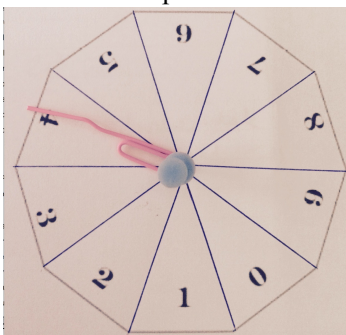
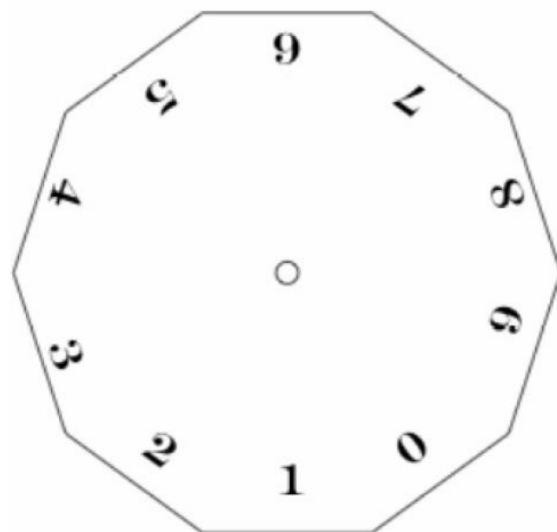


CHANCY OPERATIONS – MAKING A SPINNER

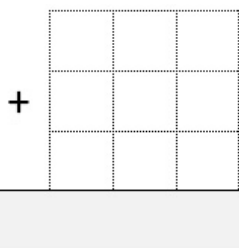
Work with a partner and a 0-9 spinner.



To make your own spinner you will need a paper clip and a pin. Mark in the lines in the template on the right as in the diagram and cut it out. Open up the paper clip and pin the paper clip and the template down on a flat surface so that the paper clip spins easily.



Take turns to spin the spinner and decide which of your cells to fill. This can be done in two ways: either fill in each cell as the spinner shows a number which involves more luck, or collect all your numbers and then decide where to place them at the end which involves more reasoning.



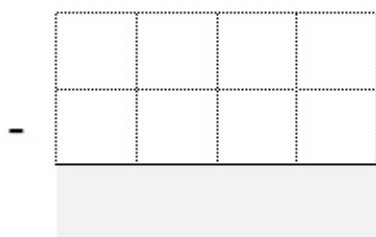
CHANCY OPERATIONS GAME 1 - ADDITION

Each player draws an addition grid like this. Each player spin the spinner nine times and writes in the numbers until all the cells are full. Whoever has the sum closest to 1000 wins.

There are two possible scoring systems:

- 1) A point for a win. The first person to reach 10 wins the game.
- 2) Work out **penalty points** - the difference between the result and 1000 after each round. Each player keeps a running total of their penalty points. The first to 5000 loses.

You can vary the target to make it easier or more difficult.



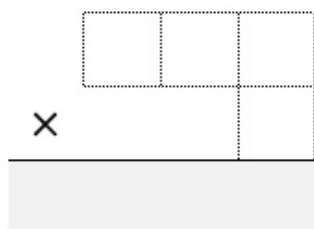
CHANCY OPERATIONS GAME 2 - SUBTRACTION

Each player draws a subtraction grid like this. Spin the spinner eight times each until all the cells are full. Whoever has the difference closest to 1000 wins.

There are two possible scoring systems:

- 1) A point for a win. The first person to reach 10 wins the game.
- 2) Each player works out their **penalty points** (the difference between their result and 1000 after each round) and keeps a running total. First to 5000 loses.

You can vary the target to make it easier or more difficult, perhaps including negative numbers as your target.



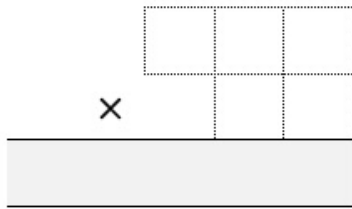
CHANCY OPERATIONS GAME 3 - MULTIPLICATION

Each player draws a multiplication grid like this. Spin the spinner four times each until all the cells are full. Whoever has the product closest to 1000 wins.

