



MATHEMAGIC

- 5 VICTORIES -



Educational Goals

- ❖ Develop logic
- ❖ Highlight the playful potential of mathematics
- ❖ Bring the student to identify constant or noticeable elements within a 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
- ❖ To justify actions or statements by referring to mathematical concepts and processes

Concepts used

- ❖ Patterns
- ❖ Sequences

Materials

- ❖ Magic trick video
- ❖ Pen and paper
- ❖ Decks of cards (one per team)
- ❖ Copies of the Explanation Sheet (optional)

Targeted Academic Levels
Grades 7 to 11



Mathematical Field
Concerned



Suggested Teaching
Method



Time required
Approximately 30 minutes



SUGGESTED PROCESS



Step 1: Introduction (5 minutes)

If you are comfortable performing the trick yourself, begin with Step 2.
Play the magic trick video. (www.amazingmaths.ulaval.ca/)

Step 2: Find solutions (15 minutes)

Once the students have observed the trick several times, place them in pairs and allow them time to try recreating the trick on their own. While your students are recreating the magic trick, ask them to think about how and why the trick works.

Hints to offer students:

- Have them consider a way to track the movement of the chosen cards (e.g., paper clip on chosen card or use A, 2, 3, 4, 5 of another suit as stand-ins for the chosen cards). Ask “What do you notice about the position of the indicator cards at the beginning and at the end of the trick?”
- When it is time for the student to stack the piles altogether, you can suggest stacking the cards in a cross-like manner (see Figure 1). This would allow the piles to be clearly separated before rearranging them. It would also allow the students to see that each pile corresponds to a row of cards in the final step. Ask “What do you notice about the position of the cards at the beginning and at the end of the trick?”



Figure 1

Step 3: Share solutions (5 minutes)

Return to a whole group, and have groups share their thinking and what they tried.

By referring to the *5 Victories* Explanation Sheet, reveal and explain the solution of the trick to your students. If any students have successfully solved the trick, allow them to recreate the trick for the class while explaining their solution.

Step 4: Recreate the Magic Trick (5 minutes)

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

Short on time?

Here are a few suggestions for an “express” presentation:

- At the end of class, show the *5 Victories* magic trick video and invite the students to think about why and how the trick works. At the beginning of the following class, have a classroom discussion and invite your students to share their thoughts on the trick and its solution. Afterwards, share magic trick’s solution with your class.
- If you only have about 15 minutes, show the video and invite a student to try and reproduce the magic trick. Other students may also help. You may also assist the student by using the magic trick’s Explanation Sheet. Initiate and guide a class discussion on how and why the trick works. Guide the students to reflect and make connections between the cards and their positions. After a few minutes, present and explain the solution.