MATHS

"RoboCoding: Coordinates and early coding"

ROBOCODING:
Coordinates and early coding

Ref. 20521

CONTENT:

- 1 board (31.5 cm)
- 57 square cards (4.6 cm)
- 12 arrow cards
- 2 wheels (10.5 cm diameter)
- 4 robot figures
- 4 bases for the robot figures

RECOMMENDED AGE AND INSTRUCTIONS FOR US:

4-8 years From 4 to 8 years.

Suitable from the age of 4 years given that it doesn't require prior knowledge of coding and programming. It is a game to start small children off with computational thinking, without the need to use screens. It enables them, through play, to get an introduction to the very basic concepts that will serve as a basis for them to continue discovering the world of programming.

On one level, through simple instructions, the game enables children to learn to place elements on a coordinate plane. The use of the wheels incorporates chance and the surprise factor, making it enjoyable and fun.

On a second level, the game enables children to discover that with a simple step sequence, they can reach an objective. This breaking down into small steps will serve as an introduction to basic coding and computational thinking. In addition, playing cooperatively with other children, they will learn that there are different ways of achieving the same objective.

LEARNING OBJECTIVES:

- To learn to place elements on a coordinate plane.
- Introduction to computational thinking and problem solving: to learn to solve problems by breaking them down into smaller steps.
- To develop creativity in generating solutions and step sequences.
- To promote cooperative learning to reach a same objective.

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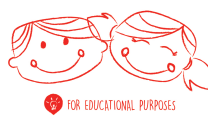
DESCRIPTION OF THE CARDS
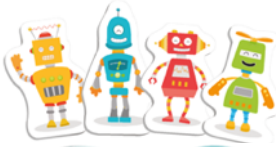
4 robot figures: They are placed on the board in line with the game instructions. Each robot has a base.

Wheels: They indicate the location of the elements on the coordinate plane (board).

Wifi cards: They are placed on the board in line with the game instructions. On the back, they show the battery level the robot achieves by reaching the counter.

Robot cards (squared): They are the subjects that are going to carry out the sequence of steps to reach an objective. They are used off the board.

They are reversible cards:
- On one side they show four different robots, and they are used when each child has to reach their own objective.
- On the other side, they show the same robot (anonymous robot), and they are used when each child plays individually to reach a common objective.

Objective cards: They are placed on the board in line with the game instructions. The colour indicates which robot is the objective.

Wall cards: They are obstacle cards which are placed on the board in line with the game instructions and must be bypassed.

Advance cards: They indicate moving forward 1 step.

**Advance-goal cards:** They indicate moving forward the last step to reach the objective.

Turn cards: They indicate turning to the side (not moving forward).

"COORDINATES" GAME INSTRUCTIONS

IN SEARCH OF WIFI AND BATTERY!

What I learn: It enables you to learn to place elements on a coordinate plane (board).
Cards needed in order to play: board, wheels, robot figures and Wifi cards (battery on the back).
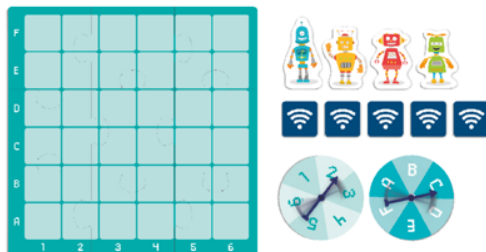
Objective: To collect the maximum number of Wifi/battery cards. Once there are no cards left on the board, the person who has the most battery wins.

1. Share the robot figures out between the players. If there are more than 4 players, you can play in pairs or teams.
2. In turns, starting with the youngest player, the wheels are spun and each robot is placed on the corresponding square on the board.
3. Next, the wheels are spun to place the Wifi cards on the board.
4. In turns, the wheels will be spun again to move each robot to another square on the board. In the event of landing on a square with the wifi card, the player keeps the card. You will be able to see the battery level you have achieved on the back. The back of the card must not be shown to the rest of the players.
5. The game is continued until there are no Wifi cards left on the board.
   If chance isn't on your side, and after 8 consecutive turns, you don't land on the last box of the wifi card, you can ignore the number wheel and just play with the letters wheel. This way, if the letter appears that the wifi card is on, you can collect it.
6. The winner is the player who, on turning over the wifi cards, has obtained the highest

   battery level.

