Investigating tooth decay among young people
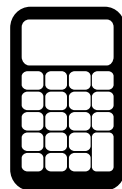
Name:

Group:
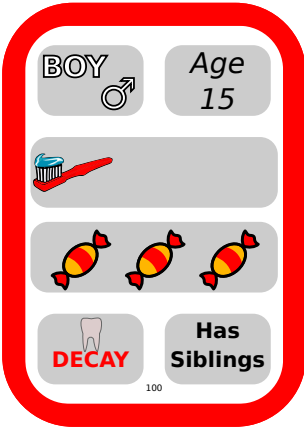
We are going to investigate what might lead to tooth decay. To do this we need to know something about people, their behaviours and important characteristics.

What kind of things might we want to know?

We have information on a group of young people, each person is represented by a card. The card shows some key characteristics, for example if they are a boy or a girl and their age.

We also know whether the person has tooth decay or not: cards with **red** borders have "decay", cards with **blue** borders have "no decay".

Each person was asked how regularly they brush their teeth and how often they eat sweets (including chocolate bars, sugary sweets, cookies and biscuits) on a scale from zero (0) to three (3) as shown on the right.

|	
0	Only once a week
1	Between weekly and daily
2	Daily
3	Twice a day

1: Do many people have tooth decay?

You have been given a number of cards, each card represents a person.

How many cards do you have?
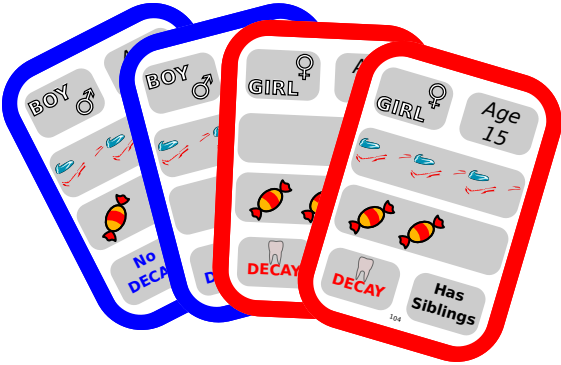
a) Take your cards and sort them into two piles, Decay (red) and No Decay (blue).

b) Arrange the piles to form a bar chart using the cards

EXAMPLE

below there are 12 cards arranged into two lines
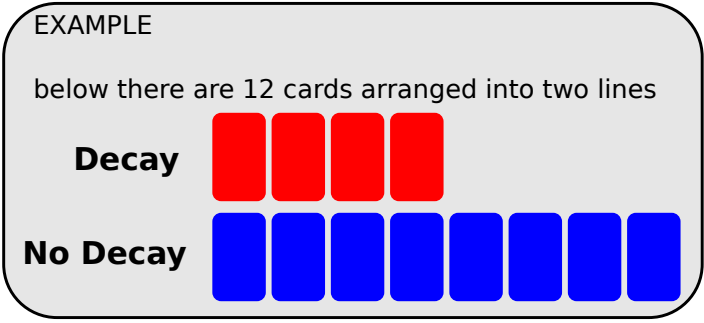
Decay

No Decay

c) Are there more people with Decay, or more people with No Decay? How many of each card do you have?

Decay

No Decay

d) Compare your bar chart with others around the table.

▸ Do you all have the same number of cards?
▸ Do you have the same number of Decay cards?

2: Are boys and girls different?

a) Take your cards and sort them into two piles, boys and girls

b) Do you have the same number of boy and girl cards?

c) Within the boys and girls, sort the cards into Decay and No Decay and make a bar chart out of the cards as before. This time there will be four lines of cards.

d) Are there more boys with decay than girls?
‣ Can we count the numbers and compare?

3: Counts or percentages?

Comparing the number of *boys with Decay* and the number of *girls with Decay* is only sensible if the number of boys and girls is the same.

How many boys and girls are in your set of cards?
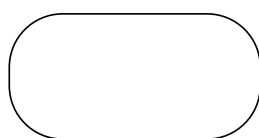
Boys   **Girls**

We can turn counts into percentages to make a sensible comparison between boys and girls.

The percentage of boys with tooth decay is a single value combining the number of boys with decay and the total number of boys.
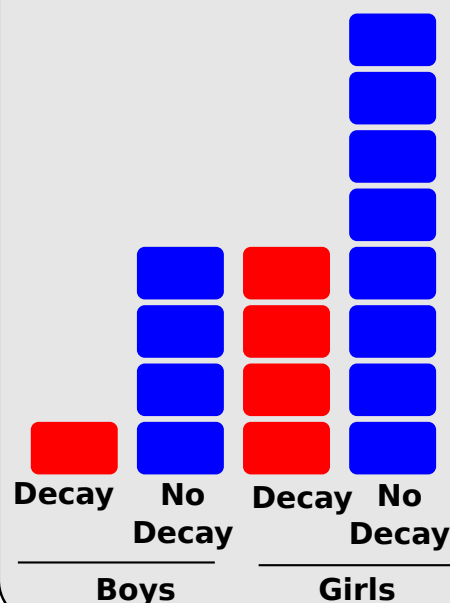
‣ Complete the table with your counts
‣ Calculate the percentage of boys and girls with decay

COUNTS	Boys	Girls
Decay		
No Decay		
Total		

PERCENTAGE WITH DECAY

Boys

Girls

EXAMPLE

Using the example card lines shown above, we complete the table as shown.

Percentage boys = 1/5 × 100 = 20

Percentage girls = 4/12 × 100 = 33.3

COUNTS	Boys	Girls
Decay	1	4
No Decay	4	8
Total	5	12

PERCENTAGE WITH DECAY

20%
Boys

33.3%
Girls

4: Does eating sweets affect decay?

Instead of boys and girls separate the cards by the number of sweets eaten.

For now, consider sweets grouped into "low" and "high" amounts eaten. So that "low" corresponds to zero (0) and one (1), and "high" corresponds to two (2) and three (3) on our sweet scale.

Complete the table to compare percentages of tooth decay within your cards:

COUNTS	Low Sweets	High Sweets
Decay		
No Decay		
Total		

PERCENTAGE WITH DECAY

Low Sweets

High Sweets

5: The limits of what you can investigate?

Question: Is there a difference in decay between boys and girls with different sweet eating habits?

Do you think, with the cards you have, you will be able to consider both boys/girls and low/high sweets at the same time?

The problem will be you don't have enough cards - in fact you may even lack any people of a certain type; you might have no low sweet eating girls.

As a group, combine all your cards into four piles, Boy-Low, Boy-High, Girl-Low and Girl-High. Separate each pile into Decay and No Decay cards. Complete the table below to compare percentages across these four groups:

| COUNTS | Boys | | Girls | |
	Low Sweets	High Sweets	Low Sweets	High Sweets
Decay				
No Decay				
Total				
Percent				