

WA5MPSP2

Probability

Core + Challenge

NAPLAN-style

Chance Experiments

I can run a chance experiment, record the results as fractions and explain why results vary.

Name: _____ Date: _____ Score: _____ / 58

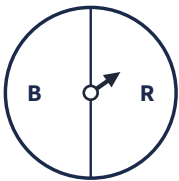
Key idea

A **trial** is one go: one toss, one spin or one roll. Record each result with a **tally** mark (groups of five).

Write a result as a **fraction** of the trials: number of times it happened out of the number of trials.

Results **vary**. Even when outcomes are equally likely, they do not come up exactly the same number of times, and two people get different results.

Example: a spinner with 2 equal parts was spun **16** times. Red came up 7 times, so red was $\frac{7}{16}$ of the spins and blue was $\frac{9}{16}$.



Colour	Tally	Frequency	Fraction
Red		7	$\frac{7}{16}$
Blue		9	$\frac{9}{16}$

A Warm up *tally, count and compare*

/ 16 marks

Write the number each tally shows. 1 mark each.

1

|||| ||

2

|||| |||

3

|||| ||| ||

4

|||| ||| ||| ||| |||

Draw a tally for each number. 1 mark each.

5

Draw 6

6

Draw 11

7

Draw 19

8

Draw 22

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Write each result as a **fraction** of the trials. 1 mark each.

- 9 A coin landed on **heads** 9 times in 20 tosses.

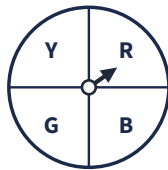
- 10 A die was rolled 30 times. It showed a **4** five times.

- 11 Red came up this many times in **40** spins.

|||| |||

- 12 Blue came up 12 times in 50 spins. What fraction were **not** blue?

Leo spun a spinner with 4 equal parts **40** times. Use his tally chart. 1 mark each.



Colour	Tally
Red	
Blue	
Green	
Yellow	

- 13 How many times did **blue** come up?

- 14 Write **red** as a fraction of the 40 spins.

- 15 Which colour came up the **fewest** times?

- 16 What fraction of the spins were **not** green?

B Practise *use the skill*

/ 23 marks

- 1 Fifteen students each spun a spinner with 2 equal parts (red and blue) **10** times. Their numbers of reds were: 5, 4, 6, 5, 7, 3, 5, 6, 4, 5, 8, 5, 6, 4, 2. **a)** Draw a dot plot. **b)** How many students got exactly 5 reds (half)? **c)** Most students did **not** get exactly 5 reds. Why?

[3 marks]

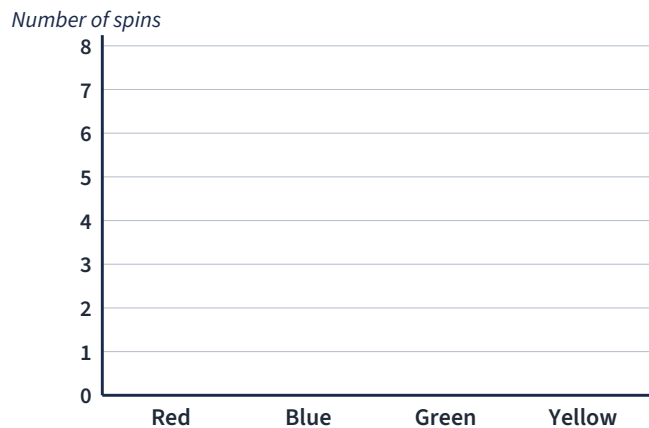


Number of reds in 10 spins

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- 2 Zara spun a spinner with 4 equal colours **20** times. Her tally chart is shown. **a)** [3 marks]
Draw a column graph of her results. **b)** What fraction of the spins were **green**?

Colour	Tally
Red	I
Blue	
Green	II
Yellow	



b) _____

- 3 Ella spins a spinner with 3 equal parts (1, 2 and 3) **30** times. Look at the four tables. **a)** Which table is **impossible**? Explain. **b)** Which table is possible but very **unlikely**? [2 marks]

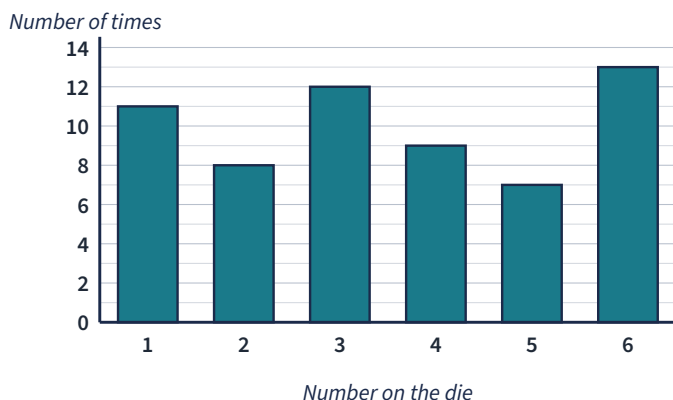
Table	1	2	3
A	9	11	10
B	12	8	10
C	14	10	8
D	30	0	0

Answer: _____

- 4 A class used a random number app to choose a number from 1 to 4, **100** times. [2 marks]
Results: 1 came up 23 times, 2 came up 27 times, 3 came up 26 times, 4 came up 24 times. **a)** Write the result for **2** as a fraction. **b)** The four numbers are equally likely. Why did they not each come up exactly 25 times?

