

Shape Treasure Hunt

BETI

Scenario title/name of the game: Shape treasure hunt

Children’s age (primary school students):6-7 years old

The time needed:30-40 minutes

Content/Subject: Geometry

Aim of the activity:to describe, build and compare geometric patterns.

# Introduction

The Shape Treasure Hunt is an exciting and educational game that helps children develop their understanding of geometric patterns while using a robot to explore and interact with their surroundings. This game is perfect for children between the ages of 6 and 7 who are learning about geometry and spatial reasoning, and who enjoy hands-on learning experiences. Playing the Shape Treasure Hunt game can offer several benefits to children's learning. Firstly, it helps to develop their spatial reasoning skills by allowing them to visualize and create geometric patterns using a robot. Secondly, it encourages teamwork and collaboration as children work together to find the treasure cards and build the patterns. Additionally, it supports the development of their programming and problem-solving skills as they program the robot to move in specific directions to build the pattern. Finally, it can help to develop their confidence and enthusiasm for learning as they engage in a fun and interactive activity that combines robotics and mathematics.

## Resources:

Programmable robot: A robot that can move in different directions

A grid or mat: with different shapes

Treasure card: with pictures of specific geometric patterns.

# A detailed description of the scenario

The Shape Treasure Hunt takes place in a classroom or play area where children have access to a grid or mat, several treasure cards, and a programmable robot.

To begin the game, the children will be divided into teams of two or three and given a set of treasure cards that are hidden around the playing area. Each treasure card will contain a picture of a specific geometric pattern, such as a square, triangle, or circle, and the children's task is to find all the treasure cards and build the corresponding patterns using the robot.

Once the children have their treasure cards, they will take turns programming the robot to move from shape to shape, building the pattern as they go. For example, if the first treasure card shows a pattern made up of three squares in a row, the children will program the robot to move forward three spaces, turn right, move forward three more spaces, turn right again, and so on, until the pattern is complete.

After building the pattern, the children will identify the name of the pattern and describe how it was built. They may also be asked to identify any patterns they notice in the arrangement of the shapes, such as symmetry or repetition.

The game continues until all the treasure cards have been found and all the patterns have been built. The team that finds and builds all the patterns correctly in the shortest amount of time is declared the winner.

# Steps

1. Before the game, create treasure cards with pictures of specific geometric patterns. Each card should have a picture of a pattern made up of different shapes (e.g. triangle, square, triangle, square, etc.).
2. Hide the treasure cards around the room or outdoor area.
3. Divide the children into teams and explain that they are going on a shape treasure hunt. Their task is to find the treasure cards and recreate the patterns on the grid or mat using the robot.
4. The first team to find a treasure card must program the robot to move to each shape on the card, building the pattern as they go. They can use the directional keys on the robot to move it from shape to shape, building the pattern as they go.
5. Once a team has built a pattern, they must identify the name of the pattern and describe how it was built. For example, they might say "This is a square-triangle pattern that starts with a square, then has a triangle, then another square."
6. The other teams can then check to see if the pattern is correct by comparing it to the picture on the treasure card.
7. The game continues until all of the treasure cards have been found and the patterns have been built.

# Tips and tricks for the teacher

Plan ahead: Before starting the game, plan the layout of the playing area and the location of the treasure cards. Make sure that the area is clear of obstacles and that the treasure cards are well hidden.

Use simple patterns: For younger children or those who are new to geometric patterns, start with simple patterns such as a row of squares or triangles. As children become more familiar with the game, you can gradually increase the complexity of the patterns.

Encourage teamwork: Encourage children to work together in pairs or small groups to find and build the patterns. This will help them develop their teamwork and collaboration skills.

Provide guidance: As children are building the patterns, provide guidance and feedback to help them stay on track and identify any errors or mistakes.

Celebrate success: Celebrate the children's success in finding and building the patterns correctly. Encourage them to reflect on what they learned and how they could improve for next time.

Use technology effectively: Make sure that the robot and the playing area are set up correctly and that the technology is working properly. If there are any technical difficulties, have a backup plan in place so that the game can continue smoothly.