131. Recording Outcomes Using Sample Space Diagrams and Counting Principles

Practice Questions

1. A fair coin is flipped, and a 6-sided die is rolled. List all possible outcomes in a sample space diagram.
2. Two 6-sided dice are rolled. How many different outcomes are possible?
3. A spinner has 4 colors (red, blue, green, yellow), and a coin is flipped. List all possible outcomes in a sample space diagram.
4. A bag contains three marbles (red, blue, green), and a die is rolled. How many different outcomes are there?
5. A school cafeteria offers 3 different sandwiches and 2 different drinks. How many meal combinations are possible?
6. A restaurant offers 2 starters, 3 main courses, and 2 desserts. How many different meals can a customer choose?
7. A football team has 4 possible captains and 3 possible vice-captains. How many ways can they choose a captain and vice-captain?
8. A password is created using 2 letters followed by 3 digits (0-9). How many different passwords can be made?
9. A race has 6 runners. How many different ways can they finish in 1st, 2nd, and 3rd place?
10. A lottery draws 5 numbers from 40 possible numbers. How many different draws are possible?

Extra Content for Foundation GCSE

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Scenario Questions

1. A student rolls a 6-sided die and flips a fair coin. List all possible outcomes.
2. A car manufacturer offers 5 different models and 4 color choices. How many different cars can be chosen?
3. A cinema shows 3 different films, and customers can choose from 4 drink options. How many film and drink choices are possible?
4. A hotel offers single, double, or suite rooms, and guests can choose from 2 different breakfast options. How many booking combinations are there?
5. A school has 3 different clubs (drama, chess, sports) and 2 session times. How many club choices are available?
6. A train has 4 stops, and a passenger can board and leave at any stop. How many different journeys can be taken?
7. A fast-food restaurant offers 4 types of burgers, 3 side dishes, and 3 drink options. How many meal combinations are possible?
8. A game involves spinning a 5-section spinner and rolling a 4-sided die. How many possible outcomes are there?
9. A box contains red, green, blue, and yellow balls, and one is chosen at random. A dice is then rolled. How many possible outcomes exist?
10. A football club offers home and away kits in 3 different colors. How many uniform choices are available?

Extra Content for Foundation GCSE

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Practice Questions

1. (H,1), (H,2), (H,3), (H,4), (H,5), (H,6), (T,1), (T,2), (T,3), (T,4), (T,5), (T,6)
2. 36
3. (Red, H), (Red, T), (Blue, H), (Blue, T), (Green, H), (Green, T), (Yellow, H), (Yellow, T)
4. 18
5. 6
6. 12
7. 12
8. 676,000
9. 120
10. 658,008

Answers

Scenario Questions

1. (1,H), (1,T), (2,H), (2,T), (3,H), (3,T), (4,H), (4,T), (5,H), (5,T), (6,H), (6,T)
2. 20
3. 12
4. 6
5. 6
6. 12
7. 36
8. 20
9. 24
10. 6