# What are the chances?

Playing a game with a 6-sided dice can be frustrating. It never seems to land the way you want.

**1** Some people say it's harder to roll a 6 on a dice than any other number. Explain why this is not true.

**2** **a** A coin has an equal chance of landing on heads or tails. We can say that there is half a chance that it will land on heads. What fraction describes the chance of a 6-sided dice landing on 6?

**b** A coin has a 1 in 2 chance of landing on heads. Fill in the gap in the following sentence:

A 6-sided dice has a 1 in ☐ chance of landing on 2.

**3** For homework, Eva has to predict the results of rolling a 6-sided dice 12 times. Then she has to roll the dice 12 times and write the results. She knows there is an equal chance of rolling each number, so she expects to roll each number twice. This table shows the results.

| Number on the dice | Number of times Eva expects to roll this number | Number of times this number was rolled |
|---|---|---|
| 1 | 2 | 1 |
| 2 | 2 | 3 |
| 3 | 2 | 5 |
| 4 | 2 | 0 |
| 5 | 2 | 2 |
| 6 | 2 | 1 |

Why do you think the results were not as Eva expected?

**4** Jack rolls a dice nine times, and every single time he rolls a 5. Describe the chance of rolling a 5 with the next throw.

*(continued)*

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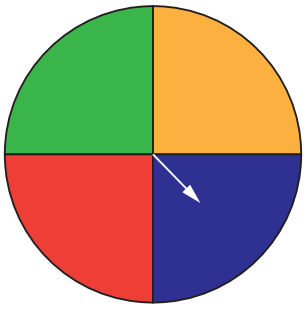
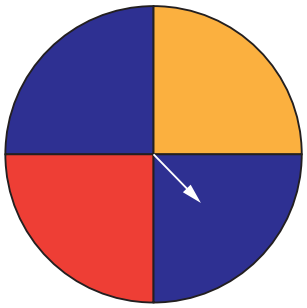
**5** There is a 1 in 4 chance that this spinner will land on blue.

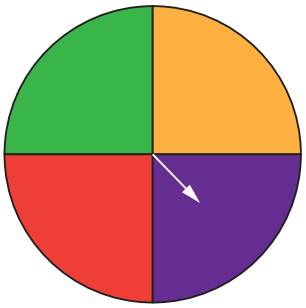


Look carefully at these spinners. Describe the chance of each spinner landing on blue.

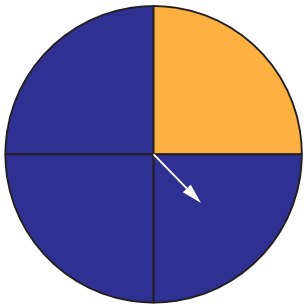
a



b



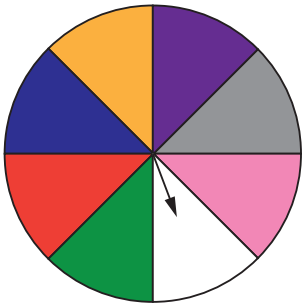
c



**6** Describe the chance that this spinner will:

a land on white

b not land on white.



**7** When someone chooses a name for a baby, the last thing they think of is whether the name has an odd or even number of letters. But is there an equal chance of the name having an odd or even number of letters?

Try the experiment on the next page to find out.

*(continued)*

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**a** Draw a table with space for 20 names. Write the first names of 10 people from your class *without* counting the number of letters in each name.

| Name | Even number of letters (✓) | Odd number of letters (✓) |
|---|---|---|
| | | |
| | | |
| | | |
| | | |

**b** Count the number of letters in each name and then tick the appropriate column.

**c** Write a sentence or two about what you found out.

**d** Add these names to your list, and tick for odd or even:
Amy, Sam, Jenny, Christopher, Betty, Nareish, Merna, Gabrielle, Zachary, Emily.

**e** Comment on the new results.

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