   Example:

"CODING" GAME INSTRUCTIONS

General rules:
- If there are more than 4 players, you can play in pairs or teams.
- If, when spinning the wheels, you obtain the coordinates of a square that is already occupied, you spin the wheels again until you fall on an empty square.
- The steps sequences or algorithms are created on the table in a horizontal line, and are checked afterwards on the board to see if they are correct (see examples at the end of the guide).
- To carry out the steps sequences, the advance cards are always placed in the same position, just as the example shows:

- The turn card counts as a step in a coding sequence (only turn, don't advance). See example:

GUIDE TO THE ROBOTS!

What I learn:
- It enables you to learn to place elements on a coordinate plane
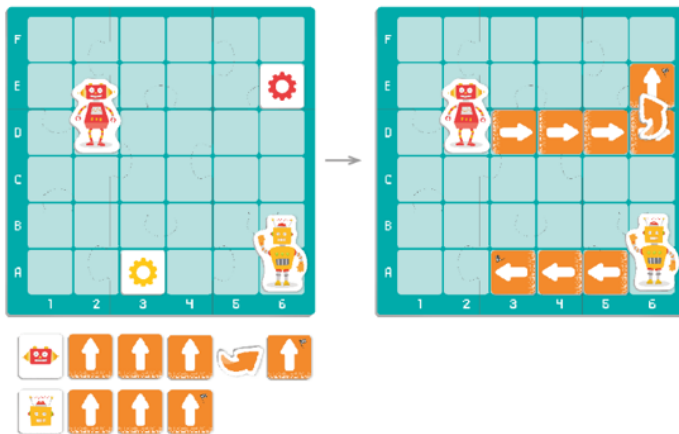- It develops computational thinking, making creative step sequences to reach the objective.

Cards needed in order to play: board, wheels, robot figures, robot cards (squared), objective cards, arrow cards, turn cards, and advance-goal cards.
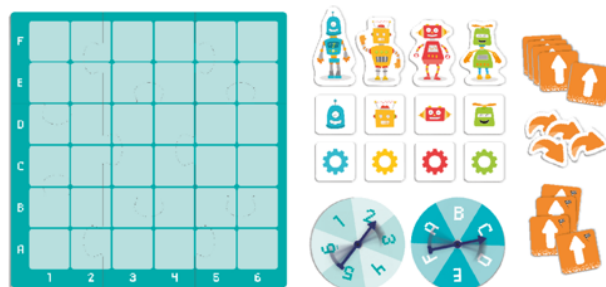

Objective: Each robot must reach its objective card. The winner is the one who reaches it first.

1. Share out to each player: a robot figure, their robot card (squared) and their corresponding objective card (same colour), 9 advance cards, 3 turn cards and 1 advance-goal card.

2. In turns, starting with the youngest player, the wheels are spun and each robot figure is placed on the corresponding square on the board.

3. In turns, the wheels are spun to place the objective cards on the board.

4. Next, all of the players will separately create their own steps sequence on the table to reach their objective.
   Important: The sequence is done on the table, not on the board. And the turn card doesn't move forward, it just turns (in any direction).

5. Once everyone has presented their sequence, the winner will be the first player to finish and check on the table that their sequence is correct. Next, each player will explain the sequence they have created to the others on the board.

Example:

*Add difficulty to the game with the wall cards: After step 3, the wheels are spun to place the wall cards on the board. This option will mean having to bypass the squares where there is a wall card in order to reach the objective.
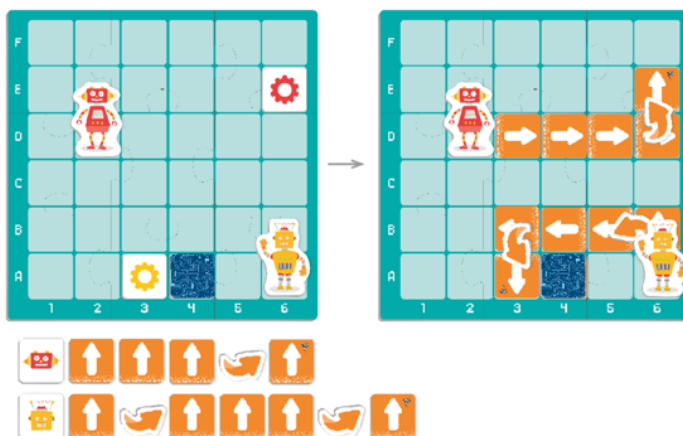
CREATIVITY FOR SURVIVAL!

