

# Activity : Newspaper Tower

**What's the tallest tower you can build using only two sheets of newspaper?**

Here's the challenge: getting the newspaper to stand up, without using tape, staples, glue, or other materials. But you can bend, fold, or tear the paper itself.

## What You Need

- 2 sheets of newspaper
- ruler

## Make a Prediction

Make a prediction about how tall a tower you can build. What is your prediction based on?

## Try It Out

1. Now construct your tower. If you think you can make it taller, keep redesigning it until you can't go any higher.
2. When you are finished building, measure the height of your tower.

## Explain It

- How did your result compare to your prediction?
- Give possible reasons for any difference. What limited the height of your tower?
- If you could use one other material to make your tower taller, what would it be? Why?

## Build on It

- How much taller can you make the tower if you can add 20 centimeters (about 8 in.) of tape? (You can't tape the tower to the table.) How tall can you make the tower and have it support the weight of a pack of chewing gum?
- How well does your tower withstand environmental forces? Use a fan to imitate wind gusts or shake the table gently to imitate an earthquake. How can you change your design, using 2 sheets of newspaper and 20 cm of tape, to better withstand these forces

## Activity 2

Applying  
the  
Facts



# Grade 7 Science and Technology

## Strand 4: Structural Strength & Stability

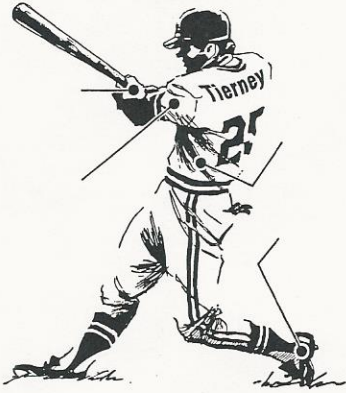
### External and Internal Forces

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#### Knowledge / Skills (understanding of basic concepts)

50 -	<input type="checkbox"/>	1	shows understanding of few of the basic concepts; demonstrates significant misconceptions; gives explanations showing limited understanding of the concepts
59% -	<input type="checkbox"/>	2	shows understanding of some of the basic concepts; demonstrates minor misconceptions; gives partial explanations
69% -	<input type="checkbox"/>	3	shows understanding of most basic concepts; demonstrates no significant misconceptions; usually gives complete or nearly complete explanations
70 -	<input type="checkbox"/>	4	shows understanding of all of the basic concepts; demonstrates no misconceptions; always gives complete explanations
79% -			
80 -			
100%			

**Instructions:** Identify four internal forces that are affecting the 'body structure' of the baseball player. Label the internal forces (tension, compression-upper body, compression-lower body, torsion).



**Instructions:** Identify three internal forces that are affecting the 'body structure' of the figure skater. Label the internal forces (tension, compression-lower body, torsion).



**Instructions:** Identify one type of external force that could 'wring-out' a wet cloth. Draw a cloth being 'wring-out' and label the external force (live load) and the internal force (torsion).

**Instructions:** Identify an object that can cut paper. Label the external force that is applied. Draw the paper-cutting object and label the external force (live load) and the internal force (shear).

**Very Difficult Example:** An impact force twists one part of an object's mechanism. When the twisted part is allowed to unwind it causes another part to rotate. This rotation causes the object to fly. Identify and draw the object labeling all external and internal forces.

**Very Difficult Example:** The forces of two objects that are travelling in opposite directions meet. The result of the impact pushes one of the objects away at great speed. Identify and draw the objects labeling all external and internal forces.