Chance and probability

- Using probability words to say how likely some events are
- Explaining why some events are more likely than others

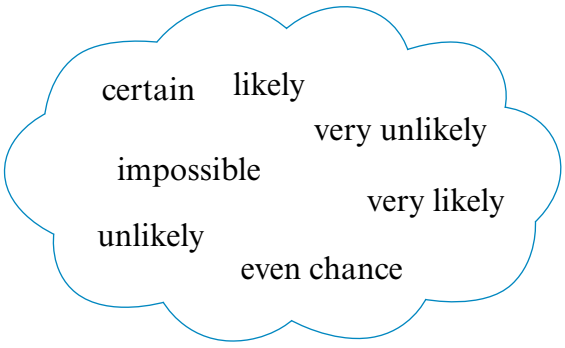
Keywords

You should know

explanation 1a | explanation 1b | explanation 1c | online

1 Here are some probability words used to describe the chance of something happening.

Put them in order of likelihood starting with the least likely.



2 Match each event to one of these probability words.

Unlikely Likely Impossible Even chance Certain

a You will eat something in the next two days.

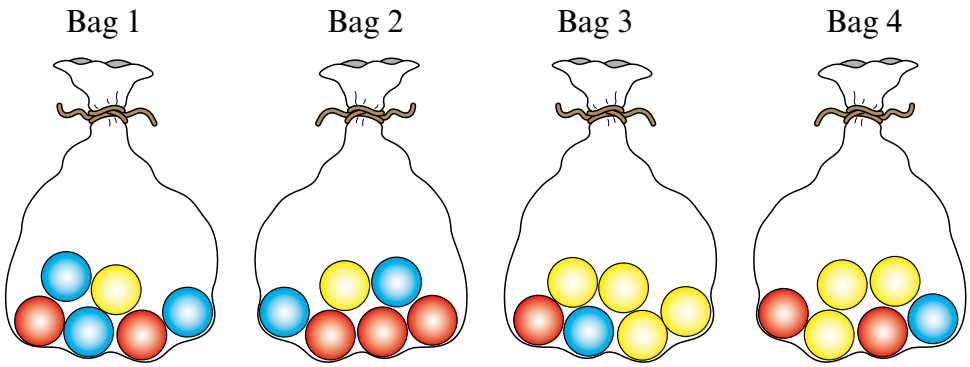
b You will lose your bag today.

c You will not lose your bag today.

d Your tenth birthday will be in the next six months.

e The first person you see on the street will be male.

3 These bags each contain the same number of different coloured balls.



Jasmine takes a ball from each bag without looking.

a From which bag is she most likely to take a blue ball?

b From which bag is Jasmine equally likely to take a blue ball as she is to take a red ball?

4 Write one event that has each chance of happening.

a an even chance (it is as likely to happen as not to happen)

b a greater than even chance

5 This is a fair spinner. Amy spins it.

Choose the word that describes her chance of getting each outcome.

impossible even chance likely certain

a an odd number

b a 2

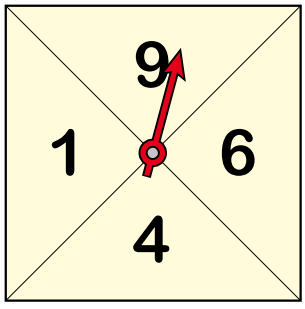
c a number greater than 2

d a number greater than 10

e a number less than 10

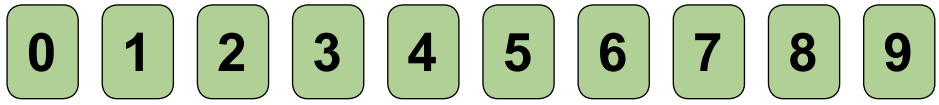
f an even number

g a number greater than 5

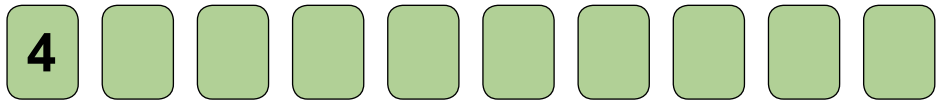


These are the rules to a game called *Higher or Lower?*

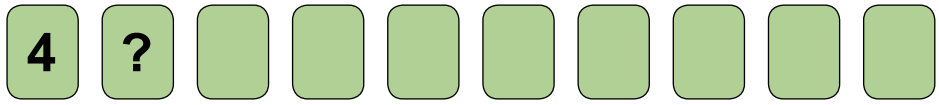
- The game is played with a set of 0 to 9 digit cards.



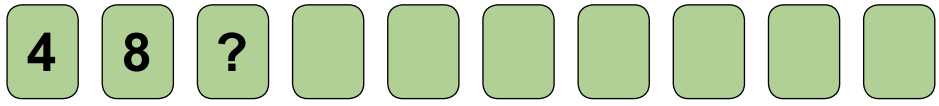
- The digit cards are shuffled and placed face down.
- The first card is turned over.



- The player has to guess if the next card is higher or lower.

