SAMPLE SPACE DIAGRAMS

1) A fair coin is tossed and then a fair 6-sided dice is rolled.

   a. Complete the sample space diagram below with the possible outcomes.

	1	2	3	4	5	6
H	H1					
T						

   b. What is the probability of landing on heads and an odd number?

   c. What is the probability of landing on tails and a multiple of 3?

2) Two fair 6-sided dice are rolled. The numbers on the dice are added together.

   a. Complete the table to show all possible totals.

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

   b. Which total is most likely?

   c. What of the probability of scoring a 2?

   d. What is the probability of scoring a 5?

   e. What is the probability of scoring an odd number?

   f. What is the probability of scoring a number less than 4?

3) Two fair 6-sided dice are rolled. The numbers on the dice are multiplied together.

   a. Complete the table to show all possible products.

		Dice 1					
	×	1	2	3	4	5	6
	1						
	2						
Dice 2	3						
	4						
	5						
	6						

   b. What is the probability of a product of 1?

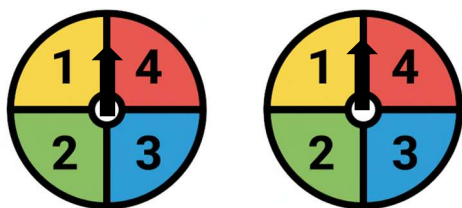   c. What is the probability of the product being a square number?

4) Two bags contain numbered counters. The first bag has even numbers from 2 to 8 inclusive. The second bag has odd numbers from 1 to 7 inclusive. One counter is drawn from each bag and the positive difference between the numbers is taken.

   a. Complete the table below to show all possible outcomes.

		Bag 1			
	-	2	4	6	8
	1				
Bag 2	3				
	5				
	7				

   b. What is the most common difference?

   c. Work out the probability of a difference of 3.

5) Two fair 4-sided spinners are spun. Their outcomes are squared and then added together.

a. Complete the table below to show all possible outcomes.

	Spinner 1			
	1	2	3	4
1				
2				
3				
4				

(Spinner 2 labels the rows)

b. There are four outcomes that only occur once. What are they?

c. Work out the probability of an outcome greater than 10.

6) Two fair coins are tossed. Each coin has an outcome of heads and tails.
The score is given as:
    Heads = +2, Tails = -1

a. Complete the sample space diagram to show all possible totals.

	H	T
H		
T		

b. Work out the probability that the score is positive.

c. Work out the probability that the score is 0.

7) Two fair spinners are shown below.

Both spinners are spun, and the final score is given by:
    Letter value: A = 1, B = 2, C = 3, D = 4
    Final score = (letter value) × (number)

a. Complete the table to show all possible scores.

	A	B	C	D
1				
2				
3				

b. Work out the probability the score is a multiple of 4.

c. Work out the probability the score is less than 5.

8) A game at a local fair involves rolling a fair 6-sided dice two times. The numbers on the dice are added together and then cubed. Each person plays £2 to play the game. If they score a square number, they win £10. The game is played 200 times. Calculate the expected profit made by the fair.