PUZZLING CARTOON

- THE MERRY-GO-ROUND-

Educational Goals

- Develop logic
- Highlight the playful potential of mathematics
- Justify affirmations linked to properties associated to angles and their measurements.

Key Features of the Targeted Competency

- To define the elements of the mathematical situation
- To mobilize and apply 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)
- Angles

Materials

- Video of the puzzle
- Sheets of paper
- Pencils
- Written copies of the puzzle (optional)

Targeted Academic Level
Grades 7-8

Mathematical Field Concerned

Suggested Teaching Formula

Time required
Approximately 25 minutes

SUGGESTED PROCESS

Step 1: Introduction (3 minutes)

Present the video of the puzzle a first time (www.amazingmaths.ulaval.ca).

A written version of the puzzle is available via the Explanation Sheet. If you believe it is necessary, you can project it or distribute copies to your students.

Present the video a second time to allow the students to thoroughly understand the information.

Step 2: Finding the solution (17 minutes)

Place the students in pairs so they can try to find the solution. Encourage the students to write down all the elements of information given by the affirmations.

First, you can guide the students by giving them hints on the number of complete sessions it will take to come back to the initial position. To do this, you can ask them the following questions:

- How can the planes come back to their initial position? (Expected answer: by completing a full turn, two full turns, three full turns, …, that is completing one or many full turns.)
- By how many degrees will the planes be moved from their initial position after 2 sessions? And after 3 ?
- How many degrees are there in a full circle?
- How many sessions does it take for a movement of more than the equivalent of the number of degrees in a full circle?
- By how many degrees will then be moved a plane compared to its initial position?
- So how can we do to find the number of sessions required to come back exactly at the initial position?

Once the number of sessions is found, they have to search how much time this corresponds to, in order to find the time of the first break.

- How long does a session last?
- What time was it when Ben's boss informed him of his break time?

Step 3: Reveal the solution (5 minutes)

Refer to the Explanation Sheet for the puzzle "The Merry-Go-Round".