MATH MAGIC
-RED OR YELLOW-

Educational Goals

- ❖ Develop logic
- ❖ Learn a magic trick
- ❖ Show the fun side of math
- ❖ Develop the ability to spot the constant element in a mathematical situation

Key Features of the Targeted Competencies

- ❖ Break down the elements of a situation/problem
- ❖ Model the problem
- ❖ Apply different strategies to create a solution
- ❖ Validate the solution
- ❖ Pinpoint the important elements of a mathematical situation
- ❖ Apply the appropriate processes and concepts for the situation

Concepts Used

- ❖ Arithmetic operations (addition, subtraction)
- ❖ Properties of natural numbers (parity, odd/even)

Materials

- ❖ Video of the trick
- ❖ 15 tokens that have two distinctly different faces (small pieces of cardboard with one side marked with an "X" can work)

Recommended grade

Prim3e cycle

Field of Math

Suggested Teaching Method

Time Required
About 30 minutes

Association Québecoise des Jeux Mathématiques

SMAC
SCIENCES ET MATHÉMATIQUES EN ACTION

Suggested Process

Step 1: Introduction (5 minutes)

If you are comfortable performing the trick yourself, begin with Step 2.
Play the video of the magic trick (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.

Student hints:
• Ask them to think about what happens every time a token is flipped.

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 *Red or Yellow* Explanation Sheet, reveal and explain the solution of the trick to your students. (If any students have successfully solved the trick, it would be preferable to 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.

Some may find it difficult to keep track of the parity of the red tokens if the spectator flips tokens quickly. Ask your students for ways to make keeping track of the parity during the trick easier. One example would be the use your thumb. A thumb up means odd, a thumb down means even. All the magician has to do is move their thumb after every flip.

Send us the ideas of your students, we are curious!

Short on time?

→ Show the video of the trick at the end of class. Let your students try and find the solution as homework. Show the solution at the beginning of the next class.

→ If you have 10 minutes, show the video and start a discussion about how the trick works. Guide your students with questions such as what happens after every flip. If needed replay parts of the video, and draw a table on the board of how many red and yellow tokens there are after every flip. After a couple minutes of discussion, explain the solution.