

An introduction to probability



Small Question: to understand probability and bias

Revisiting Phase: work out these calculations

1. 1 + 7	2. 6 + 15	3. 83 + 2
4. 68 + 43	5. 881 + 55	6. 50 + 402
7. 635 + 452	8. 168 + 202	9. 8005 + 2483

Knowledge Phase: What is probability?



Discuss with your partner for 2 minutes and write down anything that you know about probability.

Can you think of any words which you might use when talking about probability?

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Knowledge Phase:



Number of pets	Tally Marks	Frequency
0	III	3
1	III	8
2	II	12
3	I	1
4	II	2
Total		26

Strike through represents the number 5

The total shows that 26 students were in the class



We need:

BARS

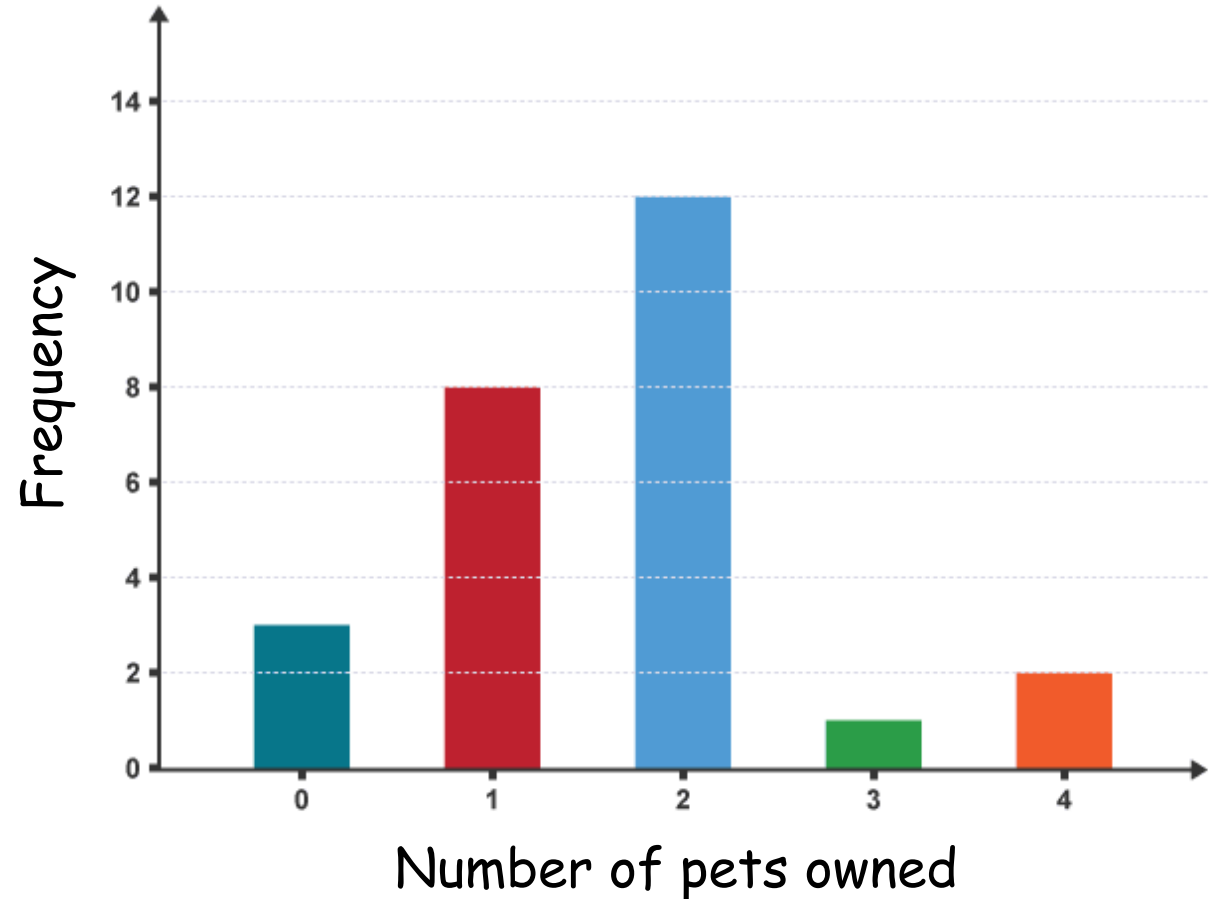
LABELS

AXES

SCALE

TITLE

Bar Chart showing the number of pets each student in a Year 7 class owned



Consolidation Phase

Activity



Roll your die 60 times and record your results in the tally graph below.

Number	Tally	Frequency
1		
2		
3		
4		
5		
6		

Draw a Bar Chart for your results on the next slide. Is your dice fair? How do you know?

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Consolidation Phase: draw a bar chart to show the results from your tally chart.

