Gumball Machine

NEW August 2025

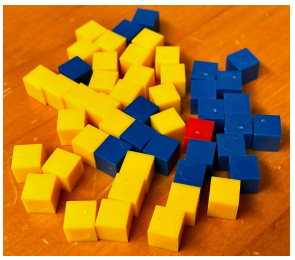
Year level: 2

Approximate number of lessons: 1

Learning goals

- Engage in chance-based investigations about games and everyday situations to:
  - identify possible outcomes
  - collect and record data
  - create visualisations for frequencies of outcomes (e.g., lists, picture graphs)
  - describe what these data visualisations show
  - answer chance-based investigative questions
  - notice variations in outcomes

Resources



- Y2 Gumball Machine teaching notes
- A ‘gumball machine’. This may be homemade (see link), a glass jar such as a jam jar with (30 yellow, 19 blue and 1 red) beads/pom pom balls or similar inside. Ākonga must be able to see through the sides of the container.
- A jar for each group of ākonga.
- Beads, pompoms, or counters for each group. You may also like to use a material master sheet (gumballs).

Activity

Introduction

This chance based investigation explores the contents of a gumball machine. It asks ākonga to organise data so that they are more easily able to make statements about chanced based investigative questions.

?PROBLEM:

- Kaiako present a gumball machine with 30 yellow, 19 blue and 1 red ‘gumballs’ (pompoms, beads or similar) inside to the class provoking a discussion to make sure that all ākonga know what the machine is, what is inside the machine, flavours of gumballs, how flavours sometimes link with colours, where a gumball machine might be found, and how a gumball machine works.
  Do not tell ākonga how many of each colour are in the machine.
- Kaiako pose the questions
  - What colours can we get?
  - What colours can’t we get?
  - What colour are we most likely to get?
  - What colour are we least likely to get?
- Kaiako support ākonga to discuss likelihood, and ask ākonga what they need to know to be sure that one colour is definitely more likely. How do we know that one colour is more likely than another?
- Pose the investigative question: **Which colour in our gumball machine is more likely?**

PLAN:

- Kaiako support ākonga to make a plan to explore the contents of the gumball machine, by opening the machine and sorting the gumballs into colour groups. Ākonga might say “let’s look at all of the gumballs inside the jar” but they will need support to consider organising the balls into groups of colours.
- Ākonga work to sort and organise their gumballs into an array, lines of ten, so that they are easier to count. A suggestion here is to make use of a dotted hundreds board to support ākonga to line up the gumballs in tens.
- Kaiako pose the questions again
  - What colours can we get?
  - What colours can’t we get?
  - What colour are we most likely to get?
  - What colour are we least likely to get?
  - Are our answers the same or different to what we thought before? Why have our answers changed?
- Kaiako try this idea with a number of different gumball machines (teacher made), making some of the machines with a difference of only one or two gumballs. For example a machine with 14 blue and 15 yellow gumballs.
- Ākonga are supported to work in small groups to make their own gumball machines.
- Kaiako pose the question “Which colour are we most likely to get?” How can we find out?

DATA:

- Ākonga open their machines and arrange the gumballs to find the answers to the questions.
  - What colours can we get?
  - What colours can’t we get?
  - What colour are we most likely to get?
  - What colour are we least likely to get?

- Kaiako support ākonga to share their answers with the class, identifying that for each gumball machine the answers will be different.

ANALYSIS:

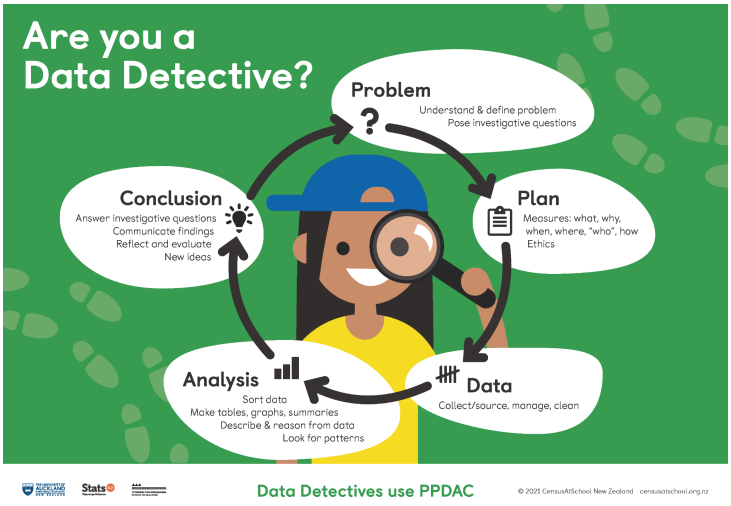
- Kaiako support each group to put their gumball machine back together.
- Kaiako pose the question again, what colour are you most likely to get? And then add a new question, if we were to draw one gumball what colour do you predict you will get?
  This is an important question as it will provide āklong with an opportunity to demonstrate their knowledge of likelihood and provide a reason for their colour choice. This is a formative assessment opportunity.
- Ākonga draw a gumball from the machine.
- Kaiako support ākonga to identify if their prediction was correct, did they predict which colour they would get?

CONCLUSION:

- Kaiako support ākonga to restate the investigative question and check that it has been answered.
  Which colour in our gumball machine is more likely?
  How do we know that one colour is more likely than another?
- Kaiako ask, what has helped us to know which colour would be more likely? Kaiako support ākonga to recognise the purpose of data organisation and analysis.

Notes for teachers

- Trends and patterns may occur due to ākonga choices in gumball colours. For example many ākonga may inadvertently choose red gumballs, and the class may notice that most gumballs were red. It is important to make a clear link between what the data tells us and the likelihoods for each individual gumball machine (what the sorted gumball display tells us), and not make connections or comparisons between gumball machines.
- This activity can also serve as an opportunity for a group of Year 3 ākonga to practice key vocabulary.



Poster is linked as well https://new.censusatschool.org.nz/resource/data-detective-poster/