



MATHEMAGIC

- A COLOURFUL PREDICTION -



Educational Goal

- ❖ Find the complementary number of a given number to get to 10.

Key Features of the Targeted Competencies

- ❖ To decode the elements of 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

- ❖ Counting
- ❖ Complementarity
- ❖ Concept of equality
- ❖ Arithmetic (subtraction)

Materials

- ❖ Video of the trick
- ❖ 1 deck of cards per team
- ❖ Sheets of paper
- ❖ Pencils

Targeted Academic Level
Grades 1-2

Mathematical Field Concerned



Suggested Teaching Formulas



Time Required
Approximately 35 minutes



SUGGESTED PROCESS



Step 1: Introduction (5 minutes)

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

You will find in the Explanation Sheet for the trick “A Colourful Prediction” the steps to follow if you want to do this magic trick yourself in front of your students rather than play the video.

Step 2: Recreate the magic trick and look for the solution (20 minutes)

Place the students in pairs: one plays the role of the magician and the other plays the spectator.

Let the students follow the different steps and, after each one, question the students to guide the thought process.

To do so, present the video and press pause so the students can do the manipulations one after the other. It is also possible to read the different steps to the students.

Steps and questioning:

1 When the magician asks the spectator to choose 10 red cards and 10 black cards, ask the following question:

- Is the number of red cards different from the number of black cards? (No.)

2 After the spectator sorted the cards, ask the students to count the number of red cards the spectator placed in the left pile.

Then, question them about the other red cards.

- Where do you think the other red cards are going to be? (In the middle pile.)
- So, based on the number of cards counted in the left pile, can we find the number of red cards in the middle pile? How many are there? (Yes, we need to find the complementary number to the number of cards in the left pile to get to 10.)

3 Question them about the number of black cards in the centre pile:

- If we compare the number of red cards and the number of black cards in the middle pile, what do we notice? Why? (There is the same number of red cards than black cards, because every time we placed a red card, we also placed a black card.)



SUGGESTED PROCESS



Step 4: Learning objectives (10 minutes)

Question the students during the revelation of the magician's prediction.

- Which information did the magician ask for?
- How did the magician proceed to find the number of black cards in the middle pile?

To go further, they can, in pairs, try to repeat the trick by shuffling the cards at the beginning to always have a different number of cards in each pile, so they can see the consistency of the magic trick's characteristics.