

Wheel of Fortune

NEW August 2026

Year level: 5

Approximate number of lessons: 1

Learning goals

- engage in chance-based investigations, including those with not equally likely outcomes, by:
 - posing an investigative question
 - anticipating and then identifying possible outcomes for the investigative question
 - generating all possible ways to get each outcome (a theoretical approach), or undertaking a probability experiment and recording the occurrences of each outcome
 - creating data visualisations for possible outcomes
 - describing what these visualisations show
 - finding probabilities as fractions
 - answering the investigative question
 - reflecting on anticipated outcomes
- evaluate others' statements about chance-based investigations, with justification.

Resources

- Coins and half full water bottles with lids for flipping
- A class set of pencils, paper clips and [spinners](#), see material masters
- Stiff paper or light card
- Felt tips
- Rulers, protractors
- A fractions wall, or other manipulatives for comparing equivalent fractions
- [Data collection sheets](#) - see material masters
- [Empty spinner sheets](#) for creating new spinners, these also serve as exit tickets - see material masters

Activity - Lesson 1

Introduction

Many simple actions are used to make decisions in our world — coin flipping, rolling dice, playing rock, paper, scissors. Others, like bottle flipping, “red shoes, blue shoes”, and spinners, serve the same purpose. This lesson investigates bottle flipping alongside coin flips before taking a closer look at spinners as fair decision makers. Ākonga engage in a probability experiment, comparing their experimental results with anticipated outcomes to evaluate what makes a spinner truly fair.

Preferably, ākonga will have had some experience with spinners prior to this lesson as a decision making tool. You could include a spinner as a part of a classroom game prior to this lesson. For example, use a simple half-red, half-blue spinner to choose who starts a class game or goes to lunch first.

? PROBLEM:

- Provide ākonga time to experience flipping both coins and bottles.
After a few minutes ask ākonga which experience seems more fair to them and why. Allow them more time to flip and experience outcomes.
- Once ākonga are deep in discussion about fairness, stop the trials and engage in a discussion about which action is more fair and why.
- List reasons why each action is fair or unfair, and record these for the class to see.

For example:

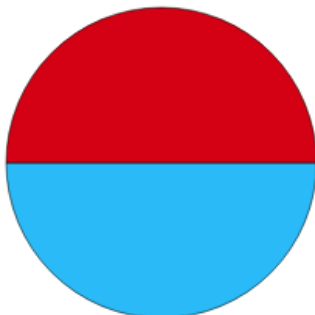
Coin Toss Vs Bottle Flip - Is it Fair?	
Coin Toss - Two outcomes - Each outcome has the same probability - No skill is required - Results are random - <u>A fair event - both players have an equal chance</u>	Bottle Flip - Outcome depends on skill - Probability changes by player - Practice improves your odds - Not random - technique matters - <u>UNFAIR - skilled players win more often</u>

- Engage ākonga in a discussion about where they have seen spinners before. They are commonly found within online promotions, at galas and fairs, and as digital name generators used by kaiako.
- Ask ākonga if they have seen spinners used to make decisions and if they found the spinners to be fair.
- Pose the investigative question, “Which spinners are fair?”

PLAN:

- Introduce three spinners as below.

