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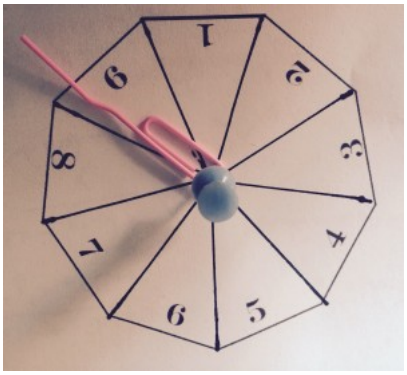
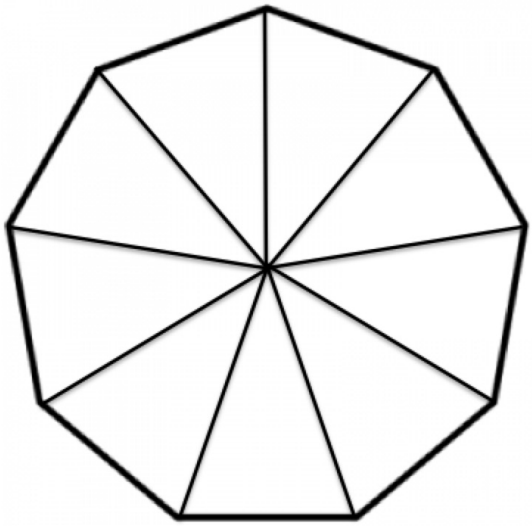
AFRICAN INSTITUTE FOR MATHEMATICAL SCIENCES
SCHOOLS ENRICHMENT CENTRE
TEACHER NETWORK

GAMES OF CHANCE – MAKE YOUR SPINNER



To make your own spinner as shown in the picture you will need a paper clip and a pin. Cut out the template and write the numbers 1 to 9 in the segments.

Then pin the paper clip and the nine sided shape on a flat surface so that the spinner spins freely. Now you are ready to play the games.



GAME 1 - BIG NUMBER
Take turns to spin the spinner or roll the dice and write the number you get in one of your four boxes.
Do this four times each until all your boxes are full.
Read the four digits as a whole number. Whoever has the larger four-digit number 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 the difference between the two four-digit numbers after each round. The winner keeps this score. First to 10000 wins.
Now for some variations...

GAME 2 – SMALL NUMBER
Whoever makes the smaller four digit number wins. You'll probably want to change the scoring system.

GAME 3 - TARGET NUMBER
Set a target to aim for. Then spin or throw the dice four times each and work out how far each of you is from the target number. Whoever is the closer 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 the difference between the two four-digit numbers and the target number after each round. Keep a running total. First to 10000 loses.

GAME 4 – DECIMAL TARGET
This game introduces a decimal point. The decimal point will take up one of the cells so this time the dice only needs to be thrown three times by each player. The winner is the one closer to the target. Choose a target.

Two possible versions:
1) Each player decides in advance where they want to put the decimal point before taking turns to spin or throw the dice.
2) Each player throws the dice three times and then decides where to place the digits and the decimal point.
Again, two different scoring systems are possible.

GAME 5 – HOW NASTY!
Now for the nasty versions of the games! Play any of the games above.

This time you can choose to keep your number and put it in one of your cells, OR give it to your opponent and tell them which cell to put it in. You might lose a friend this way! It's really important to take turns to start each round if this game is going to be fair.

This becomes even nastier when you play the games above with more than two people.

GAME 6 - COOPERATION
Cooperative rather than competitive games - for three or more people. Choose any of the games above.

Decide in advance which of you will get the closest to the target, who will be second closest, third, fourth etc. Now work together to decide in whose cells the numbers should be placed, and where.

NOTES FOR TEACHERS

Why do this activity?

These games help to deepen learners' understanding of place value. They also practise subtraction to work out the difference between numbers and to compare them to decide which is smaller and which is bigger. Both players should check each others' calculations without a calculator. You could introduce penalty points for incorrect calculations.

The 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

To deepen understanding of place value.
To practise subtraction.
To develop number sense and awareness of how chance affects outcomes of an event.

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 1 – 9 spinners are preferable.

Possible extension

Chancy Operations Games **https://aiminghigh.aimssec.ac.za/grades-5-to-9-chancy-operations/**