# PUZZLING CARTOON

## - PASCAL'S FISH-

## Educational Goals

- Express a situation with concrete materials or drawings (union for addition, repeated subtraction for division)
- Recognize the operation or the operations required in a situation
- Determine a missing term in an equation (12 + x = 52)
- Put together the numerical facts of the division using materials or drawings
- Count a collection

## Key Features of the Targeted Competencies

- To decode the elements of the situational problem
- To modelize the situational problem
- To apply different strategies in order to elaborate a situation
- To validate the solution
- To mobilize and apply concepts and processes appropriate to the given situation
- To define the elements of the mathematical situation
- To justify actions or statements by referring to mathematical concepts and processes

## Concepts Used

- Arithmetic (addition, division)
- Sense of operations (addition: union; division: repeated subtraction)
- Counting

## Materials

- Video of the puzzle
- Sheets of paper and pencils
- Tokens or other counting materials
- Written copies of the puzzle (optional)

**Targeted Academic Levels**
Grades 3 to 6

**Mathematical Field Concerned**

**Suggested Teaching Formula**

**Time Required**
Approximately 35 minutes

# SUGGESTED PROCESS

**Step 1: Introduction** (10 minutes)

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

Present the video a second time to allow the students to thoroughly understand the information. Ask the students to pay attention to the information given in the puzzle. The whole class together, bring out the important elements of the puzzle (minimum number of days, number of fish caught in total, number of fish caught during the 6 known days, etc.). Analyze the final question to make sure everyone completely understood it.

**Step 2: Finding the solution** (15 minutes)

Place the students in pairs so they can try to find the solution. Provide them with a sheet so they can write down their calculation or represent them with drawings. Provide them with tokens or other counting materials and encourage them to modelize the situation using these materials. While the students are working, ask questions to guide their thought process:

- With your tokens, how did you represent the situation?
- How many fish did Pascal catch between the first 3 and the last 3 days of his vacation?
- Knowing Pascal catches 4 fish every day between the first three and the last three days of his vacation, how will you divide your tokens so there are none left at the end?

**Step 3: Reveal the solution** (10 minutes)

Refer to the Explanation Sheet for the puzzle “Pascal’s Fish”. Ask a student to sum up the puzzle. Go over the important elements with the group again. Ask a team to explain their strategy to find the answer. Ask if other teams used a different method. Ask them to explain their strategy. Validate the strategies and the answers with the students.