

GRADE 4 LEARNING PACK

Spatial Reasoning: Rotate, Reflect & Build

Reason about rotations, reflections, nets and how 2D representations relate to 3D objects.

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

Reason about rotations, reflections, nets and how 2D representations relate to 3D objects.

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 Rotation changes orientation around a point.

2 Reflection flips a figure across a line.

3 A net must fold so faces meet without impossible overlap.

Talk about it

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

Rotate an L-shape 90 degrees on a grid.

Reflect three shapes across vertical/horizontal lines.

Choose which of four simple nets could form a cube.

Predict which faces become opposite in a labelled net.

Explain why one plausible-looking net fails.

Try it beyond the page

Real-world / hands-on connection

Use paper squares or an approved cube net to fold and test predictions.

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 decorated cube net where adjacent faces form a visual sequence.

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

CHALLENGE

Think deeper

1. What stays the same under rotation?

2. What is a line of reflection?

3. Why test a net physically?

Quick review

1. In one sentence, explain the big idea of “Spatial Reasoning: Rotate, Reflect & Build”.

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

Shape and size.

2. Suggested response

The mirror line across which corresponding points match.

3. Suggested response

Folding can confirm or disprove spatial predictions.

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:

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