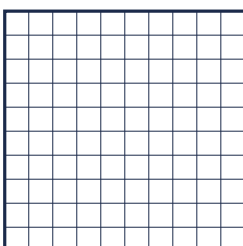
Answer: _____

- 5 Sam rolled a die **60** times. **a)** Which number came up most often? Write its result as a fraction of the 60 rolls. **b)** All six numbers are equally likely. Why are the columns **not** all the same height? [2 marks]



Answer: _____

- 6 Kai used a computer to **simulate** tossing a coin. In **10** tosses he got **7** heads. In **100** tosses he got **54** heads. **a)** Shade the strip to show $\frac{7}{10}$ and the grid to show $\frac{54}{100}$. **b)** Which result is closer to **half**? **c)** What do you notice about doing more tosses? [3 marks]



- 7 Four friends each spun a spinner with 2 equal parts (red and blue) **20** times. The table shows how many reds each got. **a)** Write each result as a fraction of 20. **b)** Whose result was exactly half red? **c)** Add the four results. How many reds were there in all 80 spins? How many would be exactly half? What do you notice? [3 marks]

Name	Ana	Ben	Cal	Dee
Reds	9	12	10	7
Fraction				

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- 8 Tara spun a spinner with 3 equal parts **24** times. Some of her tally chart was rubbed out. **a)** How many times did **blue** come up? Draw its tally. **b)** Write **green** as a fraction of the spins. [2 marks]

Colour	Tally
Red	
Blue	
Green	

Answer: _____

- 9 Mia tossed a coin **30** times. Her results are below (H = heads, T = tails). **a)** Complete the table. **b)** Heads and tails are equally likely. Did Mia get the same number of each? Is that surprising? Explain. [3 marks]

H	T	T	H	H	H	T	T	H	T	T	H	T	T	T
H	H	H	H	T	H	T	T	T	T	T	H	T	H	T

Result	Tally	Frequency	Fraction
Heads			
Tails			

C Think it through *explain your thinking*

/ 10 marks

- 1 **True or false?** “If you spin a spinner with 4 equal colours **40** times, each colour will come up exactly 10 times.” Explain. [2 marks]

- 2 These are four results for heads when tossing coins. Which is the **odd one out**? Explain. $\frac{10}{20}$ $\frac{25}{50}$ $\frac{50}{100}$ $\frac{12}{20}$ [2 marks]

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- 3 **Always, sometimes or never true?** “Two people who do the same chance experiment get the same results.” Explain. [2 marks]

Circle one: **Always** / **Sometimes** / **Never**

- 4 Jo tossed a coin 10 times and got 8 heads. She says heads is more likely than tails. Her class put all their results together: **508** heads in **1000** tosses. Whose results are better evidence? What do they show? Explain. [2 marks]

- 5 Ravi tossed a coin 6 times and got 5 heads. He says, “This coin must be unfair.” Do you agree with Ravi? Explain. [2 marks]

D Challenge *stretch yourself*

/ 9 marks

- 1 A spinner has 3 equal parts: 1, 2 and 3. Sofia spun it **24** times. She got **twice** as many 1s as 2s. She got **4 more** 3s than 2s. **a)** How many of each number did she get? **b)** Write each result as a fraction of 24. **c)** If each number had come up the same number of times, how many would that be? Which number was furthest from that? [3 marks]

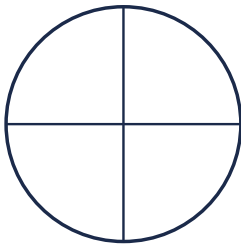
Answer: _____

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- 2 Four friends each rolled a die **30** times and counted the 6s. Altogether they got **20** sixes. Amy got 6 and Bo got 4. Cam got **4 more** sixes than Dev. **a)** How many sixes did Cam and Dev each get? **b)** Write the group's result as a fraction of **all** their rolls. **c)** Show that the group's fraction is equal to $\frac{1}{6}$. [3 marks]

Answer: _____

- 3 Jai's spinner has **4** equal parts. Each part is red or blue, but the colours are hidden. He spun it **100** times: red 74, blue 26. **a)** How many parts are most likely red? Label the spinner. **b)** Could the spinner have 2 red and 2 blue parts? Explain. [3 marks]



Answer: _____

How did I go?

Warm up ____ / 16 Practise ____ / 23 Think it through ____ / 10 Challenge ____ / 9 **Total ____ / 58**

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