RICH MATHEMATICAL TASK BOOKLET

PROBABILITY

YEAR 4

Teacher Booklet

Task 1

Maryam is choosing toppings for her ice-cream sundae.

She can choose two toppings from the following list:

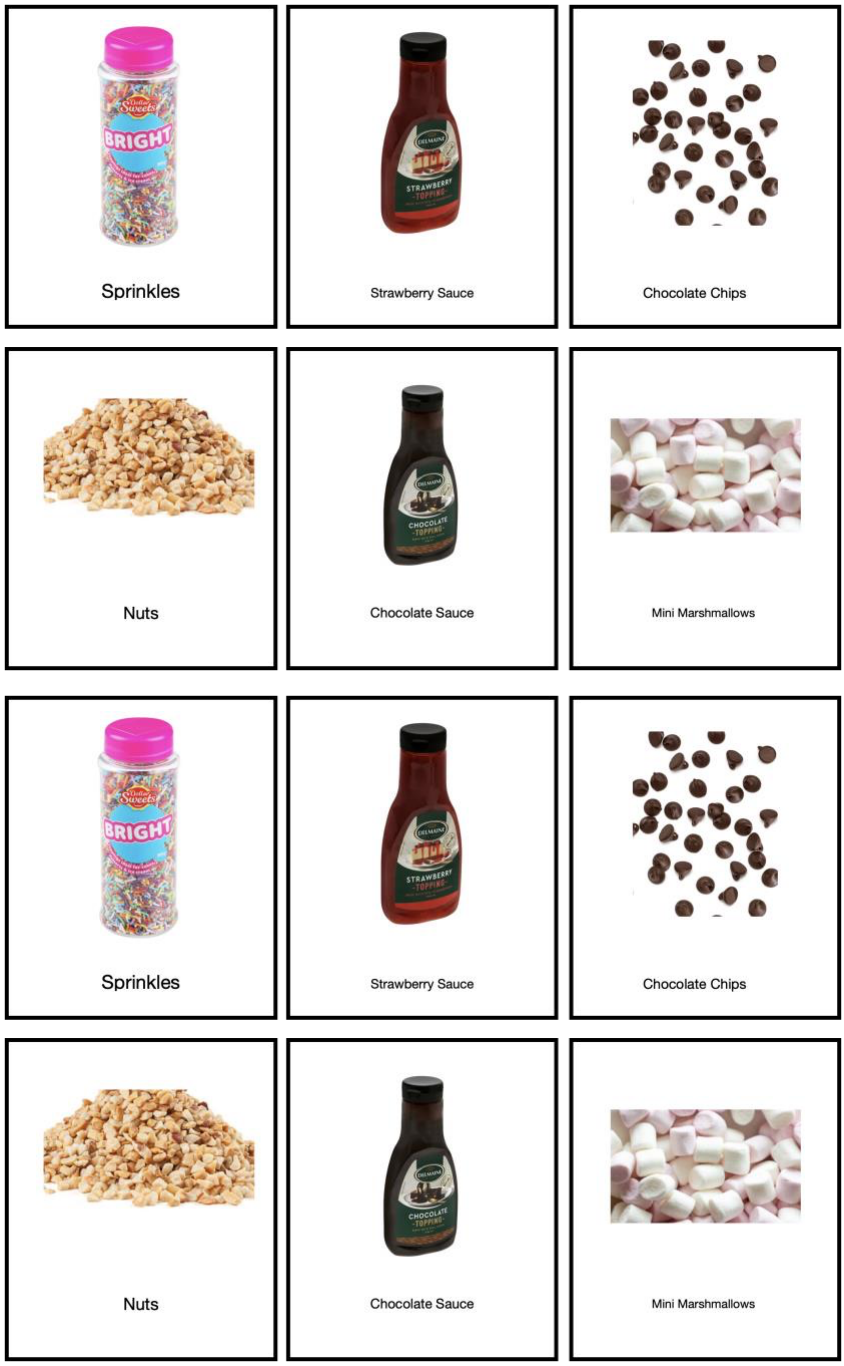
Sprinkles, strawberry sauce, chocolate chips, nuts, chocolate sauce, mini marshmallows.

What are the different topping combinations that Maryam could choose?

How many different combinations are there?

Year 4 Copy Masters: Statistics - Probability

Task 1 (images).



Task 1 (independent)

Hala has to choose two things for her breakfast. The things to eat are:

Cereal

Apple

Muffin

Banana

Toast

Can you show the different combinations that Hala might choose?

How many different combinations are there?

Task 2

Tyrone's Mum has a jar of jellybeans for him and his sister to lucky dip.

There are 8 yellow jellybeans, 5 green jellybeans, and 3 red jellybeans.

Tyrone picks one out without looking. What colour jellybean is Tyrone most likely to get?

Tyrone would like to make sure that he gets one jellybean of each colour. How many times would Tyrone need to lucky dip a jellybean to do this?

