



EduTrend Contents

EDUTECH · ENGINEERING · PRIMARY

Tallest Tower

Build the tallest free-standing tower from limited materials

Ages 7–10

Level: Foundation

45 minutes

Groups of 3 · up to 30

Activity 01

Inside: activity at a glance · step-by-step session plan · facilitator notes · 3 pupil worksheets · assessment checklist

ACTIVITY 01 · AT A GLANCE

Tallest Tower

Groups get ten sheets of paper and one metre of tape to build the tallest tower that stands on its own for ten seconds. They sketch two ideas first, build, measure and then look at why towers fell. After sharing ideas, they get a second chance to rebuild and improve.

Learning outcomes

By the end of the session pupils can:

- work within constraints;
- sketch ideas before building;
- test and measure a design;
- improve a design using evidence.

KEY WORDS

constraint · criteria · stable · base · prototype · improve

CURRICULUM LINKS

Maths: measuring height. Science: forces and balance. Art: 3D shapes.

1**ASK**

Who needs what?

2**IMAGINE**

Many ideas

3**PLAN**

Sketch and choose

4**BUILD**

Make a prototype

5**TEST**

Measure against
criteria

6**IMPROVE**

Redesign and
retest

Materials (per group)

- 10 sheets of A4 paper
- 1 m of masking tape
- Tape measure
- Worksheets 1, 2 and 3

Before the session

- Pre-cut tape lengths.
- Clear table space.
- Set a timer.
- Print worksheets.

SAFETY

Use scissors carefully and keep towers away from walkways.

ACTIVITY 01 · SESSION PLAN

Step by step

Insist on sketches before materials are handed out; it changes the quality of builds.

Time	What happens	Say or ask
0–5 min Challenge	Explain criteria and constraints.	<i>“What makes a tower stand?”</i>
5–12 min Imagine	Sketch two ideas.	<i>“Which is stronger?”</i>
12–25 min Build	Build and test.	<i>“Does it stand for ten seconds?”</i>
25–30 min Share	Why did towers fall?	<i>“What could you borrow?”</i>
30–45 min Improve	Rebuild and remeasure.	<i>“What changed?”</i>

CHALLENGE CARD (print or copy onto the board)

Build the tallest free-standing tower from ten sheets of paper and one metre of tape, test it, and improve it in a second build.

ACTIVITY 01 · FACILITATOR NOTES

The engineering know-how in brief

Tall structures need a stable base and a low centre of mass. Rolling paper into tubes makes it much stiffer, and triangles resist bending better than squares.

Engineers work to criteria (what success looks like) and constraints (limits such as materials and time). Testing shows weak points, which guide the next design.

Common ideas to listen for

- “Taller always means thinner.” A wide base helps.
- “The first design should work.” Improving is normal.
- “More tape is always stronger.” Shape matters more.

Adapting the activity

Support

Show rolled tubes as a starter idea.

Stretch

Add a load: can it hold a tennis ball on top?

WORKSHEET 1

Two ideas

Name: _____

Class: _____ Date: _____

Sketch and compare.

Two ideas

Idea	Sketch notes	Why it might work
1		
2		

WORKSHEET 2

Test results

Record each test.

Test results

Build	Height (cm)	Stood 10 s?	What failed
1			
2			

WORKSHEET 3

Improvement

Explain what you changed.

What we changed and why

FOR THE TEACHER

Assessment checklist

Use during the session. One sheet covers up to eight pupils; copy as needed.

Pupil	Plans before building	Tests and measures	Improves using evidence

Suggested codes: W = working towards · E = expected · G = greater depth

ABOUT THIS ACTIVITY

Tallest Tower is a sample activity from the EduTrend Contents Edutech Engineering programme (primary, level: foundation). Every activity in the programme follows the same format: a practical challenge, a clear session plan, facilitator notes and ready-to-print worksheets, so that teachers, club leaders and parents can run it without extra preparation.

Full 15-, 20- and 32-week programmes are available from EduStore at edutrend.org.

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