



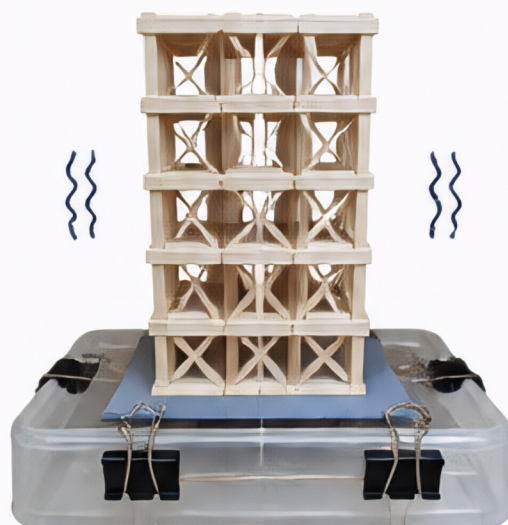
EXPERIMENT:

BUILDING A MODEL OF AN EARTHQUAKE-PROOF BUILDING

Design and test a model building to discover which structures are more resistant to earthquakes.

THE SCIENCE

Earthquakes cause the ground to shake. Buildings that are designed well can move with the shaking and stay standing. Features like a strong base, lightweight materials, and cross-bracing help buildings resist damage and collapse.



MATERIALS

- Craft sticks or toothpicks
- Hot glue or white glue
- Cardboard (for base)
- Rubber bands
- Small tray or plastic container
- Books or wooden blocks (to raise the tray)
- Timer or stopwatch
- Weights (coins or small washers)
- Paper and pencil (for recording results)



YOUR MISSION

Build a model building that can withstand the shaking of an earthquake for as long as possible without collapsing.



MAKE A HYPOTHESIS

Which design do you think will be the most earthquake-proof?

Why?



SAFETY FIRST

- Ask an adult for help when using hot glue.
- Keep the experiment area clear and dry.



PROCEDURE

1. **Plan Your Designs** – Sketch 2 or more different building designs. Consider using features like a wide base, cross-bracing (X shapes), or rubber band flexibility.
2. **Build Your Models** – Use craft sticks/toothpicks and glue to build your models on a cardboard base. Make them as tall and sturdy as you can.
3. **Set Up the Shake Table** – Place the tray on top of books or blocks so it can move freely. Set your model in the center of the tray.
4. **Test Your Building** – Shake the tray gently back and forth in one direction. Time how long it takes (or count the number of shakes) until the model collapses.
5. **Repeat** – Test each design 3 times and record your results. Calculate the average.
6. **Improve and Retest** – Modify your best design to make it even better. Test it again.



IDEAS TO TRY

- Add cross-bracing (X shapes) to the sides.
- Use a wider base.
- Add rubber bands for flexibility.
- Keep the center of mass low by placing more weight on lower levels.



RECORD YOUR RESULTS

Design (Name or Description)	Trial 1 (Time or # of Shakes)	Trial 2 (Time or # of Shakes)	Trial 3 (Time or # of Shakes)	Average (Time or # of Shakes)	Notes / Observations



REFLECTION

Which design worked best? What features do you think made it stronger? What would you do differently next time?
