



## Title: ROBOT CODE

**Educational level:** 2<sup>nd</sup> Cycle Early Childhood Education (5 y.o.).

**Curricular areas:** interdisciplinary.

**Timing:** 3 lessons of 45 minutes each (any term).



## Summary

This activity consists of three parts. In the first step, students will use binary code to color a template. Once the shading of the squares is complete, a drawing of a robot will be revealed.

The next step involves coloring the different parts of the robot based on a given legend.

Finally, they will need to build the resulting image using snap cubes (or other construction blocks), matching both the shape and the color.

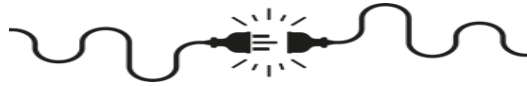


## Aims

- Binary code recognition and usage to represent visual information, using colors to code the squares on a template.
- Develop of Instruction-Following Skills according to
- a given legend to color different parts of the robot, promoting attention to detail and comprehension of instruction.

**Key competencies to develop:** mathematics, science and technology, digital and learning to learn





## How do we do it?

### Session 1:

Explain to the students what binary code is and how to use it to color a template. Ensure they understand how to translate binary into color instructions. Squares containing a "0" will not be colored, but those with a "1" should be filled in.

Students use binary code to shade the corresponding squares on the template. As they progress, a robot image will gradually appear.

### Session 2:

In this session, they will be given a legend indicating which colors to apply to each part of the robot (head, arms, body, etc.). They will then apply the appropriate colors to the various parts according to the instructions provided in the legend.

### Session 3:

It will now be explained that they will use polykubus to represent the image of the robot they have colored, adhering to both the shapes and colors they applied. They will construct the robot with polykubus, ensuring that they replicate the shape and colors they used during the coloring phase.

## Suggestions

Once the group masters the activity, you can vary the colors of the legend and encourage them to create robots with different colors.

Another variation is to reverse the activity. Give them a robot built with colored snap cubes and have them draw its shape on the template using binary code.





- **Human:** teachers and students.
- **Material:** printed templates, colored markers and construction blocks or snap cubes.

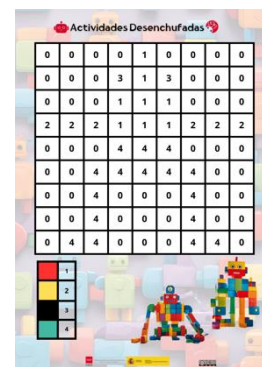
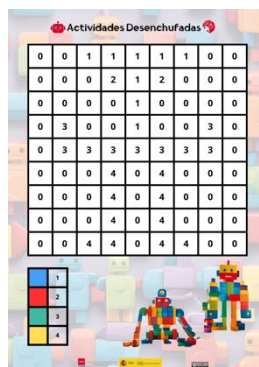
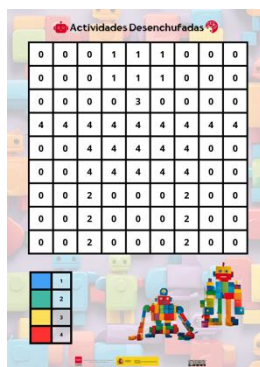
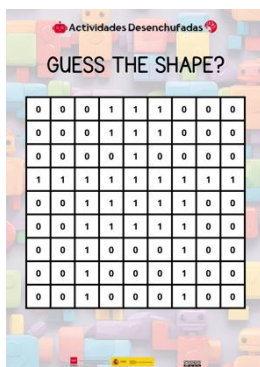


**Spaces:** classroom.

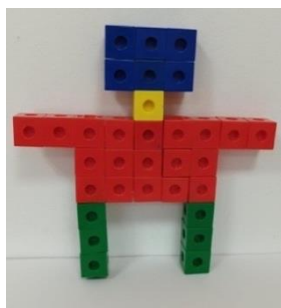
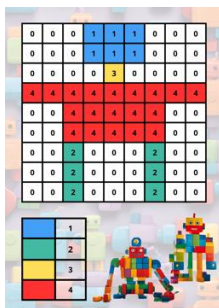
**Type of activity:** unplugged individual.



### Printable resources:

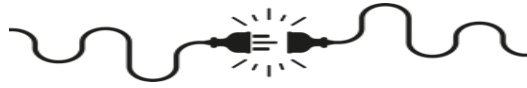


### Final result:






\* Pictures created using AI by [Canva](#).





## What have we learned?

Below is the activity rubric.

Assessment Criteria			
Binary code recognition and use.			
Coloring the drawing according a given code.			
Planning the robot construction with snap cubes following the given color and shape.			





## Computacional Thinking

**Algorithms (steps and rules):** is a step-by-step process that solves a problem or completes a task.

**Patterns (recognise and use similarities):** recognising similarities or patterns in problems or data, which means come up with solutions quickly and effectively.

## More information



QR codes to the activity resources:

