

Title: We explore our city

Educational level: 3rd grade, 2st cycle of Primary Education.

Curricular areas: Social Sciences.

Timing: a session (45 minutes).



Summary

In this activity, students will guide a character through a board representing a city using direction cards, from a specific point on the board to various important places such as the school, the hospital, or the park. They will plan more efficient routes between two points considering variables such as distance and traffic lights.

In computer science, concepts like algorithms and logic are essential for developing programs that solve problems through defined steps. For example, GPS systems use algorithms to calculate the most efficient route between two points, considering variables such as distance, traffic lights, and traffic.

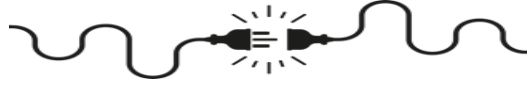


Aims

- Apply logic to make predictions and decisions in social contexts.
- Design and follow algorithms to complete specific tasks.
- Understand the importance of public establishments in the city.
- Foster teamwork and problem-solving skills.

Key competencies to develop: mathematical and competence in science, technology, and engineering, digital, personal, social and learning to learn, and citizenship competence.





How do we do it?

- 1. Assignment of characters and missions:** each group receives a character (avatar) and a mission (e.g., going from home to the hospital).
- 2. Map analysis:** students examine the board to identify the best route, considering that the best route is the shortest and has the fewest traffic lights
- 3. Creation of the route algorithm:** they use direction cards to plan the sequence of movements.
- 4. Presentation of routes:** each group shows their route and explains the decisions made
- 5. Execution on the board:** they guide their character following the created algorithm.
- 6. Group reflection:** they analyse what worked well and what could be improved (Debugging).



Suggestions

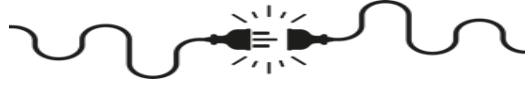
Game Variants: introduce elements such as traffic or construction zones to add complexity to the routes.

Difficulty Adjustment: for students who need more of a challenge, include conditions like “visit all the places in the fewest number of moves.”





Unplugged Activity



Resources

- **Human:** teacher and possible assistant or volunteer.
- **Material:** 7x6 grid board with the city map, direction arrow cards, character avatars, and 5 mission cards.

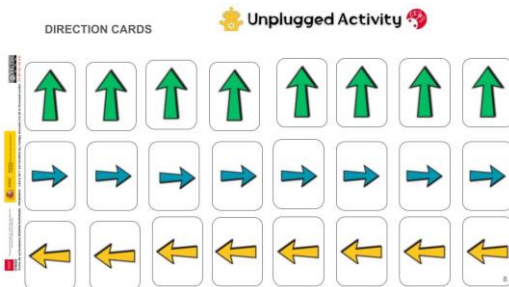


Space: classroom with enough space for group work.

Type of activity: small groups of 3-4 students.



Activity resources.



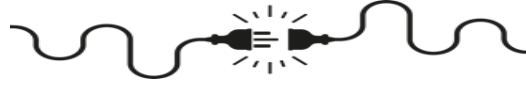
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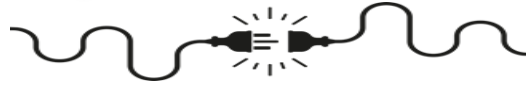




What have we learned?



Assessment Criteria	4 Excellent	3 Very good	2 Satisfactory	1 Needs improvement
Design and execution of the routing algorithm.	The algorithm is accurate and efficient, with no errors.	The algorithm is mostly accurate, with a few minor errors.	The algorithm has several errors and is not completely efficient.	The algorithm is ineffective and contains many errors.
Application of logic in problem-solving	Applies logic excellently to solve complex problems.	Applies logic adequately to solve common problems.	Applies logic inconsistently, with errors in resolution.	Does not apply logic effectively, with many errors in resolution.
Participation and collaboration in the group	Actively participates and collaborates excellently with the group.	Participates and collaborates adequately with the group.	Participates and collaborates in a limited manner, with some difficulties.	Does not participate or collaborate effectively with the group.
Understanding the role of institutions in society	Demonstrates a deep and detailed understanding of the role of institutions.	Demonstrates an adequate understanding of the role of institutions.	Demonstrates a superficial understanding of the role of institutions.	Does not demonstrate a clear understanding of the role of institutions.



Computational Thinking



Logic (prediction and analysis): thinking to make predictions, solve problems and make decisions based on available information.

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



More information

QR codes to the activity resources:



[Maps and missions](#)