What I learn:
- It enables you to learn to place elements on a coordinate plane
- It develops computational thinking, making creative step sequences to reach the objective.

Cards needed in order to play: board, wheels, 1 robot figure (it can be any of the robots), anonymous robot cards, objective card of the selected robot, advance cards, turn cards, and advance-goal cards.
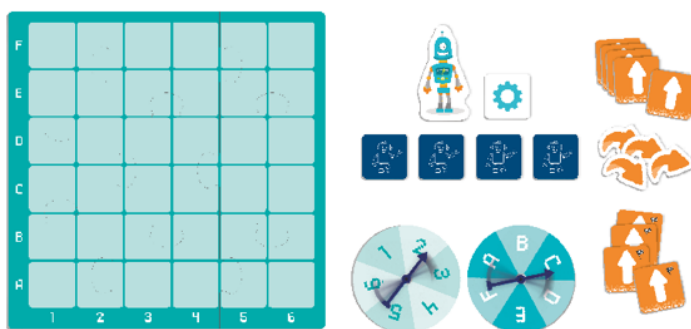
Objective: One single robot must reach its objective card. The winner is the first player to make the step sequence to reach the objective.

1. Share out to each player: a robot card (squared) faced down, 9 arrow cards (squared), 3 turn arrows and one goal card (squared).
2. The youngest player spins the wheels and places the robot figure on the board.
3. The oldest player spins the wheels to place the objective of the robot on the board.
4. Next, all of the players will, separately and at the same time, create a steps sequence on the table to reach the same objective.
   Important: The sequence is done on the table, not on the board. And the turn card doesn't move forward, it just turns (in any direction).
5. Once everyone has presented their sequence, the winner will be the first player to finish and check on the table that their sequence is correct. Next, each player will explain the sequence they have created to the others on the board.
   It is important to understand that different sequences can lead us to the same objective, and that all of them can be correct.

***Add difficulty to the game with the wall cards:** After step 3, the wheels are spun to place the wall cards on the board. This option will mean having to bypass the squares where there is a wall card in order to reach the objective.

***"The shortest sequence" game option:** The player who manages to reach the objective with the shortest sequence will win.

***"The longest sequence" game option:** The player who manages to reach the objective with the longest sequence will win.
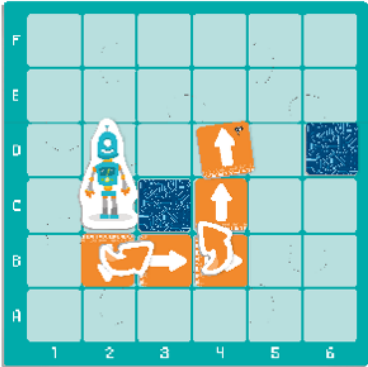
*"**Sequences of a specific number of steps**" **game option:** a decision is made about the number of steps that must be taken to reach the objective and the winner is the player who makes the sequence with the number of steps given.

Example with wall cards and two players:
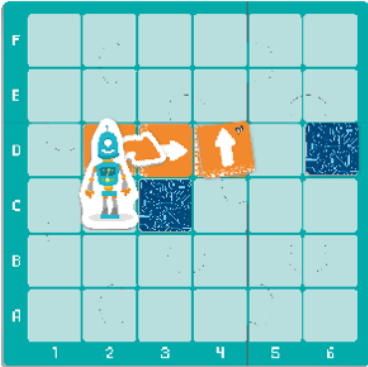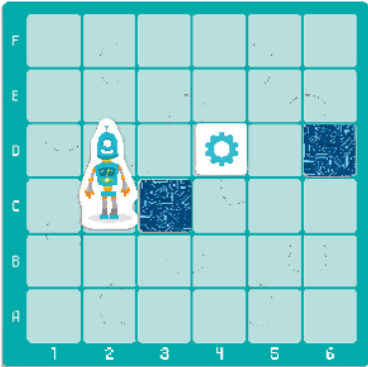
Player 1

