



MATHEMAGIC

- TURN OF EVENTS -



Educational Goals

- ❖ Develop the ability to find a constant element in a mathematical situation
- ❖ Observe the influence of the difference between two numbers in their sum

Key Features of the Targeted Competencies

- ❖ To decode the elements of the situational problem
- ❖ To apply different strategies to work out a solution
- ❖ To validate the solution
- ❖ To define the elements of the mathematical situation
- ❖ To mobilize mathematical concepts and processes appropriate to the given situation

Concepts Used

- ❖ Arithmetic operations (addition, subtraction)
- ❖ Difference between two numbers

Materials

- ❖ Magic trick video
- ❖ Cards with numbers 1 to 5 on one side and 6 to 10 on the other

Targeted Academic Levels
Grades 3 to 6

Mathematical Field Concerned



Suggested Teaching Methods



Time Required
20 - 25 minutes

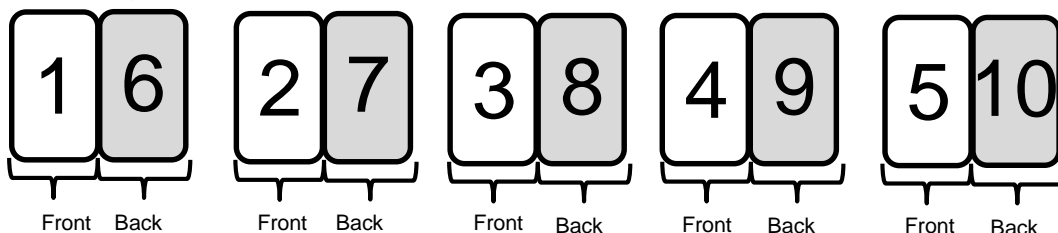


SUGGESTED PROCESS



Preparation:

To do this trick in class, prepare 5 cards and number them from 1 to 5 on one side (white) and 6 to 10 on the other (grey). Careful! Each number must be placed on the cards as follows.



Step 1: Introduction (5 minutes)

Play the magic trick video once (www.amazingmaths.ulaval.ca).

In the “Turn Of Events” Explanation Sheet, you will find the steps to follow if you want to perform this magic trick yourself in front of your students rather than play the video presentation.

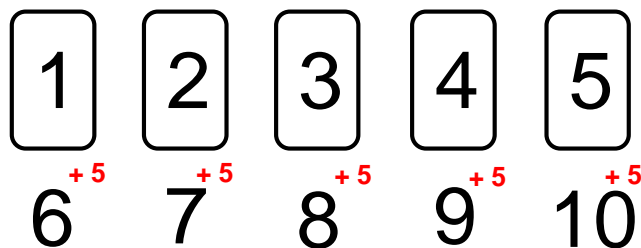
Step 2: Recreate the magic trick (5 minutes)

Display the five cards on the board in order for the numbers from 1 to 5 to be visible. Explain how the cards are made (there is a number on each side). Ask a volunteer to come to the front for you to perform the trick with him. Turn around and ask the spectator to turn over the number of cards of his choice. He can move them as he wishes. Once he is done, inform him that it is possible to determine the sum of the numbers displayed on the board without even looking at them. Ask how many cards are grey, then say the sum of the numbers displayed on the board.

Step 3: Find the solution (10-15 minutes)

Place the students in teams of 4 and distribute the cards made in the same way as those used for the trick. Ask them to look at the cards to try to find out how they are made and how the trick works.

After a few minutes, display the cards on the board again, placing them in order from 1 to 5. Write under each card the number that is on its back. When questioning students, point out that the number written on the back of a card is always equal to the number on the front of the card to which we added 5.





SUGGESTED PROCESS



To guide the reflection, here is a list of questions that you may ask the students:

- What is the sum if all the cards are on the white side? (15)
- What is the sum if only one card is on the grey side and all the others are on the white side? ($15 + 5 = 20$.)
- Is the sum the same, regardless of the card turned on the grey side? (Yes.)
The previous question can then be asked to students with a different number of grey cards.
- What is the magician's technique to find the sum? (The sum is always $15 + (5 \times \text{the number of grey cards})$).

To go further!

Would it be possible to do the trick with more than 5 cards?

Would it be possible to do the trick with differently made cards? (For example, if the difference between the numbers on the same card was 8, 10, etc.)