

Model Towers: Withstanding Wind

An activity of "How high can a skyscraper go?"

Read "How high can a skyscraper go?" (page 11, *What's Up* June 2026). The article is about how engineers design very tall skyscrapers. Now, it is your turn to try. Your challenge is to build a skyscraper model that can survive a wind test. Work in twos or threes.

1. Design a skyscraper model that:

- ◆ is at least 50cm tall
- ◆ can stand on its own
- ◆ is made of only paper/cardboard, tape, and other materials you do not have to buy
- ◆ uses at least two science ideas from the article.

1a) Tick at least two science ideas that your team will use:

- | | |
|--|--|
| <input type="checkbox"/> Tapered shape with wide base | <input type="checkbox"/> Open frame to allow airflow |
| <input type="checkbox"/> Low centre of gravity | <input type="checkbox"/> Strong lower floors |
| <input type="checkbox"/> Triangles / diagonal supports | <input type="checkbox"/> Wind-resistant shape |

1b) List the materials your team will use. _____

1c) Sketch your skyscraper model in the given template. Label its special features.

2. Now, build your model, making sure you have met all requirements given above. Take a photo of your team's model skyscraper.

3. Prepare for the wind test.

a) You may use one of these as a wind source:

- ◆ A powerful desk-top fan
- ◆ A strong hairdryer on cool setting
- ◆ A big piece of cardboard that can be used as a hand-held fan.

b) Place the wind source 30cm away from the skyscraper.

- ◆ To keep the competition fair, use the same wind source for all teams.
- ◆ The wind should face the middle of the skyscraper, not just the base or top.
- ◆ The skyscraper should be tested on a flat surface.
- ◆ Each skyscraper gets one official test. (You may do practice tests before that.)

4. Test the model skyscrapers, one at a time.

- ◆ Before the wind begins, the skyscraper must stand by itself for 5 seconds
- ◆ Switch on the fan or gently fan the tower for 5 seconds. Observe what happens.
- ◆ Apply the strongest wind possible for 15 seconds. Observe what happens.
- ◆ Do not support or touch the skyscraper during the test.
- ◆ Take a photo of each team's skyscraper at the end of the 25-second wind test.
- ◆ The team with the highest score wins.

Scoring	Points
Skyscraper survives all wind tests and remains standing.	5
Skyscraper sways but remains standing.	4
Skyscraper loses a small part but remains standing.	3
Skyscraper leans badly or loses parts but does not collapse.	2
Skyscraper collapses.	1

5. Afterwards, take stock of how your model fared. The two photos may be helpful at this point. If your model were to be tested with much stronger winds, would it do as well? How can you strengthen it to be even tougher?

