



MATHEMAGIC

- THE SMART CARD -



Educational Goals

- ❖ Develop logic
- ❖ Develop relative position knowledge

Key Features of the Targeted Competencies

- ❖ Decodes the elements that can be processed mathematically
- ❖ Represents the situational problem by using a mathematical model
- ❖ Works out a mathematical solution
- ❖ Validates a solution
- ❖ Makes conjectures
- ❖ Constructs and uses networks of mathematical concepts and processes

Concepts Used

- ❖ Parity
- ❖ Arithmetic

Materials

- ❖ Magic Trick Video
- ❖ Deck of cards (1 per team)
- ❖ Pencils
- ❖ Sheets of paper

Targeted Academic Level
Grades 9 to 11

Mathematical Field Concerned



Suggested Teaching Method



Time Required
Approximately 30 minutes



SUGGESTED PROCESS



Step 1: Introduction (5 minutes)

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

Step 2: Find the Solution (10 minutes)

Place the students in pairs so that one student plays the role of the magician and the other student plays the role of the spectator. The students must recreate the magic trick done in the video. To do so, perform the trick, or show the video, several times so that your students can notice the different steps done by the magician.

While they are attempting to recreate the magic trick and find its solution help them sort out the important and irrelevant information of the trick by guiding their thinking and bringing their attention to the magician's manipulations.

- How many piles are created?
- How many cards are in each pile?
- When the magician gathers the cards, do you think the order in which he places the piles is random, or is there a reason he is placing them this way?
- How many times is he redistributing the cards?
- How many cards are in each distribution?

Step 3: Share the Solution (10 minutes)

Return to a whole group discussion, and have groups share their thinking, what they tried, and what were their results. If any students have successfully solved the trick, allow them to recreate the trick for the class while explaining their solution.

By referring to the *Smart Card's* Explanation Sheet, reveal and explain the solution to your students.

Step 4: Recreate the Magic Trick (5 minutes)

If the students were initially unsuccessful in solving the trick, allow them time to recreate it now that they have seen the solution.