



PUZZLING CARTOON

- BLAME IT ON THE WATCH -



Educational Goals

- ❖ Develop logic
- ❖ Highlight the playful potential of mathematics
- ❖ Exploit the regularity of a mathematical phenomenon

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)

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
Format**



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).

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 (20 minutes)

Start by answering the puzzle's **first question** only.

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.

To help your students, suggest them to start solving the problem by basing themselves on a fictional time to look at the different times that would be displayed on each of Julie, Tommy, and Billy's watches. They can also create a table to organize their ideas and the different times displayed on each watch.

I.e.:

Time indicated on Julie's watch	Time indicated on Billy's Watch	Time indicated on Tommy's watch
12:00 (fictional hour)	12:00	12:00
13:00	12:55	13:03
14:00	13:50	14:06

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

- With every passing hour, what happens between the time indicated on Billy's watch and the time indicated on Tommy's watch?
- What do you notice between the real time (time indicated on Julie's watch) and the time indicated on Billy's watch?
- What do you notice between the real time (time indicated on Julie's watch) and the time indicated on Tommy's watch?
- By only knowing the times indicated on Tommy and Billy's watches, and without basing ourselves on the time they synchronized their watches, how can we know the actual time?

Once the class seems to have resolved the first question, you can encourage them to try and find the solution to the **second question**.

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

- Can the answer to Question 1 help us find the solution to Question 2? Why or why not?
- Would we be able to use the previous logic (logic used for Question 1) but, this time, in a reverse manner? If so, how would we be able to do it?



SUGGESTED PROCESS



Step 3: Share solutions (10 minutes)

To share the solution with your class, see the *Blame it on the Watch'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 solution by using different strategies. We also recommend using the table in the *Possible Solution* section of the Explanation sheet, or a similar version, 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.