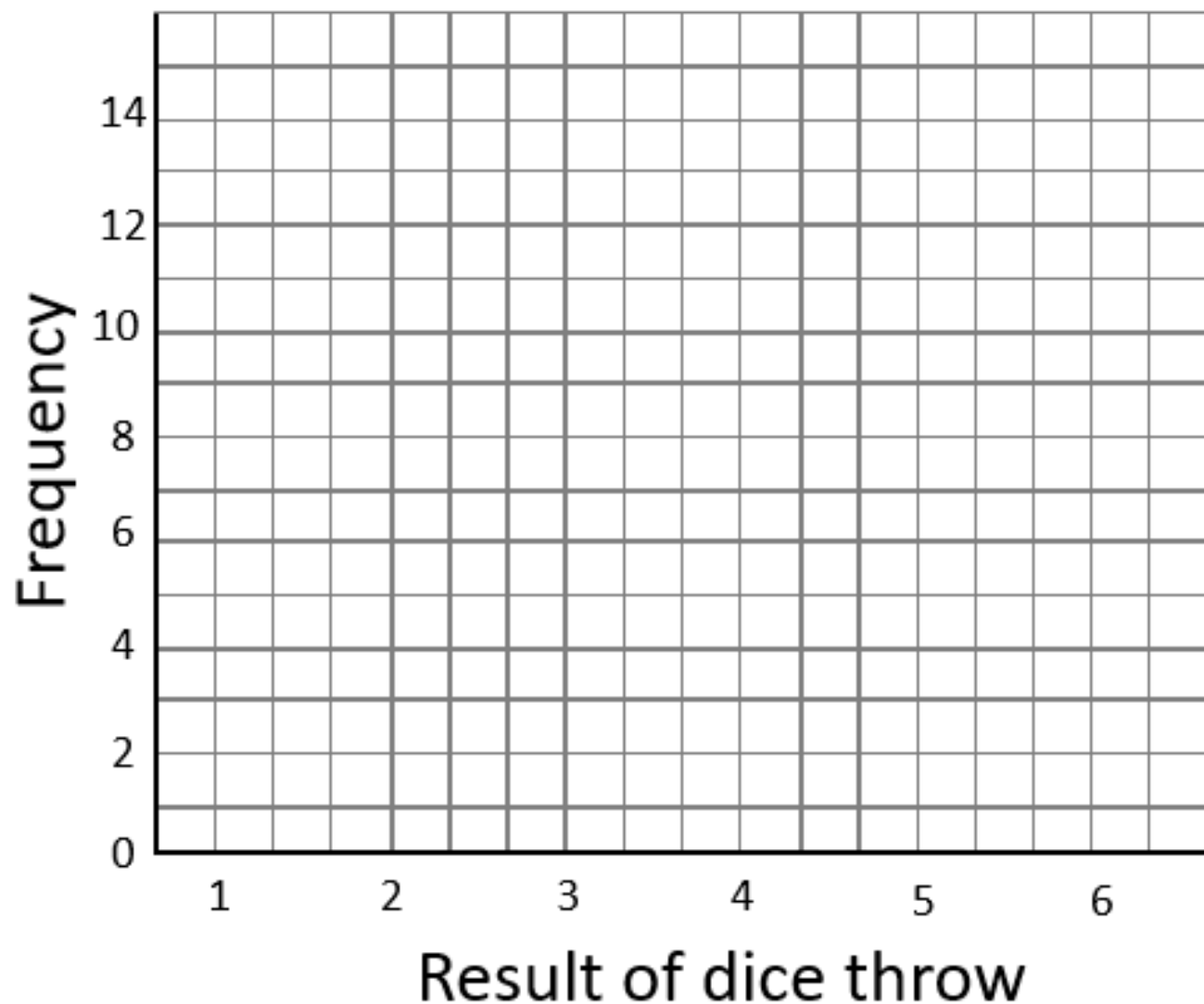
B ARS

L ABELS

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S CALE

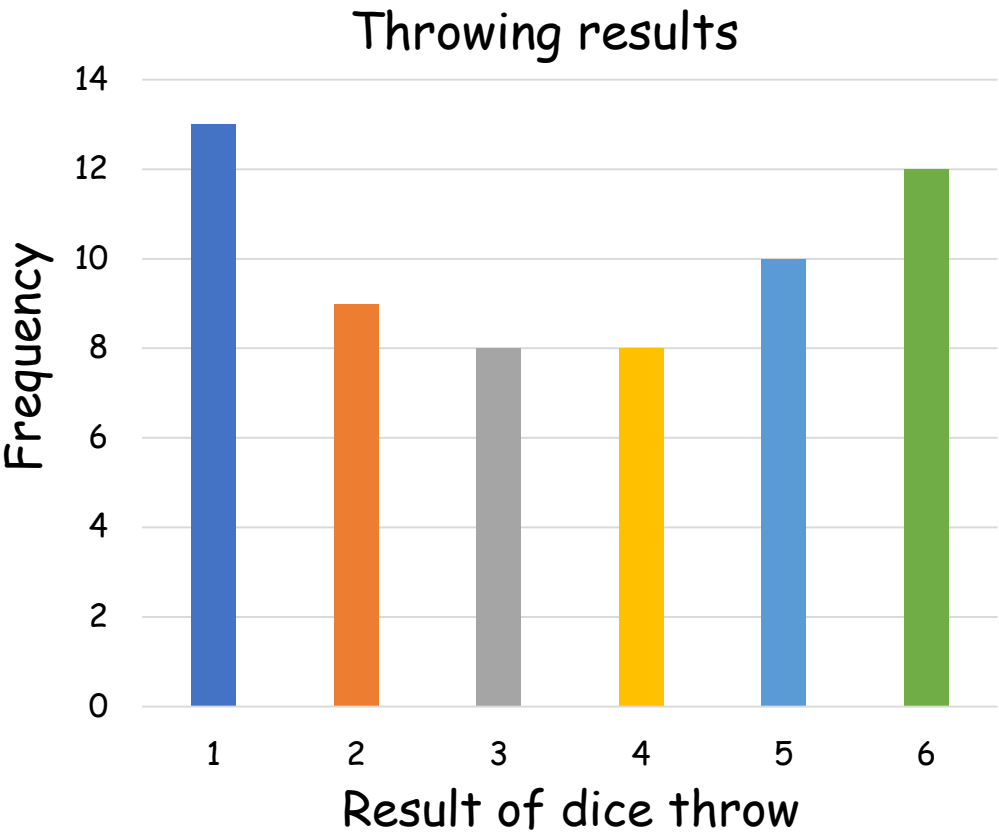
T ITLE



Have we followed BLAST?



Knowledge Phase: Fair or biased?



Do you think that this bar chart shows a fair or biased die?

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Application Phase



1							
2		X	X				
3							
4							F
5							I
6							N
7							I
8							S
9							H
10							
11							
12							













Rules of the game:
Choose a horse, numbered between 1 and 12. For example number 2, Speedy Sam.

I will roll 2 dice, add up the total and read out the result.

If I read out the number of your horse, move forward 1 space and put a cross in the next square.

The first horse to reach the finish line (the red zone) wins.
GOOD LUCK!

Application Phase

1							
2							
3							
4							F
5							I
6							N
7							I
8							S
9							H
10							
11							
12							



Application phase: could we predict that horse number 7 would win?

Die 1 result

+	1	2	3	4	5	6
1						
2						
3						
4						
5						
6						

Die 2 result

To work out which horse was most likely to win, we can draw what's called a sample space diagram. This shows all of the different combinations that we could have rolled, when we rolled two dice and added the two numbers together.

Please complete the rest of the sample space diagram.



Application phase: could we predict that horse number 7 would win?

1. Looking at your completed sample space diagram, which horse had no chance of winning the race?

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2. Which horse had the best chance of winning the race?

