

***Scenario title/name of the game:*** Tell me about your geometric figure

***Children’s age (primary school students):*** 7-9 years old

***Time needed:*** 15 minutes

***Content/Subject:*** Describe, classify, and relate two dimensional shapes and identify their properties

# Introduction

## This activity teaches the basic shapes of plane figures, gives students confidence in recognizing them, allows them to gain knowledge about the properties of the figures they learn, makes students stop being afraid of naming figures and simple tasks in geometry, brings students closer to the geometry of the plane, gives good preparation for more complex geometry tasks. In addition, it can be fun, in which students can compete with each other, trying to answer the questions asked as quickly as possible, or make as few mistakes as possible.

## Resources:

1. Robotic toy equipped with NFC or other near field sensor, at least 2 buttons for answers “yes/no”, desirable at least 4 colors buttons with numbers, speech synthesis or short voice messages recorded, LCD screen showing some facial expressions or score in form of a number or progress bar
2. Container with 2D geometric figures or other shape
3. Robot accessories: charger, data transmission cable etc.
4. Optional visual programming environment for older students

# A detailed description of the scenario

## The robot invites you to play by encouraging the student to draw one figure from the container. The student draws and then brings the drawn figure close to the robot's head. He recognizes the figure and starts asking questions like: is it a triangle? Does this figure have three sides? Does it have acute angles? for the younger age group: is it red? For the older one: does it have an axis of symmetry? if you have buttons with numbers: how many sides does it have? how many corners does it have? and many other questions. The student responds by pressing a button hidden, e.g. in the nose for yes, and in the foot for no. Or by pressing the number button. If the answer is correct, the robot plays a short, cheerful music and moves on to the next question. You can spice it up with information about the current result in the form of a message, a displayed number, or a progress bar. If the answer is incorrect, a low error tone sounds. Here, the scenarios can be different, e.g. an auxiliary question is asked, or the student does not receive points for a given answer, and the robot moves on to the next question. The game can end after asking a certain number of questions or after a certain time has elapsed. This gives a chance to organize competitions if the result for each student is known. Generally, the robot is programmed to perform a given scenario, but in the case of toys that allow programming the next steps of the robot's activity, it is possible for children aged 12-15 to create games for younger children.

***Outcomes:*** Through this game, the children will learn about different types of graphs and how they are used to represent data. They will also develop problem-solving skills and improve their programming skills by programming BeeBot to navigate through the graphs.

# Steps

1. Student invitation by robotic toy
2. Optional game choice with use of voice
3. Short introduction of selected game
4. Start of the game - encouragement to draw a figure and bring it closer to the robot
5. Asking a question
6. Student response by pressing a button
7. Reaction to the answer - signal, presentation of the result, announcement of further action
8. Go to the next question or the end and summary of the game

# Tips and tricks for the teacher

* Demonstrate how to bring a geometric figure closer to the robot
* The robot should be turned on and checked for operational efficiency
* The container with geometric shapes should be covered, e.g. with a book, so that the child does not know in advance what shape he is drawing
* The child is usually not afraid of using toys and there is no need to encourage himOnce your students are comfortable with the basics of using the BeeBot on a graph, you can introduce them to more complex graphs. Provide them with a variety of graphing worksheets or templates to practice programming the BeeBot to follow along with.

# Scenario implementation and other resources

There are no other materials necessary.