



Testing the Force Required to Break Different Types of Wood

Name: _____

Date: _____

Experiment #: _____

OBJECTIVE

To determine and compare the amount of force required to break different types of wood.



BACKGROUND

Different types of wood have different densities and structures. These differences affect how much force is needed to break them. In this experiment, you will apply force until each wood sample breaks and record the force at the point of breaking.

MATERIALS

- 3–5 different types of wood (same size)
- Force gauge or spring scale (in Newtons)
- Clamp or vice (or have someone hold one end firmly)
- Ruler or measuring tape
- Pencil
- Safety glasses
- Lab notebook
- Lab notebook



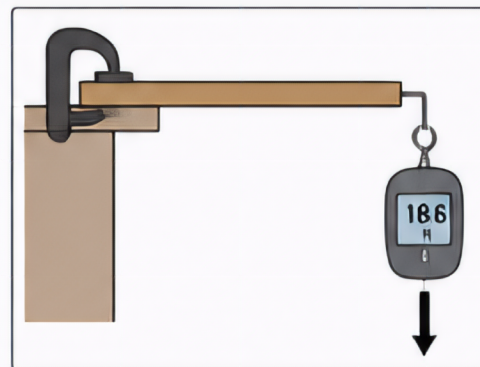
SAFETY FIRST

- Wear safety glasses to protect your eyes.
- Make sure the wood is secured so it does not slip.
- Stand clear when applying force—wood can break suddenly.
- Do not put your face or body in the path of the wood when it breaks.



PROCEDURE

1. Cut each type of wood into pieces that are the same size.
Recommended size: 20 cm (8 in) long, 2 cm (3/4 in) wide, 1 cm (3/8–1/2 in) thick.
2. Measure and record the dimensions of each wood sample in the data table.
3. Clamp one end of the wood piece securely to a table, or have someone hold it firmly.
4. Attach the force gauge to the free end of the wood.
5. Pull down steadily on the force gauge, increasing the force gradually.
6. Record the force (in Newtons, N) at the moment the wood breaks.
7. Repeat steps 3–6 for each type of wood.
8. Compare the results and draw a conclusion.



DATA TABLE

Type of Wood	Length (cm)	Width (cm)	Thickness (cm)	Force to Break (N)	Observations (grain, appearance, notes)
1.					
2.					
3.					
4.					
5.					



ANALYSIS QUESTIONS

1. Which type of wood required the most force to break?

2. Which type of wood required the least force to break?

3. How do you think the grain or density of the wood affected the results?



CONCLUSION

Write a summary of what you found out from this experiment.



SCIENCE TIP: Keep your pulling steady and smooth for the most accurate results.