Spinner A



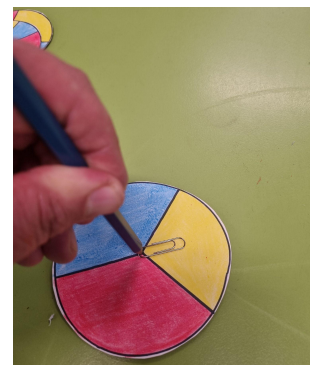
Spinner B



Spinner C



- Allow ākonga time to compare, contrast and discuss Spinners A, B and C.
- Explain that ākonga will be carrying out a chance-based investigation to prove the fairness of these spinners. Ask each ākonga to record their own anticipated outcome and their reasoning for each prediction on the recording sheet- see Material Masters. For each spinner they will need to state whether they feel the spinner is fair or not fair, and their reason why.
- Support ākonga to design a chance-based investigation. They will need to:
 - Decide if every ākonga will test every spinner or if groups will do one each
 - Create rules for spinning: kaiako may need to demonstrate how to use the spinner, a pencil/pen and a paper clip to make the spinner work.
 - Where will the spinner start?
 - Will it be flicked or pushed?
 - What constitutes a bad spin and will that spin be repeated?
 - Will one person hold the pencil and another spin? etc
 - decide how many trials will be carried out, suggestion of 50 spins for each.
- Support ākonga to create a recording sheet for each spinner keeping their knowledge of probability investigations and fair testing in mind, or you could use the [Data Collection Sheets](#) in the Material Masters. If you do utilise the data collection sheets you may need to remind ākonga how to record using tally marks and how to calculate the frequency.
- Support ākonga to predict what the data might look like for each spinner, creating anticipated outcomes before trialling begins.



DATA:

- Ākonga carry out each investigation recording their results on the [Data Collection Sheets](#).
- Encourage ākonga to pause after 25 spins to notice any early patterns before completing all 50 trials.

ANALYSIS:

- Ask ākonga to discuss their own experimental outcomes.
 - What did they find out?
 - Are the spinners fair or not fair, and why?
- Support ākonga to combine their scores for each spinner so that you have a class set of experimental outcomes. Display this combined data for the whole class to see and discuss.
 - What do ākonga notice about the combined scores?
 - What do the combined experimental outcomes say about each spinner? Are they fair or not fair? Why?
 - Are the combined experimental outcomes the same or different to their own experimental outcomes? Why?
- Support ākonga to notice that the spinners with equivalent fractions are the spinners with the fair outcomes. You may need to draw their attention to the fractions each colour covers and ask: what do you notice about the fractions on the fair spinners?

Spinner A 	Spinner A is FAIR $\text{Red} = \frac{1}{2}, \text{Blue} = \frac{1}{2}$ Each colour covers an equal amount or fraction of the whole.
Spinner B 	Spinner B is NOT FAIR $\text{Red} = \frac{1}{4}, \text{Blue} = \frac{1}{2}, \text{Yellow} = \frac{1}{4}$ Blue covers twice the area of red or yellow.
Spinner C 	Spinner C is FAIR $\text{Yellow} = \frac{1}{3}, \text{Red} = \frac{1}{3}, \text{Blue} = \frac{1}{3}$ Each colour covers an equal amount or fraction of the whole.

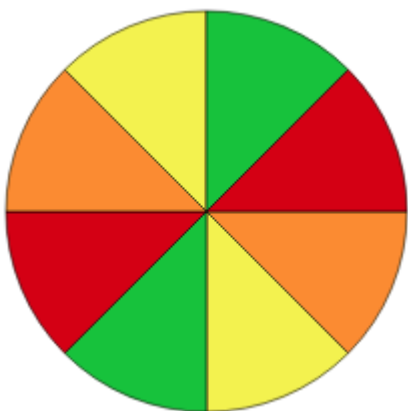
💡 CONCLUSION:

- Discuss the key idea with ākonga that a spinner is FAIR if all colours cover EQUIVALENT fractions of the circle. This means every colour has EXACTLY the same probability of being landed on.

You may need to pause here and revisit equivalent fractions before continuing, making sure that ākonga have the chance to play with fractions with large denominators.

e.g. $\frac{1}{2} = \frac{20}{40} = \frac{36}{72} = \frac{256}{512}$

- Provide each ākonga with a blank spinner material master and invite them to create a spinner with four colours where each colour covers an equivalent fraction of the spinner. Challenge ākonga to see how many different fair spinner designs they can create. Ākonga will need access to a ruler and possibly a protractor at this stage. Below is one example using sections of $\frac{2}{8}$.



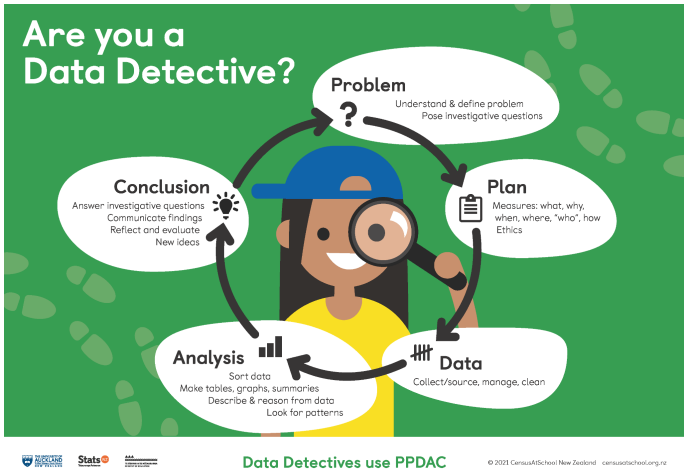
- Ask ākonga to justify their design by recording the fractions that match the spinner. This could be used as an exit ticket and formative assessment.

