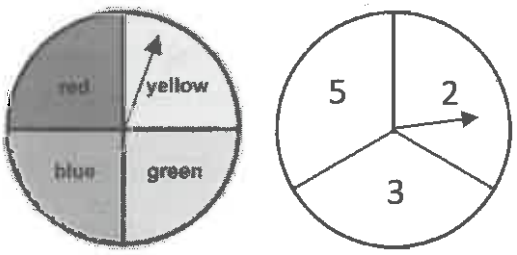
Example 4: Creating a sample space for a compound event

In a game, a player must spin both of the spinners shown.

create a table

a) Create the sample space for this experiment.

	R	Y	B	G
2	2R	2Y	2B	2G
3	3R	3Y	3B	3G
5	5R	5Y	5B	5G



b) State the number of outcomes shown in the sample space:

12 possible outcomes

c) The player will win if he spins red and an odd number. Determine the probability of winning:

$P(W) = \frac{2}{12}$

d) Determine the probability of losing: $P(\text{losing}) = \frac{10}{12}$

e) Is this a fair game? Explain your answer.

No, it's not fair, a fair game is 50/50

f) If a person played this game 1000 times, how many times would you predict they would win?

$P(\text{win}) = \frac{2}{12} \times 1000 \Rightarrow 166.6 \Rightarrow 167$ (round)

Example 5

You are performing a probability experiment where you are rolling two six-sided dice and adding the results shown on each die.

a) Create the sample space for this compound event.

T	1	2	3	4	5	6
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

b) Determine the probability that the sum is 7:

$P(7) = \frac{6}{36} = \frac{1}{6}$

c) Determine the probability that the sum is an odd number:

$P(\text{odd}) = \frac{18}{36} = \frac{1}{2}$

d) Determine the probability of rolling 'snake-eyes' (both dice show the number 1):

$P(2) = \frac{1}{36}$ $P(\text{snake eyes}) = \frac{1}{36}$