

Helping Your Child with Probability

Probability · Prep to Year 6 · Australian Curriculum Mathematics

Probability is the study of **chance** — how likely something is to happen. From Prep, children use everyday language like "**maybe**" and "**probably**". By Year 3 they use words like **certain**, **likely**, **unlikely** and **impossible**. By Year 6 they assign probabilities as **fractions**, **decimals** and **percentages**. Every step builds on real-life experience with games, weather, and everyday events.

Year level	What your child learns	What this looks like
Prep –Year 2	Prior knowledge — the language of chance <i>Children do not have explicit probability lessons yet, but they build important foundations. They use everyday language about things that might or might not happen:</i> "It will probably rain." "Maybe I'll get a red one." "That'll never happen!" <i>These everyday experiences with chance and uncertainty are the building blocks for formal probability in Year 3.</i>	Talk about chance in daily life: <i>"Will it be hot today?"</i> <i>"Do you think we'll find a park?"</i> <i>"Is it likely Gran will call today?"</i> Notice when your child uses words like <i>"maybe", "probably", "definitely"</i> .
Year 3	Likelihood language and first chance experiments Your child describes everyday events using chance words: certain — it WILL happen (e.g. the sun will rise) likely — it will probably happen (e.g. it will be hot in summer) unlikely — it probably will not happen (e.g. it will snow in Darwin) impossible — it CANNOT happen (e.g. a dog will talk) They also conduct simple chance experiments — like rolling a die or spinning a spinner — and record what happens using tally marks.	Play a spinning game together. "Is landing on red certain, likely, unlikely or impossible?" Flip a coin 10 times. Record heads/tails. "Were you surprised by the results?"
Year 4	Ordering events by likelihood Your child puts events in order from least likely to most likely . Example: 'Draw a random card from a pack.' → Getting a red card is likely (26 out of 52) → Getting an ace is unlikely (4 out of 52) → Getting a card numbered 1–10 is more likely than getting a picture card They also explore independent events — events where one result does not change the next. Each coin flip is independent — a previous flip does not affect the next one!	Make a list of 5 events. Put them in order: least likely → most likely. Example events: "it will rain today" "I will eat dinner tonight" "a fish will knock at the door" "Is each coin flip affected by the last one?"
Year 5	Equally likely outcomes and estimating probability Your child lists all possible outcomes for an experiment and decides if they are equally likely . outcome — one possible result of a chance experiment Example: Rolling a die (1, 2, 3, 4, 5, 6) — all equally likely (1 chance in 6 each). Example: A bag with 3 red and 1 blue marble — not equally likely (red is more likely). They use frequency (how often something occurs) from repeated experiments to estimate probabilities. Example: Roll a die 30 times. If 5 comes up 5 times, frequency of 5 = 5 out of 30 ≈ 1 in 6 .	Roll a die 20 times. Record each result. "Which number came up most?" "Were all numbers equally likely?" "Does any number have an unfair advantage?" Try with a bag of coloured counters too.
Year 6	The probability scale: 0 to 1 Your child assigns probabilities using fractions , decimals and percentages on a scale from 0 to 1. 0 (or 0%) = impossible — will NEVER happen 1 (or 100%) = certain — will ALWAYS happen 0.5 (or 50% or ½) = equal chance Example: Flipping a fair coin → heads = ½ = 0.5 = 50% Example: Rolling a 6 on a die → 1/6 ≈ 0.17 ≈ 17% They run many experiments and compare results to predictions. More trials = results get closer to the expected probability (the more you flip, the closer you get to 50/50).	Flip a coin — first predict, then test. "What fraction of flips do you think will be heads?" Try 10 flips, then 50, then 100. "Does it get closer to ½ with more flips?" "How would you write this as a decimal? A percentage?"

★ The probability scale — where does each event sit?

Impossible	Unlikely	Equal chance	Likely	Certain
0 (0%)	Less than $\frac{1}{2}$ (less than 50%)	$\frac{1}{2}$ (50%)	More than $\frac{1}{2}$ (more than 50%)	1 (100%)
<i>Rolling a 7 on a normal 6-sided die</i>	<i>Rolling a 6 on a die (1 chance in 6)</i>	<i>Flipping heads on a fair coin (1 in 2)</i>	<i>Rolling a number less than 5 on a die (4 in 6)</i>	<i>The sun rising tomorrow morning</i>

In Year 6, your child writes probabilities as fractions ($\frac{1}{2}$), decimals (0.5) and percentages (50%). They all mean exactly the same thing!

