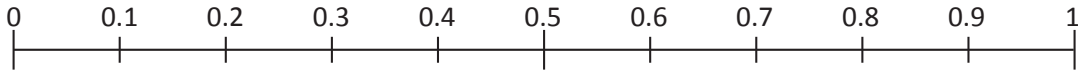


Chance and probability – probability scale

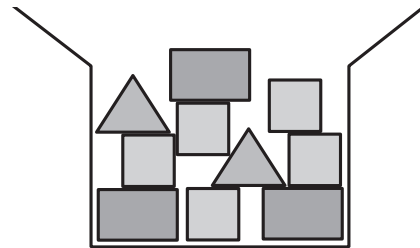
- 4 100 guests each buy a ticket for a raffle at a fundraising dinner. The winning ticket will be selected at random. This table on the right shows the colours of all of the tickets in the raffle.

| | |
|--------------|------------|
| Red | 10 |
| Purple | 40 |
| Orange | 50 |
| Total | 100 |

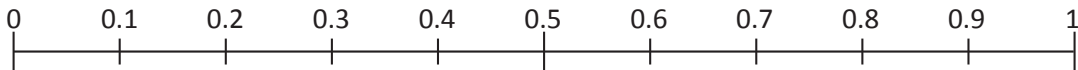
What is the probability of the winning ticket being red, purple or orange? Draw arrows on this probability scale to show the probability of each colour and write the colour beneath the arrow.



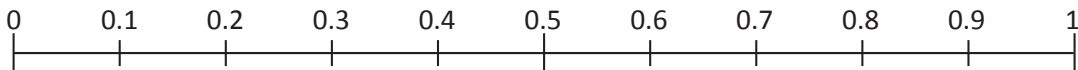
- 5 Inside a box there are 3 rectangles, 2 triangles and 5 squares. Without looking, Ellie chooses one shape from the box.



- a Draw each shape on this probability scale to show the probability of Ellie choosing each type of shape.



- b 3 more rectangles, 2 more triangles and 5 more squares are added to the same box. Draw each shape on this probability scale to show the probability of Ellie choosing each shape from the box.



- c What do you notice? _____

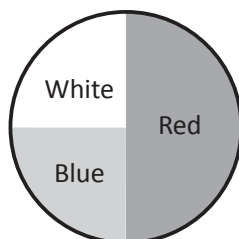
- 6 Sam did an experiment with 10 cubes that were either red, white or blue. She took a cube from a jar without looking, tallied which colour it was then put it back in the same jar. She repeated the process 20 times. After tallying her results, she created this pie chart to show the results of the experiment.

- a How many times did Sam take each colour out of the jar? Remember she performed the experiment 20 times.

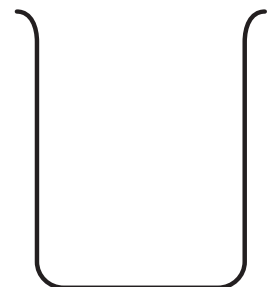
Red

White

Blue



- b Draw the combination of cubes there could have been inside the jar. Remember there are only 10 cubes.



Chance and probability – using samples to predict probability

Surveys are used to collect data about certain topics or questions. Once the data is collected, it is presented in a table so it is easy to understand. Surveys can be conducted to ask all kinds of questions.

We can use probability to see an even bigger picture than the survey tells us.

This table shows the data collected when 50 people were surveyed to find their favourite milkshake flavour.

| Chocolate | Strawberry | Vanilla | Banana |
|-----------|------------|---------|--------|
| 19 | 16 | 8 | 7 |

We can use probability to predict the number of people who will choose each flavour in a larger survey. When 100 people are surveyed, it is likely that chocolate will be the favourite milkshake flavour of 38 people.

When 1000 people are surveyed, it is likely that chocolate will be the favourite milkshake flavour of 380 people.

- 1 Faisal has had enough of selling clothes. If one more woman asks him, “Do I look fat in this?”, he will scream. He holds a crazy closing down sale and sells the following items in 1 hour:

| Shirts | Jackets | Skirts | Dresses |
|--------|---------|--------|---------|
| 18 | 14 | 7 | 3 |

Predict how many:

- a jackets would sell in 2 hours b skirts would sell in 2 hours
- c shirts would sell in 3 hours d dresses would sell in 4 hours
- e shirts and jackets would sell in 4 hours
- f items of clothing would sell in 8 hours

- 2 Here is a table showing the results from a survey of 50 boys and 50 girls who were asked, “Which fruit do you like best?” Rate the probability that a person selected randomly will be:

- a a boy
- b a girl who likes apples
- c someone who likes pears

| | Girls | Boys |
|--------|-------|------|
| Apple | 17 | 11 |
| Banana | 8 | 14 |
| Orange | 13 | 16 |
| Pear | 12 | 9 |

- d Is the probability of someone choosing a banana greater than or less than $\frac{1}{2}$? _____