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3. How could we write this chance as a fraction?

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Testing Phase

Question 1: Two fair six sided dice are rolled.
The numbers on the two dice are **added** together to give a score.
The table shows all possible scores.



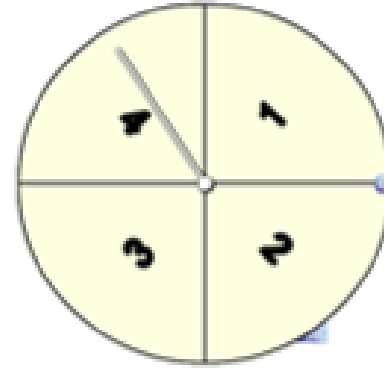
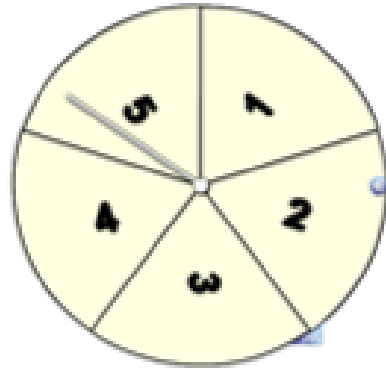
- (a) Which score is the most likely?
- (b) Which scores are the least likely?
- (c) Write down the probability of scoring a
- (i) 3 (ii) 5 (iii) 6 (iv) 7
- (d) Write down the probability of scoring a number
- (i) over 10 (ii) under 7 (iii) 4 or less (iv) 6 or more
- (e) Write down the probability of scoring
- (i) an odd number (ii) a square number (iii) a prime number

		Dice 1					
+		1	2	3	4	5	6
Dice 2	1	2	3	4	5	6	7
2	3	4	5	6	7	8	
3	4	5	6	7	8	9	
4	5	6	7	8	9	10	
5	6	7	8	9	10	11	
6	7	8	9	10	11	12	



Testing Phase

2. I have two different spinners with numbers on. I spin them both and add their scores together.



- (a) Complete the sample space to show ALL the possible outcomes.

Spinner 2

		1	2	3	4
Spinner 1	1				
	2				
	3				
	4				
	5				



Testing Phase

Question 3: Two fair six sided dice are rolled.

The numbers on the two dice are **multiplied** together to give a score.

(a) Complete the table to show all possible scores.

(b) Write down the probability

(i) 10 (ii) 9 (iii) 12 (iv) 8

(c) Write down the probability of scoring

(i) an even number (ii) an odd number

(iii) a number less than 20

		Dice 1					
		1	2	3	4	5	6
Dice 2	x						
	1						
	2						
	3						
	4						
	5						
6							

