

The background features a light green circular shape in the center. Surrounding this are various green illustrations: several plastic bottles of different shapes and sizes, and various types of leaves and branches, some with small leaves and others with larger, more detailed leaves. The overall theme is environmental and sustainable.

Alternative material for plastic

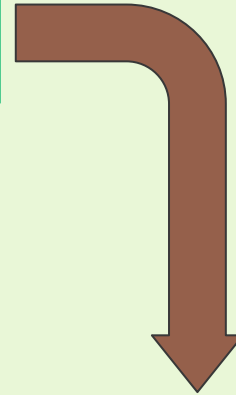
[W202012-1] Miyazaki Omiya Senior High School

The amount of plastic waste per capita

 **1st** **USA** **47.5kg**

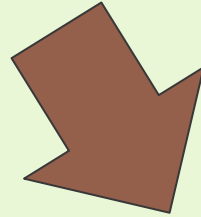
 **2nd** **Japan** **33.0kg**

 **3rd** **EU** **32.5kg**



Has increased more than 50 times in the last 20 years

**Current paper containers
(most coated by plastic)**



Containers **only made by
paper material.**



Experiment 1.



Papermaking process

Put both pulp on a gauze



Let it dry



Find the relation between the ratio and the strength.

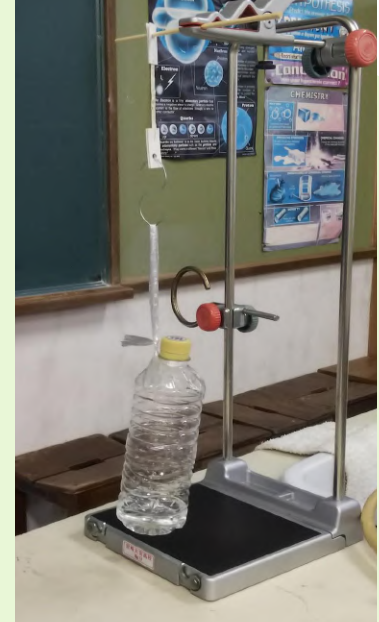


Ratio

Mixing ratio	0:1	1:5	1:2	1:1	2:1	5:1	1:0
Goosegrass (g)	0	12.5	25	37.5	50	37.5	75
Paper (g)	75	37.5	50	37.5	25	12.5	0

Test steps

1. Cut the paper into 100mm x 5mm.
2. Cut a piece of construction paper 40mm x 15mm.
3. Tape both sides to the back, pinch both ends together, and make a hole in the center.
4. Attach the paper to an S-shaped wire and hung from a plastic bottle weight.
5. Take down the maximum weight





Experiment 2.



Papermaking process

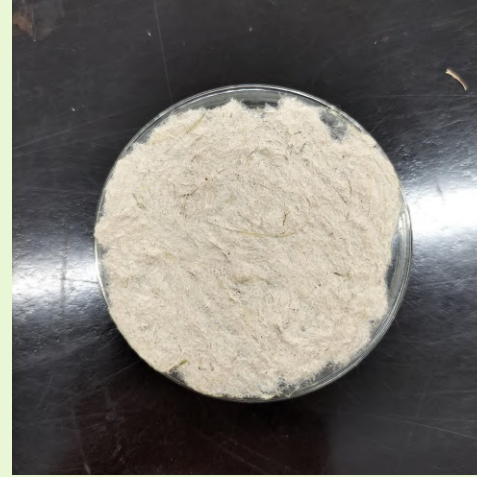
Put all the pulp on a gauze



Let it dry



Find the relation between the pulp ratio and the strength



Ratio

ratio	1:1	5:1	1:5
Carton pulp(g)	37.5	62.5	12.5
Newspaper pulp(g)	37.5	12.5	62.5

Steps

1. Cut the paper into 100mm x 5mm.
2. Cut a piece of construction paper 40mm x 15mm.
3. Staple the construction paper on the paper we Made for 1cm long
4. Hang the construction paper on the spring balance then pull the paper we made.
5. Take down the maximum weight which the paper does not break .

