MATHEMAGIC

- DICE AND CLOCK -

Educational Goals

- ❖ Translate a situation involving positive and negative transformations using a diagram
- ❖ Develop logic

Key Features of the Targeted Competencies

- ❖ To decode the elements of the situational problem
- ❖ To model the situational problem
- ❖ To apply different strategies to work out a solution
- ❖ To validate the solution
- ❖ To justify actions or statements by referring to mathematical concepts and processes
- ❖ To mobilize mathematical concepts and processes appropriate to the given situation

Concepts Used

- ❖ Natural numbers: counting, equivalent expressions and regularities.
- ❖ Arithmetic operations (addition, subtraction)

Materials

- ❖ Magic trick video
- ❖ 1 clock
- ❖ 2 dice

Targeted Academic Levels
Grades 3 to 6

Mathematical Field Concerned

Suggested Teaching Method

Time Required
Approximately 30 minutes

Association Québécoise des Jeux Mathématiques

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SUGGESTED PROCESS

Step 1: Introduction (5 minutes)
Play the magic trick video once (www.amazingmaths.ulaval.ca).

Step 2: Find the solution (10 minutes)
Perform the steps of the trick with the whole class. To know the trick's steps and solution, refer to the Explanation Sheet. For visual support, you may use the virtual clock available via the following address: https://www.geogebra.org/m/nUd82VtP .

Question the students:
- How many leaps of 1 are there between the starting value on the clock and the 2 numbers announced to the magician by the spectator?
- Is the distance between the starting number and the other 2 numbers announced to the magician the same?
- Why does the magician not need to know the value of the second die to find the solution?
- What happens if we use a different number of leaps (a different value for the 2nd die)?

Step 3: Recreate the trick – in teams (10 minutes)
Place the students in teams of 3 or 4. Ask the students to choose one magician per team and recreate the trick. They can each play the role of the magician in turns. To recreate the trick, the students can use the clock in Appendix 1.

If the students have difficulty remembering the steps of the trick, you can display the steps of the Explanation Sheet on the board.

Step 4: Reveal the solution (5 minutes)
Get the whole class back together and discuss the solution. Refer to the trick's Explanation Sheet.

Appendix 1