If Tyrone picked out a yellow jellybean, would his sister Isla be more likely to pick out a yellow jellybean too or a green or red one?

Now test out your predictions using the beans and a feely bag. Repeat the trial at least five times and record the results.

What do you notice?

Task 2 (independent)

Tyrone's Mum has a jar of jellybeans for him and his sister to lucky dip.

There are 6 blue jellybeans, 4 yellow jellybeans, 4 green jellybeans, and 2 red jellybeans.

Tyrone picks one out without looking. What colour jellybean is Tyrone most likely to get?

Tyrone would like to make sure that he gets one jellybean of each colour. How many times would Tyrone need to lucky dip a jellybean to do this?

Now test out your predictions using the beans and a feely bag. Repeat the trial at least five times and record the results.

What do you notice?

Task 3

If you are playing a game and you toss two coins together, what possible results could you get?

Make a prediction of which combination will be most common.

Now toss two coins 20 times and record the results.

What do you notice?

Make statements about the results.

Task 3 (independent)

Coin toss game

What would be the possibilities if you tossed three coins at the same time?

What do you predict is most likely?

Now toss three coins 20 times and record the results.

What do you notice?

Make statements about the results.

Task 4

Frankie and Zhou are playing a game where they draw two balls out of a bag. The balls are blue, blue, red, and red: 

What possible combinations could they get?

What are the chances of getting each combination?

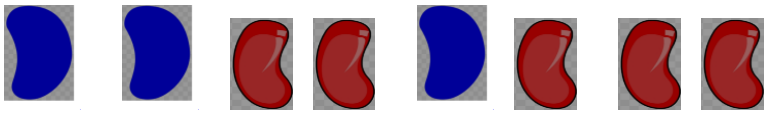
Use the balls and a bag and test the game by picking out two balls 30 times. Record your results.

Represent the results using a tally-chart and a column graph.

Make statements about what you notice.

Task 4 (independent)

Tayla and Lotu are playing beanz. This is what they have in the bag:



Tayla wins if a blue bean and is drawn from the bag. Lotu wins if a red bean is drawn from the bag.

Who do you think is more likely to win?

Play beanz by putting all the beans in a bag and drawing one out. Record the result and put the bean back in.

Repeat this 40 times and record the results.

Represent your results using the graph paper.

What do you notice?

Task 5

To raise money for a new playground, the community centre is running a lottery game. The lottery game consists of four tickets numbered from 1 to 4. To enter, you choose one number. You win if your ticket number matches the number that is chosen.

What is the chance of winning this lottery?

How many times do you predict you would win in ten games?

How many times do you predict you would win in twenty games?

How many times do you predict you would win in 100 games?

Use the digit cards and feely bag and test the game twenty times to see if your prediction is correct. Record your results and represent these.

Task 5 (independent)

Fili and Puawai are playing beanz.

Fili pulls out one bean from the bag and it is blue. He puts it back.

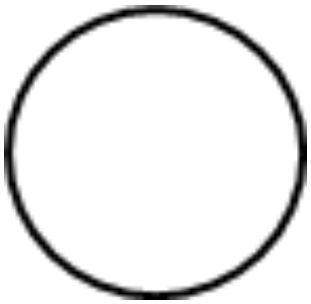
Puawai takes one bean from the bag and it is red. She puts it back.

After ten turns, Fili and Puawai have drawn out 8 blue beans and 2 red beans.

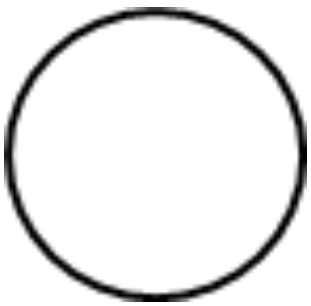
How many beans might be in the bag and how many were blue?

Give a range of different answers with reasons.

Design a spinner where there is $\frac{1}{4}$ chance of getting blue.



Design a spinner where there is $\frac{1}{3}$ chance of getting red.



Task 6

The community centre have worked out that the lottery is too easy to win and won't raise enough money. They change the game so that you now have to choose two ticket numbers and to win the numbers must match the two numbers chosen (in any order).

What are the outcomes for the new game?

What is the chance of winning this lottery?

How many times do you predict you would win in twelve games?

How many times do you predict you would win in twenty-four games?

Use the digit cards and feely bag and test the game twenty-four times to see if your prediction is correct. Record your results and represent these.

Task 6 (independent)

Think about the two lottery games that the community centre designed for their fundraiser.

Create your own version of the lottery which would be harder to win than the other games.

Explain the rules for your lottery game.

Test your game at least ten times to check your results.

How do you know that your game is harder?

Task 7

Luci and Mary have made up a dice game. To play, you each choose six different numbers between 1 to 12. You then roll two dice together and add up the total. You can mark the box for the total on the table:

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

The winner is the first to reach the end of the box.

Play the game a few times and see what you notice.

Are there numbers that seem to win more? Why do you think this is?