



PUZZLING CARTOON

- THE BUS -



Educational Goals

- ❖ Develop Logic
- ❖ Highlight the playful potential of mathematics
- ❖ Solve a situation through proportions

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 (additions and subtractions)
- ❖ Fractions
- ❖ Proportions

Materials

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

Targeted Academic Level

Grades 9 to 11

**Mathematical Field
Concerned**



**Suggested Teaching
Method**



Time Required

Approximately 35 minutes



SUGGESTED PROCESS



Step 1: Introduction (3 minutes)

Present the puzzle to your class a first time. You can also choose to play the puzzle's video (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 (15 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.

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

- Since two girls got off the bus, and two boys got on the bus, what happened to the total number of passengers on the bus? (The total number of passengers stayed the same.)
- The percentage of the number of girls on the bus is expressed in relation to what? (To the total number of passengers on the bus. I.e. 40% of the total number of passengers are girls.)
- Since the total number of passengers before and after the two bus stops does not change, what ratio does the reduction of 2 girl passengers correspond to in regard to the total number of passengers on the bus? (10%)
- What can be deduce from the information gathered?

Step 3: Share solutions (10 minutes)

To share the solution with your class, see *The Bus's* 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 answer by using different strategies. On the board, write the different ways the solution was found, and, by using the Explanation Sheet, explain the mathematical concepts more deeply.

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.