There are two possible scoring systems:

- 1) A point for a win. The first person to reach 10 wins the game.
- 2) Each player keeps a running total of their **penalty points**, the difference between their result and 1000 after each round. First to 5000 loses.

You can vary the target to make it easier or more difficult.



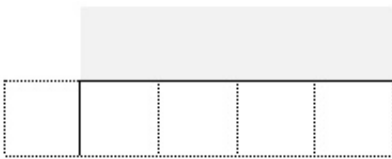
CHANCY OPERATIONS GAME 4 3 DIGIT BY 2 DIGIT MULTIPLICATION

Each player draws a multiplication grid like this.
Spin the spinner five times each until all the cells are full.
Whoever has the product closest to 10000 wins.

There are two possible scoring systems:

- 1) A point for a win. The first person to reach 10 wins the game.
- 2) Each player keeps a running total of their *penalty points*, the difference between their result and 10000 after each round. First to 10000 loses.

You can vary the target to make it easier or more difficult.



CHANCY OPERATIONS GAME 5 - DIVISION

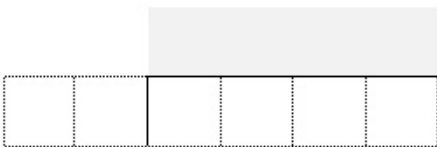
Each player draws a division grid like this.
Spin the spinner five times each until all the cells are full.
Whoever has the answer closest to 1000 wins.

There are two possible scoring systems:

- 1) A point for a win. The first person to reach 10 wins the game.
- 2) Each player keeps a running total of their *penalty points*, the difference between their result and 1000 after each round. First to 5000 loses.

You can vary the target to make it easier or more difficult.

You could introduce a decimal point. The decimal point could take up one of the cells so the dice would only need to be thrown four times by each player. You will need to decide on an appropriate target.



CHANCY OPERATIONS GAME 6 4 DIGITS DIVIDED BY 2 DIGITS

Each player draws a division grid like this.
Spin the spinner six times each until all the cells are full.
Whoever has the answer closest to 100 wins.

There are two possible scoring systems:

- 1) A point for a win. The first person to reach 10 wins the game.
- 2) Each player keeps a running total of their *penalty points*, the difference between their result and 100 after each round. First to 500 loses.

You can vary the target to make it easier or more difficult.

NOTES FOR TEACHERS

Why do this activity?

These games develop the learners' number sense and give practice in estimating the results of calculations. Doing well in these games depends on an understanding of place value and how and why the algorithms for the calculations work. The games can be used at different times when the class is learning how to perform the different calculations. As well as giving practice the games will help to deepen the learners' understanding of the methods. Subsequently they can be used from time to time to give learners practice in doing calculations. Both players should check their own and each others' calculations without using a calculator. You might introduce additional penalty points for incorrect calculations to give extra incentive to work accurately.

These games also develop an appreciation of probability as they require judgement about where to place the numbers in the grid and whether a 'better' number for that position is likely to come up.

Intended learning outcomes

Development of numeracy and skills at performing addition, subtraction, multiplication (3 digit numbers by 1 and by 2 digits) and division (4 digit numbers by 1 and 2 digits).

Development of understanding place value and methods of calculation.

Possible approach

You could start by playing the game as a whole class. First ask the learners to copy the grid into their workbooks. Then the teacher spins the spinner and calls out the numbers and the learners fill in the numbers in their grids. Then ask learners who have got an answer near the target number to come to the board and write up their answer. If anyone has got closer to the target they should show what they have done. After deciding on the winner ask the class if anyone could have got closer to the target if they had known all the numbers before filling any numbers in.

You could alternatively use dice for this activity but 0 – 9 spinners are preferable.

Possible extension

Square of numbers: <https://aiminghigh.aimssec.ac.za/grades-4-to-7-a-square-of-numbers/>