Player 2

Player 1

Player 2

IN UNITY THERE IS STRENGTH: COOPERATIVE GAME

What I learn:
- It enables you to learn to place elements on a coordinate plane
- It develops computational thinking, making creative step sequences to reach the objective.
- It boosts cooperative learning.

Cards needed in order to play: board, wheels, 1 robot figure (it can be any of the robots), its robot card (squared) and its corresponding objective card (same colour), advance cards, turn cards, and 1 advance-goal card.
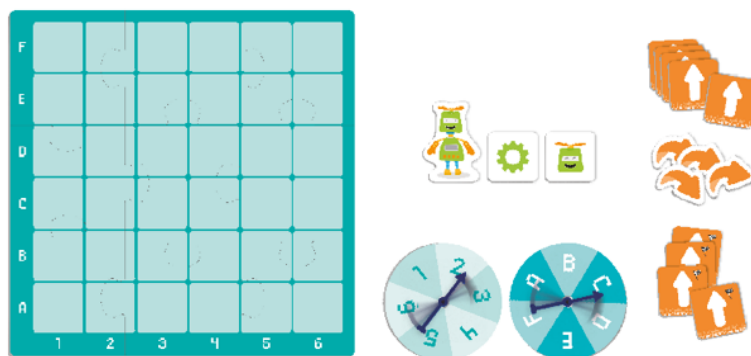
Objective: A single robot figure must reach its objective card with the participation of all of the players.

1. Select a robot figure and leave all of the advance, turn and advance-goal cards on the table.
2. The youngest player spins the wheels and places the robot figure on the board.
3. The oldest player spins the wheels to place the objective of the robot on the board.
4. Next, the robot card (squared) is picked up and, between everyone, in turns, the sequence of steps to reach the objective is created.
   Important: The sequence is done on the table, not on the board. And the turn card doesn't move forward, it just turns (in any direction).
5. To check the sequence is correct, the cards will be placed on the board.
   The game ends when the sequence made between everyone is checked and is correct.

***Add difficulty to the game with the wall cards:** After step 3, the wheels are spun to place the wall cards on the board. This option will mean having to bypass the squares where there is a wall card in order to reach the objective.

*"**The shortest sequence**" **game option:** Everyone must work together to make the shortest sequence possible to reach the objective.

*"**The longest sequence**" **game option:** Everyone must work together to make the longest sequence possible to reach the objective.

FOR EDUCATIONAL PURPOSES

*"**Sequences of a specific number of steps" game option:** a decision is made about the number of steps that must be taken to reach the objective and everyone together must create a sequence with the number of steps given.

Example:
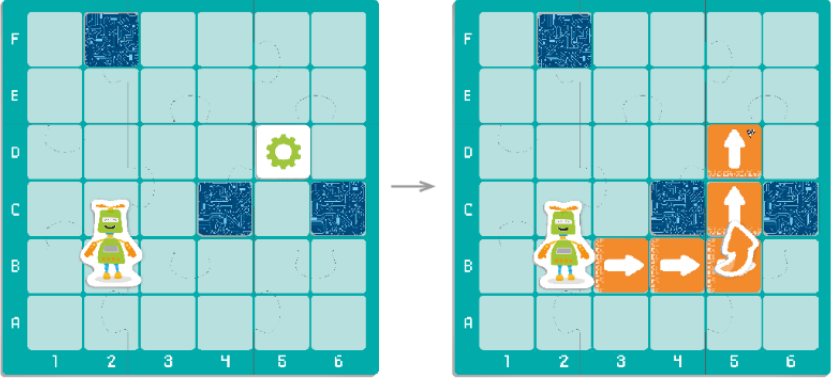
¡Remember that each sequence ends with an **advance-goal card!**