



MATHEMAGIC

- MULTIPLICATIVE PAIRS -



Educational Goals

- ❖ Develop a memorized repertoire of factors of 60
- ❖ Develop the capacity to determine the missing term in a multiplication
- ❖ Develop the ability to find a constant element in a mathematical situation

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 define the elements of the mathematical situation
- ❖ To mobilize mathematical concepts and processes appropriate to the given situation

Concepts Used

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

Materials

- ❖ Magic trick video
- ❖ 1 deck of homemade cards (appendix) per team.
- ❖ Paper
- ❖ Pencils

Targeted Academic Level
Grades 5-6

Mathematical Field Concerned



Suggested Teaching Method



Time required
Approximately 30 minutes



SUGGESTED PROCESS



Step 1: Introduction (5 minutes)

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

In the “Multiplicative Pairs” Explanation Sheet, you will find the steps to follow if you choose to perform the magic trick yourself in front of your students rather than play the video presentation.

Step 2: Recreate the magic trick (10 minutes)

Place the students in teams of 3 or 4: one plays the role of the magician and the others play the role of the spectators. The students must recreate the manipulations performed in the video. To do this, present the video again and draw their attention on the magician’s manipulations. This will help them sort out important information from unnecessary elements of the trick.

If the students cannot recreate the trick only from the video, you can help them by referring to the process description for the magic trick in the Explanation Sheet.

Step 3: Find the solution (15 minutes)

Ask the students to try to find the solution while keeping the same teams as in the previous step.

To help them, ask questions about the magician’s manipulations:

- Why do we always try to get a product of 60?
- What is the link between the remaining cards at the very end of the trick and those chosen by the spectator?
- Why is the product of the two remaining cards not 60?

Step 4: Reveal the solution (5 minutes)

Refer to the “Multiplicative Pairs” Explanation Sheet.

Want to go further?

→ Ask the students to create a new set of cards for a new version of the magic trick. For example, we can redo the trick using another operation with different numbers, or even using the multiplicative factors of another number.

→ Do the “Well-Assorted Pairs” magic trick, which works similarly, but uses the cards from the ace to the 9 and works on addition.

Appendix

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