

Robo Math Race

BETI

Scenario title/name of the game: Robot Math Race

Children’s age (primary school students):6-8 years old

The time needed:30-45 minutes

Content/Subject: natural numbers

Aim of the activity:to teach children how to apply mathematical strategies to solve problems with natural numbers, while also practicing their coding and robotics skills.

# Introduction

The Robot Math Race is an engaging and fun game that combines coding, robotics, and math to help children learn and apply mathematical strategies to solve problems with natural numbers. The game is designed for children aged 6 to 12 years old but can be adapted to suit different age groups and skill levels. The aim of the game is to program a robot to move along a game board while solving math problems related to natural numbers.

Players are divided into two teams, and take turns programming the robot to move forward on the game board a certain number of spaces. The opposing team then has to solve a math problem related to the number drawn from a pile of number cards. The team that solves the math problem correctly before the programming team's robot reaches the finish line gets a point. The game continues with each team taking turns programming the robot and solving math problems until each team has had an equal number of turns. The team with the most points at the end of the game wins.

The Robot Math Race game promotes critical thinking, problem-solving, and mathematical fluency, as well as teamwork, communication, and collaboration. The game is a great way to introduce children to basic coding and robotics concepts, while also reinforcing math skills in a fun and engaging way.

## Resources:

1. One programmable robot
2. A set of number cards
3. A game board with a start and finish line
4. Stopwatch or timer
5. Whiteboard and markers (optional)

# A detailed description of the scenario

The Robot Math Race is a fun and engaging game that combines coding, robotics, and math to help children learn and apply mathematical strategies to solve problems with natural numbers. To set up the game, create a game board with a start line and a finish line, and gather a set of number cards with numbers between 1 and 10. Divide the players into two teams, with one team as the "programming team" and the other team as the "problem-solving team".

To begin the game, the programming team takes turns programming the robot to move forward a certain number of spaces along the game board. The number of spaces is determined by drawing a card from the pile of number cards and reading it out loud to the problem-solving team. The problem-solving team then has to solve a math problem related to the number on the card before the programming team's robot reaches the finish line. If the problem-solving team solves the math problem correctly, they get a point. If they do not solve it correctly, the point goes to the programming team.

The game continues with each team taking turns programming the robot and solving math problems until each team has had an equal number of turns. The team with the most points at the end of the game wins. The Robot Math Race game promotes critical thinking, problem-solving, mathematical fluency, teamwork, communication, and collaboration. It is a great way to introduce children to basic coding and robotics concepts, while also reinforcing math skills in a fun and engaging way.

# Steps

1. Set up the game board with a start line and a finish line.
2. Gather a set of number cards with numbers between 1 and 10, and place them in a pile near the start line.
3. Divide the players into two teams: the "programming team" and the "problem-solving team".
4. To begin the game, the programming team takes turns programming the robot to move forward a certain number of spaces along the game board.
5. The number of spaces is determined by drawing a card from the pile of number cards and reading it out loud to the problem-solving team.
6. The problem-solving team then has to solve a math problem related to the number on the card before the programming team's robot reaches the finish line.
7. If the problem-solving team solves the math problem correctly, they get a point. If they do not solve it correctly, the point goes to the programming team.
8. The game continues with each team taking turns programming the robot and solving math problems until each team has had an equal number of turns.
9. The team with the most points at the end of the game wins.
10. The Robot Math Race game promotes critical thinking, problem-solving, mathematical fluency, teamwork, communication, and collaboration. It is a great way to introduce children to basic coding and robotics concepts, while also reinforcing math skills in a fun and engaging way.

# Tips and tricks for the teacher

Explain the rules of the game clearly and concisely before starting to play. Make sure that all students understand how the game works and what they need to do to play.

Encourage students to work together as a team, whether they are on the programming team or the problem-solving team. Emphasize the importance of communication, collaboration, and teamwork.

Remind students to use different strategies to solve math problems, such as counting, skip counting, addition, subtraction, multiplication, and division. Encourage them to try different approaches to see which one works best.

Make the game more challenging by using more complex math problems or larger number cards.

Use the game as a formative assessment tool to gauge student understanding of math concepts. Observe their problem-solving strategies, ask them questions, and give feedback.

Celebrate student success and progress. Praise students for their efforts and achievements, and encourage them to keep learning and practicing math skills.