# PUZZLING CARTOON
## - THE HEN HOUSE -

## Educational Goals

❖ Develop logic

❖ Highlight the playful potential of mathematics

❖ Understand the impact of adding or removing an egg from a box

## 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

❖ Counting

❖ Arithmetic (addition)

❖ Minimum and maximum

## Materials

❖ Video of the puzzle

❖ Pencil

❖ Sheets of paper

❖ The blank paper copy of the hen house (in the appendix)

❖ Written copies of the puzzle (optional)

**Targeted Academic Level**
Grades 3-4

**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](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** (15 minutes)

Place the students in pairs and give each of them a copy of the hen house (see Appendix 1). They may try to find the solution by drawing eggs on the sheet that was given to them. Encourage the students to try to find the logic of the puzzle with their attempts, exchanging their hypotheses with their peer (most of them will attempt more than once before finding the solution). To guide the thought process, draw the attention on the four corners of the hen house. Question the students on the impact of adding an egg at this place. These boxes are very important, since they influence the number of eggs in two rows. Indeed, they are part of both a column and a row. Several arrangements of the eggs are possible. Once the students think they have found an answer, they must check if they can still reduce the number of eggs used.

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

Collect the students' hen houses (only the sheets on which they think they have found the solution). Put them on the walls of the classroom. Ask the students to go around the classroom to look at the others' work. Then, the whole class together, project the blank hen house on the interactive whiteboard. With the students' help, fill the hen house respecting the constraints. Present the minimal number of eggs possible and the different ways to achieve it. To do that, look at the Explanation Sheet for the puzzle "The Hen house" with the students.

Appendix 1

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<u>Calculation</u>

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