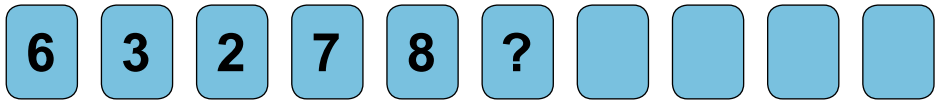


- The second card is turned over. A correct guess wins one point.
- The player then has to guess if the third card will be higher or lower than the second card.



- And so on until all the cards are used.

6 Here are the cards from a game of *Higher or Lower?*



a What numbers might be on the next card?

b Amy says, 'The next card is very likely to be lower.' Explain why she is correct.

c Anil says that the next card is certain to be lower. Why is he wrong?

7 Here are some more *Higher or Lower?* games.

For each one, write down if you would decide 'higher' or 'lower'.

Explain how you made your choice.

a

6	3	2	0	?					

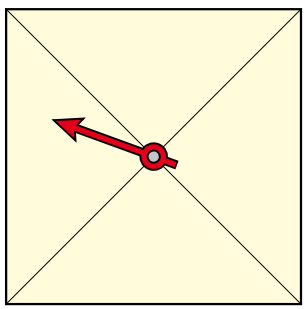
b

4	2	0	3	1	7	?			

c

6	9	2	7	8	4	5	?		

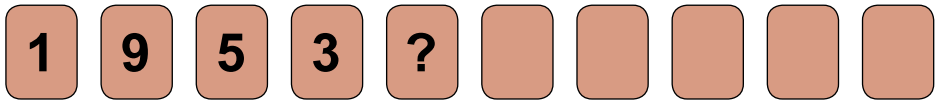
8 Here is a blank fair spinner.



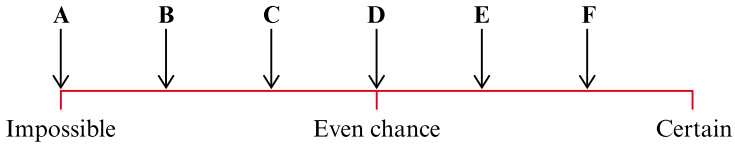
Copy the spinner and put some whole numbers on it so that *all* these are true.

- The probability of getting a number less than six is certain.
- The probability of getting a number greater than 5 is impossible.
- The probability of getting a number less than 3 is an *even chance*.
- The probability of getting a number greater than 1 is likely.

9 Here are the cards from another game.
The cards are numbered from 0 to 9.



This probability scale shows 6 values A–F.



Match each of these events with a different letter on the probability scale.
Explain your choices to a partner.

a The number on the next card (?) is 3.

b The number on the next card (?) is greater than 1.

c The number on the next card (?) is less than 3.

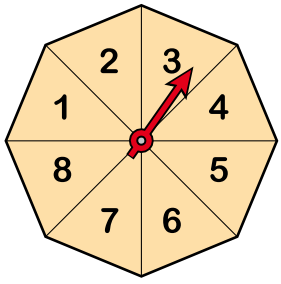
d The number on the next card (?) is 2.

e The number on the next card (?) is greater than 5.

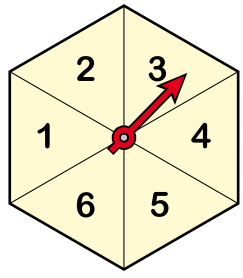
f The number on the next card (?) is greater than 3.

explanation 2

10 Abida and Tom each have a spinner. Each spinner is fair.



Abida's spinner



Tom's spinner

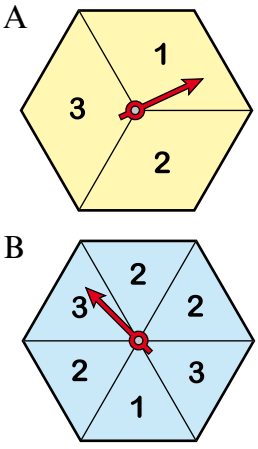
a Abida says, 'I am more likely to spin a 1 than Tom.'

Is she right? Explain your answer.

b Is Abida more likely to spin an odd number than Tom?

Explain your answer.

11 Suzi has two fair spinners, A and B.



Which of these statements are true?
Explain how you know.

a Getting a 1 is more likely on A than on B.

b Getting a 2 is more likely on A than on B.

c Getting a 3 is more likely on A than on B.

Suzie spins both spinners.
Her score is the number on A added to the number on B.
Which of these statements are true? Explain how you know.

d A score of 2 is impossible.

e A score of more than 6 is impossible.

f Suzie is certain to get a score greater than 1.

12 Jonti and Simon are playing a game with these number cards.

They shuffle the cards then place them face down on the table.
Simon picks a card at random.

To win, the card must be greater than 2.
So it is very likely Simon will win.
Make up a rule that gives each of these outcomes.

a Simon is certain to win.

b Simon is likely to win.

c Simon is certain to lose.

13 Bruce does not want to go shopping in town.
He gives this excuse:

'I could be abducted by aliens! There are two possible outcomes. Either I will be abducted by aliens or I won't be abducted by aliens, so the probability of being abducted by aliens is $\frac{1}{2}$. Too risky!!'

Explain what is wrong with this excuse.