



# PUZZLING CARTOON

## - MINI-GOLF -



### Educational Goals

- ❖ Develop logic
- ❖ Highlight the playful potential of mathematics
- ❖ Learn to use addition and subtraction to yield an average

### Key Features of the Targeted Competencies

- ❖ 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

- ❖ Arithmetic (addition and subtraction)
- ❖ Minimums and maximums
- ❖ Average

### Materials

- ❖ Video of the puzzle
- ❖ Pen and paper
- ❖ Written version of the puzzle (optional)

**Targeted Academic Level**  
Grades 7 to 11

**Mathematical Field Concerned**



**Suggested Teaching Method**



**Time required**  
Approximately 35 minutes



# SUGGESTED PROCESS



## Step 1: Introduction (3 minutes)

Present the puzzle a first time. You can also choose to play the puzzle's video ([www.amazingmaths.ulaval.ca](http://www.amazingmaths.ulaval.ca)). To allow your students the opportunity to properly understand the information and instructions, present the puzzle (or the video) a second time.

A written version of the puzzle is available via the Explanation Sheet. If you believe it is necessary, or that it would be helpful, project the puzzle's instructions on the board or pass copies to your students.

## Step 2: Find solutions (17 minutes)

Place the students in pairs and ask them to try to find the solution. Encourage your students to write down the information obtained from the problem's statements.

Bring your students' attention to the following sentence and make sure they understand it properly: "Even though he **never equaled the par assigned to each hole**, Michael played as well as a good player would and hit **a total of 45 strokes**."

Here are some hints you can offer students to guide their thinking:

- A good player plays in 45 strokes. What do we mean by a *good player*? How many strokes does a good player play per hole? (A good player plays the par associated to each hole.)
- What do we mean when we say that Michael **never equaled the par assigned to each hole**? (That the number of strokes played by Michael is either greater or fewer than the par associated to each hole.)
- If Michael plays one more stroke than the hole's par, what will he have to play on another hole if he wants to play as many strokes as a good player (45)? (On another hole, he will have to play one stroke less than the hole's par.)
- To reach his 45-stroke goal, what is the maximum number of holes he can play in 3 strokes? (9). If the maximum number of holes played in 3 strokes is completed, how many strokes will he have to do for the other holes? (9 holes in 18 strokes or 2 strokes per left over hole.)
- Which strategy can we use to reduce the number of holes played in 3 strokes?

## Step 3: Share solutions (10 minutes)

To share the solution with your class, see the *Mini-golf* Explanation Sheet.

Ask teams to share the solution they found and to explain how they found the solution. Ask if other teams found the same solution by using different strategies. We also recommend using the tables in the *Possible Solution* section of the Explanation sheet to explain the solution more clearly.

## Step 4: Solve the puzzle (5 minutes)

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