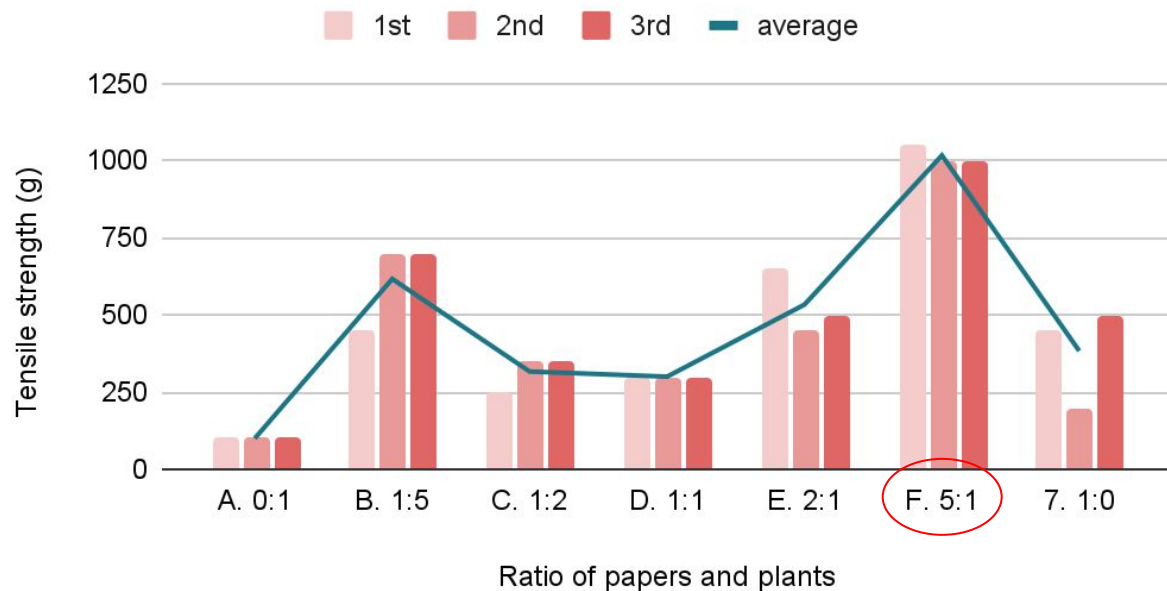


The background is a light green color. It features several decorative elements: a white circle in the upper left, a large white teardrop-shaped area in the center, and various green leafy branches scattered around the edges. There are also two green cylindrical shapes, one on the left and one on the right, partially visible.

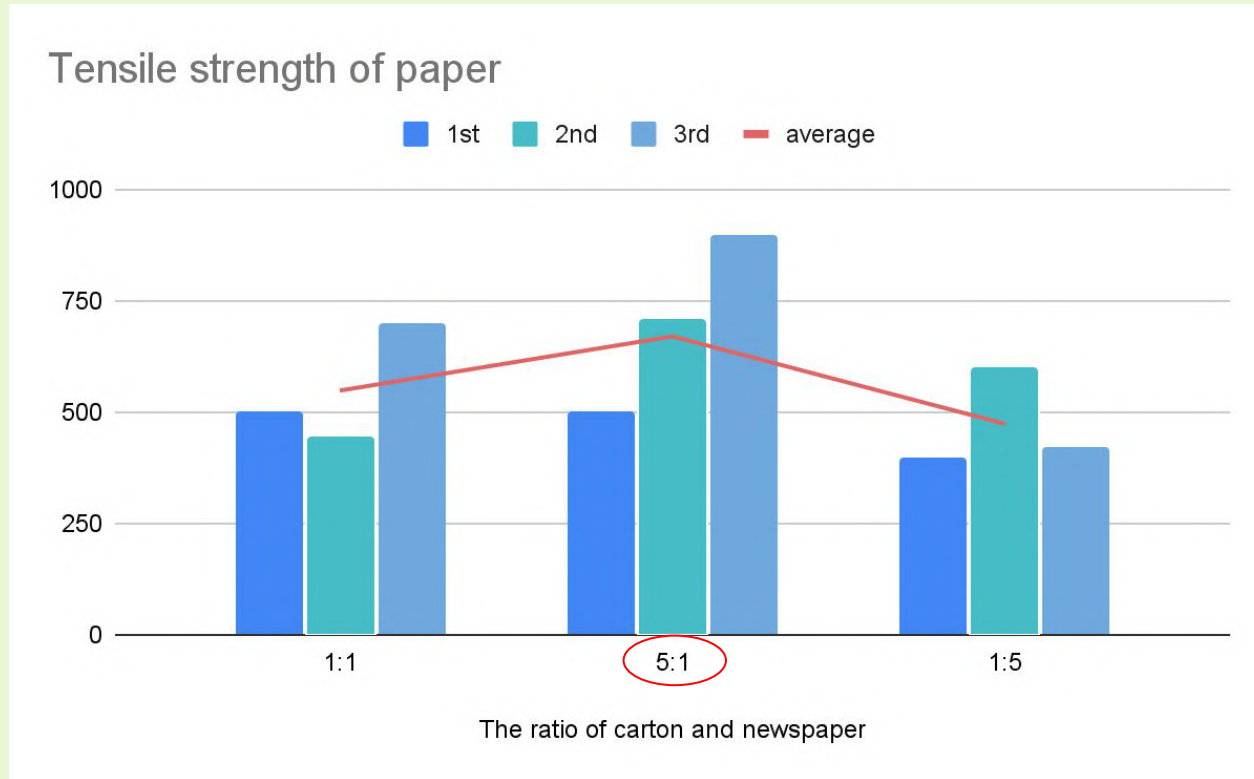
Conclusion

Experiment 1.

Tensile strength of paper(100mm×5mm)





Experiment 2.



Future Work



1. Measure the data of the plastic and make a comparison
 2. Measure the other indicators
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Acknowledgement and References

We would like to thank Mr. Sekito for advising us what is happening in the world. Without his advice, we cannot do our experiment and we cannot reach our conclusion.

Mother earth news (2017) Making paper from plants and leaves

• Eisei-an (2020) Let's make paper with natural materials

• Japan External Trade Organization (JETRO) (2019) Japan's deplastic movement accelerates in Taiwan September 22, 2021

• Japan Ethical Promotion Council (2021) "Disposable Plastics" world ranking released

• Ministry of the Environment (2021) Domestic and overseas situation surrounding plastics

• kikakurui.com (2015) Pulp - Hand-drawn paper for testing - Test method of physical properties

ment (2016) Ministry of the Environment's efforts on marine waste and microplastics

The background is a light green abstract shape with organic, wavy edges. It is decorated with several green leaf illustrations: a small branch with three leaves at the top center, a larger branch with many leaves at the top right, a single leaf on the left side, and another single leaf at the bottom center. In the bottom left corner, there is a teal-colored bottle with a dark green cap.

**THANK YOU FOR
LISTENING**