



MATHEMAGIC

- ABRAÇADABRA -



Educational Goals

- ❖ Work on the sense of sharing in division
- ❖ Develop logic
- ❖ 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 modelize the situational problem
- ❖ To apply different strategies in order to elaborate the solution
- ❖ To validate the solution
- ❖ To define the elements of the mathematical situation
- ❖ To mobilize and apply concepts and processes appropriate to the given situation

Concepts Used

- ❖ Sense of arithmetic operations (share)
- ❖ Division with remainders using materials

Materials

- ❖ Video of the trick
- ❖ 21 cards from a deck of cards per team
- ❖ Sheet of paper
- ❖ Pencils

Targeted Academic Levels
Grades 3 to 6

Mathematical Field Concerned



Suggested Teaching Formula



Time Required
Approximately 35 minutes



SUGGESTED PROCESS



Step 1: Introduction (5 minutes)

Play the video of the magic trick a first time (www.amazingmaths.ulaval.ca).

You can also do the trick “Abracadabra” in front of your students rather than present the video. Refer to the Explanation Sheet to follow the steps necessary to do it.

Step 2: Recreate the magic trick (10 minutes)

Place the students in teams of 4: one plays the role of the magician and the others play the spectators.

Present the video a second time or do the magic trick again. This time, direct the students’ attention towards the manipulations done by the magician. This allows them to sort out the important information from the superfluous elements of the trick.

Here are some questions that can guide the students’ thought process:

- When the spectator shows which column his card is in, in what order does the magician pick up each column of cards?
- Is it the same order for each step of the trick?

Ask the student playing the magician to try to recreate the magic trick. The other students in his team can help him remember the manipulations to be done.

If the students are not able to recreate the trick from the video, you can help them by referring to the trick’s sequence in the Explanation Sheet.

Step 3: Finding the solution (15 minutes)

Ask the students to try to find a mathematical explanation to how the trick works. To help the students visualize the possible position of the card in each of the trick’s steps, you can suggest to them to put a sticker on every card of the column shown by the spectator. During the next steps, the students can remove the stickers from the cards that are not in the column shown by the spectator, until there is only one card left.

Step 4: Reveal the solution (10 minutes)

Refer to the Explanation Sheet for the trick “Abracadabra”.