

GRADE 4 LEARNING PACK

Chance & Likelihood Reasoning

Compare likelihood in simple experiments and avoid common misconceptions about short random sequences.

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

Compare likelihood in simple experiments and avoid common misconceptions about short random sequences.

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 Random results vary from trial to trial.

2 A fair equally likely setup can still produce uneven short-run results.

3 Past independent outcomes do not force the next outcome to “catch up”.

Talk about it

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

Order impossible, unlikely, even chance, likely and certain examples.

Predict outcomes for a fair coin over many trials without promising exact balance.

Spot the gambler-style error “five heads means tails is due” in a classroom context.

Compare theoretical possibilities with a 20-trial sample.

Explain why more trials can give a more stable estimate.

Try it beyond the page

Real-world / hands-on connection

Use a coin or spinner for a short supervised experiment and record results without money, prizes or wagering.

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 fair classroom spinner game where every outcome has a stated probability and no real-world stakes.

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

CHALLENGE

Think deeper

1. Does five heads force the next flip to be tails?

2. Why can short samples be uneven?

3. Why run more trials?

Quick review

1. In one sentence, explain the big idea of “Chance & Likelihood Reasoning”.

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

No.

2. Suggested response

Random variation.

3. Suggested response

To obtain a more stable estimate of the pattern.

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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