Code Words Match

By European Parents' Association - EPA

Objective

To introduce essential coding vocabulary, practice giving and following sequential instructions (algorithms), and simulate navigating and accessing data within a grid structure.

Duration

45 – 60 min

Target group

Children 10+ yrs

Experience

intermediate

Materials

o   A large grid drawn on paper, a whiteboard, or marked out on the floor.
o   Fill the grid squares with random letters, ensuring that several coding terms are hidden within the grid (horizontally, vertically, or diagonally).
o   Vocabulary cards: Each card should have a coding term on one side (e.g., "Algorithm," "Loop," "Conditional") and its definition on the other.
o   Command list or cards with simple movement commands: "Up," "Down," "Left," "Right," "Choose."
o   A marker or small object to represent the "robot's" position on the grid

Setup

o Prepare the letter grid, making it large enough to hide several words.
o Create the set of vocabulary cards with terms and definitions.
o Prepare the command list or cards.
o Place the marker at a designated starting position on the grid.

Description

- o **Introduction: Understanding the Grid and Commands:** Explain that the grid represents an area where data (letters) is stored, similar to how computers store information in memory. Introduce the simple commands ("Up," "Down," "Left," "Right," "Choose") that will be used to navigate this grid. Explain that the person giving the commands is the "coder" and the person moving on the grid is the "robot," who can *only* follow the exact commands given.
- o **Step 1: Matching Definition to Code Word:** The "coder" is given a definition from a vocabulary card. Their task is to find the corresponding coding term hidden within the letter grid by directing the "robot."
- o **Step 2: Navigating and Choosing Letters:** The "coder" gives the "robot" a sequence of movement commands (Up, Down, Left, Right) to move the marker around the grid. When the "coder" believes the "robot" is positioned on a letter of the target word, they give the "Choose" command. The "robot" states the letter in the square they are currently on. The "coder" records the chosen letter. The "coder" continues to direct the "robot" to find the subsequent letters of the word until they believe they have spelled out the full coding term that matches the definition.
- o **Step 3: Checking the Match:** Once the "coder" has collected the letters they believe form the word, they check it against the coding term on the other side of the vocabulary card. If it matches, they have successfully "coded" their way to the word!
- o **Switching Roles:** The children switch roles so both have a chance to be the "coder" and the "robot."

Extension

- o **More Complex Commands:** Introduce commands that combine direction and number of steps (e.g., "Up 3," "Left 2").
- o **Larger Grids and Longer Words:** Increase the size of the grid and include longer, more complex coding terms.
- o **Obstacles:** Designate certain squares on the grid as "obstacles" that the "robot" cannot move through, requiring more complex pathfinding.
- o **Coordinate System:** Instead of directional commands, use a coordinate system (e.g., A1, B5) and have the "coder" command the "robot" to go directly to a specific square.

Discussion and Reflection

- o "How important was it to give the commands in the correct order?"
- o "What happened if you gave a wrong command?"
- o "How is moving around this grid with commands similar to how a computer might access information stored in its memory?"
- o "Why was understanding the definition important before you started searching?"
- o "Did you develop any strategies for finding the words on the grid?"

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