a bowl and use the electric blender to blend the mixture until it is smooth. The food colouring `can be added. 2. Put the 2 tablespoons of the prepared mixture into the 1 litre container and add 0.5 l of water. Mix well. 3. Place the wooden frame on top of the bowl. 4. Slowly pour the mixture over the framed mosquito net. 5. When the excess water has dripped into the bowl underneath the wooden frame, move the frame to a tray and cover the fibbers left onto the mosquito net by a piece of a cotton fabric. Use a sponge to dry the surface. 6. Try to lift the piece of fabric by its edge. Paper mixture should have stuck to it. If it hasn't, continue drying the surface by removing the excess moisture with the sponge. 7. Place the fabric to which a paper mixture has stuck onto the spread newspaper the paper side up. 8. Leave it to dry. It takes about 12 hours

Day 3

1. The teacher invites students to take their self-made paper and discuss its quality within the groups of 3 or 4 people.
2. The teacher asks – Why is this a good/high-quality piece of paper? The groups set the criteria of quality. The ideas are brainstormed and the relevant ones are put on the board in front of the classroom.
3. The students find new partners for the next question to discuss. The teacher offers the next question for discussion – How can the paper be used? Students continue their discussion and report the ideas to the class. The best ideas are displayed on the board.
4. Students/The teacher might suggest that paper is rarely used to write letters nowadays as it is replaced by electronic mailing or instant messaging. That might lead to the idea to try to find out the difference between instant messages /what's up/ twitter/ Instagram, etc. and a paper /snail mail/ letter
5. Individual work –teacher invites students to write the letter to their parents and/or grandparents

Evaluation/ types of assessment

Self – assessment: Students evaluate their own paper using criteria of quality set by the group.

Peer - assessment: All self-made papers are exhibited for viewing. Students in pairs have to choose one paper, which they like and have to explain why the selected paper is the best. When each pair has expressed their sympathy, then the authors of those works what have received the most recognition, have to tell how they managed that their job is so well done.

Materials and tools

For each student: a glass or plastic jar; shredded used paper or any other material containing fibbers (fabric, cotton, moss, etc.); an A4 size wooden frame with a mosquito net, a piece of an A4 size cotton fabric; a sponge; a tablespoon; a bowl; a 1 l container; a newspaper; a tray; water
In the classroom - an electric blender; food colouring; a stapler and staples

Timing and learning environment

3x40-min lesson (3 consecutive days, one lesson each day)

Classroom

Conclusion

STEAM approach. Crafts/Science/Technology/History/Ecology/Language
Traditional technologies are used to promote the ideas of sustainability/recycling/bridging the generation gap

Contacts

Lolita Trauliņa, Valmiera Primary school

lolita.traulina@inbox.lv

