PROBABILITY

YEAR 7-8 ODD YEARS

Teacher Booklet

Task 1

TV3 is running a 'best goals' competition for netball.

To enter you need to list the catches in order from A to E. There are five to choose from:

Goal A – Irene van Dyk

Goal B – Maria Tutaia

Goal C – Temepara Bailey

Goal D – Grace Nweke

Goal E – Maia Wilson

What are all the different ways that the goals could be ordered?

How many entries would you need to cover all the possibilities?

Task 1 (independent)

In the table tennis singles championships, the semi-finalists were:

Santiago, Lia, Chaewon, Sunil, and Pania.

All of the players had to play each other once. How many matches were played altogether?

In the table tennis doubles, the players below had to partner each other for one game:

Reuben, Sally, Sesimani, Hone, Lisa, and Wee-Tiong

How many games would have to be played?

Task 2

At the school fair, one of the stalls has a coin toss. To win you have to predict the outcome of tossing three coins. If your coin toss matches the prediction, you win a prize.

What are the possible outcomes? What is the chance of getting each outcome and likelihood of winning a prize?

Use the coin and test the game by trialling tossing the coins for ten trials. Record your results in the table and represent them on a column graph.

Now test the game by trialling tossing the coins 40 more times and record the results and total the outcomes.

Make statements about what you notice.

Task 2 (independent)

At the school fair, one of the stalls has a coin toss. To win you have to predict the outcome of tossing four coins. If your coin toss matches the prediction, you win a prize.

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Task 3

You have an opportunity to create your own Bingo card with 9 different numbers from 1 to 12.

To play Bingo, the numbers will be generated from adding the scores on two dice.

The winner is the first to complete a row column or diagonal.

After the first Bingo game, you have a chance to modify your grid.

Explain what you have changed and why and justify your new choices.

Task 3 (independent)

When you roll two dice would the sum of the dice be more likely to add to 9 than 10?

If you roll three dice, would the sum of the dice be more likely to add to 9 or to 10?

Use a representation or diagram to support your answer.

Now, test your prediction for three dice by rolling the dice and trialling this at least 40 times. Record and represent your results.

What do you notice?

Task 4

A game uses a set of digit cards from 5 to 9 (5, 6, 7, 8, 9).

To play, you randomly pick two cards out of the bag and add the numbers together.

If the total is odd then you win.

If the total is even then you lose.

Is this a fair game?

Test your prediction using the digit card at least 40 times and add the total. Record and represent the results.

Task 4 (independent)

You can work with a buddy or by yourself for this activity.

Select a question about a game from the questions that were brainstormed with your teacher at the beginning of the mathematics lesson.

Begin by considering how you will investigate the question.

What outcomes are possible in relation to your question?

What is the theoretical probability of the different outcomes?

Develop a representation that shows this including a graph.

Write a plan for how you will investigate the experimental probability of the outcomes. This will need to have trials with different sample sizes. Develop representations that show these results including graphs.

Make statements about what you have found out.

Make a poster that has the following information;

1) An introduction including what you choose to investigate.
2) The theoretical probability and related representations.
3) The plan to investigate the probability outcomes.
4) The outcomes of your trials with different sample sizes and the related representations.
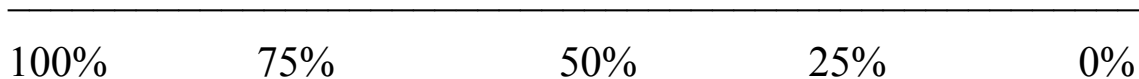5) Statements related to your findings.
6) A conclusion.

Task 5

Mele and Sima like to play Suipi but they think they need a better understanding of the probability of drawing certain cards.

They list some possibilities and then marked them on the probability scale below:

    1) A club
    2) A King
    3) A black card
    4) A black Queen
    5) A picture card
    6) A diamond
    7) A heart or spade.

Where would each be marked on the scale?

_____

100%   75%   50%   25%   0%

Task 5 (independent)

You can work with a buddy or by yourself for this activity.

Select a question about a game from the questions that were brainstormed with your teacher at the beginning of the mathematics lesson.

Begin by considering how you will investigate the question.

What outcomes are possible in relation to your question?

What is the theoretical probability of the different outcomes?

Develop a representation that shows this including a graph.

Write a plan for how you will investigate the experimental probability of the outcomes. This will need to have trials with different sample sizes. Develop representations that show these results including graphs.

Make statements about what you have found out.

Make a poster that has the following information;

7) An introduction including what you choose to investigate.
8) The theoretical probability and related representations.
9) The plan to investigate the probability outcomes.
10)   The outcomes of your trials with different sample sizes and the related representations.
11)   Statements related to your findings.
12)   A conclusion.

Task 6

Read the statements below and discuss whether you agree or disagree with them.

When playing Lotto, never choose six numbers all from the same group (e.g., single digits, multiples of ten)	If you flip a coin and tails comes up 8 times in a row then it is more likely tails will come up again.
A game is fair if you follow the rules.	When playing Lotto, always pick some higher numbers in the 30s
On a spinner with half red and half black, if red comes up a lot then black is more likely to come up next.	If you buy lots of lotto tickets, you will win a prize.

Everyone in your group must agree and you should provide a range of reasons for your argument.

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Task 6 (independent)

Finish developing your chance investigation and poster so it is ready to

present tomorrow.

Make a poster that has the following information;

An introduction including what you choose to investigate.

The theoretical probability and related representations.

The plan to investigate the probability outcomes.

The outcomes of your trials with different sample sizes and the related

representations.

Statements related to your findings.

A conclusion.

Task 7

Read the probability experiment poster.

What is interesting?

What is something you have learned from the poster?

What is a question that you have about the experiment?