Helping at Home — Probability

Worked examples and questions to ask · Prep to Year 6

How it works — worked examples

Year 3 — Sorting events from impossible to certain

Can you put these events in order?

	Event	Likelihood
	Rolling a number between 1 and 6 on a die	Certain
	The moon disappearing forever tonight	Impossible
	It will be warmer in summer than winter	Likely
	It will snow in Darwin this week	Unlikely

Year 5 — Equally likely vs not equally likely

Bag A: 3 red, 3 blue marbles Bag B: 4 red, 1 blue marble

	Bag A (3 red, 3 blue)	Bag B (4 red, 1 blue)
Chance of red	3 out of 6 $= \frac{1}{2} = 50\%$	4 out of 5 $= \frac{4}{5} = 80\%$
Equally likely?	✓ Yes — red and blue equally likely	✗ No — red is much more likely

Year 6 — Writing probability three ways

Rolling a standard die (numbers 1–6):

Event	Fraction	Decimal	Percentage
Rolling a 6	$\frac{1}{6}$	≈ 0.17	$\approx 17\%$
Rolling an even number (2,4,6)	$\frac{3}{6} = \frac{1}{2}$	0.5	50%
Rolling a number less than 5	$\frac{4}{6} = \frac{2}{3}$	≈ 0.67	$\approx 67\%$
Rolling a number less than 10	$\frac{6}{6} = 1$	1.0	100%

Key insight: Fraction, decimal and percentage all describe the same probability — just written differently.

Questions to ask your child

You do not need to know the answer. Ask and let your child do the explaining!

P-2	Prep	-Y2
-----	------	-----

- What do you think will happen tomorrow? Why?
- Is it likely or unlikely that it will rain today?
- Can you think of something that will definitely happen today?

3	Year 3
---	--------

- Is it certain, likely, unlikely or impossible that we'll have pasta for dinner?
- Spin the spinner — what might happen? What can't happen?
- Flip a coin 10 times. Record the results. Were you surprised?

4	Year 4
---	--------

- Put these in order from least likely to most likely.
- If you roll a die, is getting an even number likely or unlikely?
- Does the last coin flip change what might happen next?

5	Year 5
---	--------

- List all the possible outcomes of this experiment.
- Are all outcomes equally likely? How do you know?
- We rolled a die 30 times and got 5 three times. About how often would you expect that?

6	Year 6
---	--------

- What is the probability of drawing a red card from a full deck?
- Write that probability as a fraction, a decimal, and a percentage.
- If we flipped a coin 100 times, about how many heads would you expect?

Things to try at home

Any age: Talk about chance in everyday life — weather, traffic, sport. Use words like "likely", "unlikely", "certain" and "impossible" in casual conversation.	Year 3: Roll a die 20 times. Keep a tally. Which number came up most? Were you surprised? Talk about why results vary each time.
Year 3–4: Play a card game together. Before drawing a card, predict: 'Will I get a red card?' Is that likely or unlikely? Why?	Year 4: Make a simple spinner with 4 colours — but make some colours take up more space. Predict, spin 20 times, compare results.
Year 5: Use a bag with different coloured counters. Let your child guess the mix just from pulling out counters and replacing them. How many trials do they need?	Year 6: Find a weather forecast together. 'There is a 70% chance of rain.' Ask: What does 70% mean? Is that likely? How does that compare to $\frac{1}{2}$?

Key words to learn together

chance: the likelihood that something will or will not happen	probability: a number that describes how likely an event is — from 0 (impossible) to 1 (certain)
outcome: one possible result of a chance experiment (e.g. heads, tails, rolling a 3)	certain: will definitely happen — probability = 1 (or 100%)
impossible: cannot happen — probability = 0 (or 0%)	likely: will probably happen — probability is more than $\frac{1}{2}$
unlikely: probably will not happen — probability is less than $\frac{1}{2}$	equal chance: two outcomes with the same probability — e.g. heads or tails on a fair coin
equally likely: all outcomes have the same probability of occurring	frequency: how often an outcome occurs when you repeat an experiment
independent: events where one result does not affect the next — e.g. each coin flip is independent	experiment: a test you carry out to see what happens by chance — e.g. rolling a die 20 times