

# Chance Reasoning: Certain, Possible, Impossible

Use simple sample spaces and fair trials to reason about chance without gambling contexts.

**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

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## Learning objective

Use simple sample spaces and fair trials to reason about chance without gambling contexts.

## 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

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**1** Chance language describes uncertainty.

**2** A fair spinner/die has defined equally likely outcomes when constructed appropriately.

**3** Repeated trials can vary even when probabilities stay the same.

## Talk about it

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

Classify outcomes as certain/possible/impossible.

List outcomes for a fair six-sided number cube.

# Build the skill

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## Challenge 3

Compare chance of rolling even versus rolling 6.

## Challenge 4

Run 20 coin flips and compare results with expectation without calling differences “wrong”.

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Design a fair four-section spinner.

## Try it beyond the page

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### Real-world / hands-on connection

Use coins, counters or a paper spinner for a small classroom experiment; no betting/rewards tied to chance.

### Before you finish

What did you notice?

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What evidence, object or example helped you?

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What would you change if you tried again?

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# Create something

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## Your project

Create a chance investigation with prediction, 30 trials, tally, result and reflection.

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

CHALLENGE

# Think deeper

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1. Which strategy reduced uncertainty or work?

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2. How did you verify the final answer?

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3. When would changing strategy be sensible?

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# Quick review

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1. In one sentence, explain the big idea of “Chance Reasoning: Certain, Possible, Impossible”.

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

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

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4. Write one question you still have.

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# Answer & discussion notes

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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 the strategy and why it fit.

## 2. Suggested response

Use a second method, inverse operation, full clue check or model as appropriate.

## 3. Suggested response

When the current method is inefficient, confusing or produces a contradiction.

## 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

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**I finished this BrightPencil learning pack.**

**One thing I understand better now:**

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**A strategy that helped me:**

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**Something I created or noticed:**

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**My next small question or goal:**

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