

GRADE 3 LEARNING PACK

Paper Engineering: Structure & Stability

Use folds, beams, tubes and joins to build and improve a small paper structure.

LEARN • PRACTISE • CREATE • REFLECT

Original BrightPencil Kids resource - adult-led where appropriate

A4 edition • 12 purposeful pages • review copy

Print. Learn. Grow.

Grown-up guide

Learning objective

Use folds, beams, tubes and joins to build and improve a small paper structure.

Use this pack well

- Model the first example aloud, then let the learner try.
- Ask “How do you know?” more often than “Are you finished?”.
- Use real objects, talk, movement or observation when the activity suggests it.
- Stop or shorten the session if attention or enjoyment drops.
- Open-ended pages can have many successful answers.

Quality note

This resource was written originally for BrightPencil Kids. Curriculum sources informed scope and progression only; no third-party worksheet or story text is reproduced.

Learn the idea

1 Shape can change the strength of a material.

2 Stable structures manage load and balance.

3 Testing under the same conditions makes comparisons clearer.

Talk about it

Explain one idea in your own words. Give an example from real life, a drawing or an object if that helps.

Compare flat paper and folded paper under a small safe load.

Build a tube and a beam.

Test two join methods.

Record where a structure bends.

Revise one feature and retest.

Try it beyond the page

Real-world / hands-on connection

Build on a table with safe paper/card and small counters; stop before unstable stacks become hazardous.

Before you finish

What did you notice?

What evidence, object or example helped you?

What would you change if you tried again?

Create something

Your project

Design a paper bridge or tower under a fixed material limit and document one redesign.

Use this space for planning, drawing, mapping, designing or notes.

Think deeper

1. Which artistic/design decision was most deliberate?

2. What evidence from observation or testing caused a revision?

3. How could another creator solve the same brief differently?

Quick review

1. In one sentence, explain the big idea of “Paper Engineering: Structure & Stability”.

2. Draw or write one example that shows you understand.

3. Choose one activity from this pack and explain the strategy you used.

4. Write one question you still have.

Answer & discussion notes

Use these as guidance, not scripts. Open questions can have different successful responses when the reasoning is sensible and evidence-based.

1. Suggested response

Name a specific choice involving line, value, colour, texture, space, form, structure or hierarchy.

2. Suggested response

Describe the observation/test and the resulting change.

3. Suggested response

Many solutions can be successful when they meet the purpose/criteria.

Review before publication

Check age fit, factual accuracy, clarity, accessibility, rights provenance and whether the activity works in practice. This file remains a review copy until those checks are signed off.

FINISH

My learning reflection

I finished this BrightPencil learning pack.

One thing I understand better now:

A strategy that helped me:

Something I created or noticed:

My next small question or goal:

Print. Learn. Grow.