GRADE 5 LEARNING PACK

The Probability Jar

Reason about theoretical probability and experimental variation.

LEARN • PRACTISE • CREATE • REFLECT

Original BrightPencil Kids resource - adult-led where appropriate

A4 edition • 12 purposeful pages • review copy

Print. Learn. Grow.

FOR PARENTS & TEACHERS

Grown-up guide

Learning objective

Reason about theoretical probability and experimental variation.

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.

READ

Read the story

PART 1

A jar contained five blue counters, three yellow counters and two green counters. Before drawing, Zara predicted blue was the most likely colour because it had the greatest number of counters.

PART 2

After ten draws with replacement, yellow happened to appear five times. A classmate said the jar must contain more yellow counters than blue.

PART 3

Zara explained that a short run of random results can vary from theoretical expectation. They checked the jar and confirmed its original contents.

PART 4

The class repeated the experiment for one hundred draws. The proportions moved closer to the theoretical probabilities, though they were still not exact.

PART 5

Their report separated theoretical probability from experimental frequency and recorded the number of trials.

PRACTISE

Guided practice

Challenge 1

Summarise the problem in no more than three sentences.

Challenge 2

Identify the turning point where the character changes method or interpretation.

PRACTISE

Build the skill

Challenge 3

Match each inference to the strongest story evidence.

Challenge 4

Write an alternative choice and predict a plausible consequence.

PRACTISE

Independent thinking

Challenge 5

Explain the transferable strategy from the story in your own words.

APPLY

Try it beyond the page

Real-world / hands-on connection

Retell the reasoning problem to a trusted adult and explain which evidence mattered most.

Before you finish

What did you notice?

What evidence, object or example helped you?

What would you change if you tried again?

CREATE

Create something

Your project

Create a one-page response: key evidence, inference, strategy learned and a new scenario where it could help.

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

CHALLENGE

Think deeper

1. Which colour was theoretically most likely?

2. Did ten draws prove the jar composition had changed?

3. Why record the number of trials?

REVIEW

Quick review

1. **In one sentence, explain the big idea of “The Probability Jar”.**

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.**

FOR GROWN-UPS

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

Blue.

2. Suggested response

No.

3. Suggested response

Experimental variation depends partly on how many trials were run.

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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