e.g. $\frac{2}{8} = \frac{2}{8} = \frac{2}{8} = \frac{2}{8}$

- You may like to investigate what a spinner with ten colours covering equivalent fractions of the spinner could look like.

Notes for teachers

- [Here](#) is a link to a random name picker spinner, you may like to use this prior to the lesson.
- [Here](#) is a link to a spinner that is adjustable, you can create unfair spinners easily here.
- [Here](#) is a link to the nzmaths spinner on CensusAtSchool.



<https://new.censusatschool.org.nz/resource/data-detective-poster/>

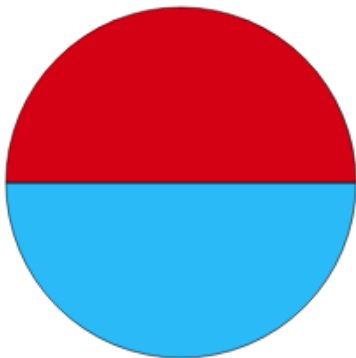
Wheel of Fortune student materials

Resource list with preparation

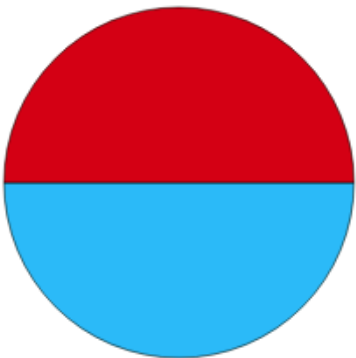
Resource	Preparation required	Approx numbers
Spinners	Print out and cut	Enough for one of each spinner for each pair of ākonga
My Anticipated Outcomes Sheets	Print out	One for each ākonga
Data Collection Sheet	Print out	One set for each group/buddy pair
Create you own fair spinner sheet - exit ticket	Print out	One for each ākonga

Spinners

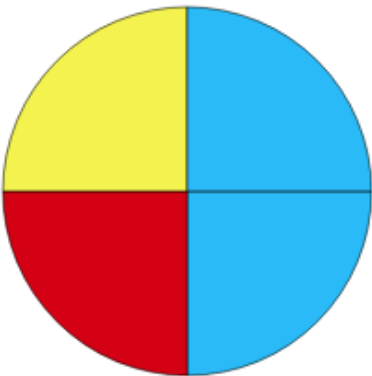
Spinner A



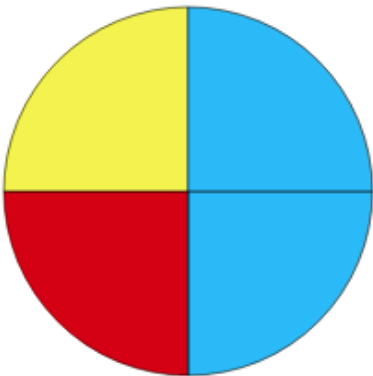
Spinner A



Spinner B



Spinner B



Spinner C

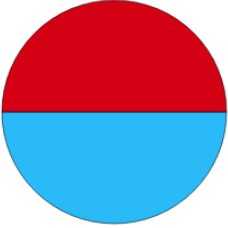
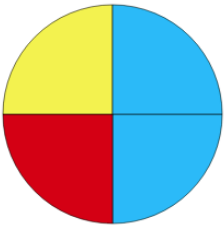
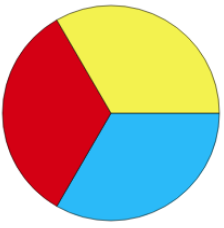


Spinner C

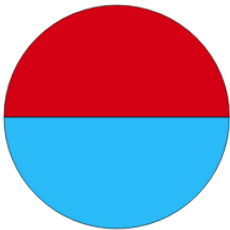


My Anticipated Outcomes - What do I think will happen?

My Name is _____

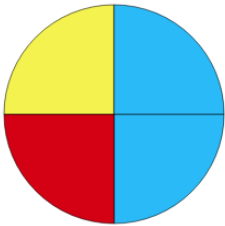
Spinner A 	Spinner B 	Spinner C 
Fair / Not Fair	Fair / Not Fair	Fair / Not Fair
I think this because... _____ _____ _____ _____ _____ _____ _____ _____ _____	I think this because... _____ _____ _____ _____ _____ _____ _____ _____ _____	I think this because... _____ _____ _____ _____ _____ _____ _____ _____ _____

Data Collection Sheet



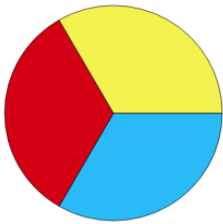
Spinner A

Possible Outcomes	Tally	Frequency
Blue		
Red		



Spinner B

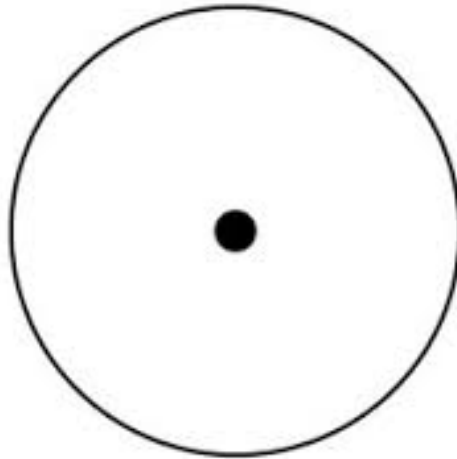
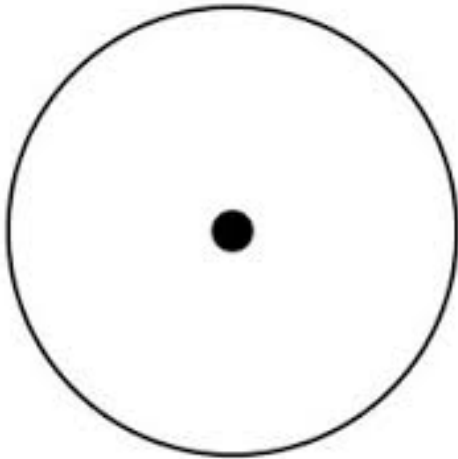
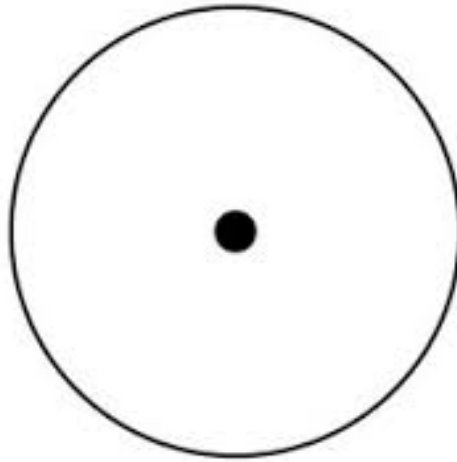
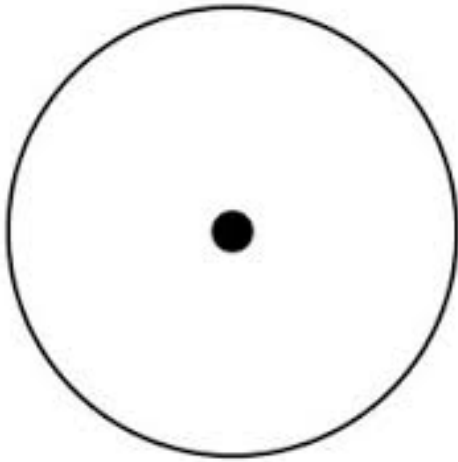
Possible Outcomes	Tally	Frequency
Blue		
Red		
Yellow		



Spinner C

Possible Outcomes	Tally	Frequency
Blue		
Red		
Yellow		

Create your own fair spinner. Name _____



Circle the spinner that you are most proud of.
Explain why your spinner is fair.
