
BLOCKY GAMES - TURTLE GRAPHICS PROGRAMMING

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CLASS DESCRIPTION

In this class, students will explore their critical thinking skills to solve the Turtle Graphics programming puzzle.

TOTAL CLASS TIME: 100 minutes

CLASS OUTCOME

By the end of this class, students will understand how to use codes to provide solutions for Turtle Graphics puzzles.

Students will understand and write block codes and the basic concept of JavaScript

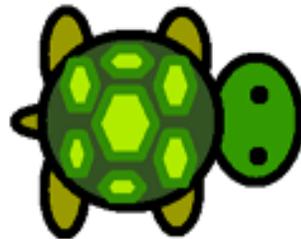
Students will be able to apply basic Mathematics in the Turtle Graphics puzzles

By the end of this puzzle, players are ready to use conventional text-based languages.

INTRODUCTION

[Blockly Games](#) is a series of educational games that teach programming. It is designed for children and beginners who have not had prior experience with computer programming. Blockly Games is a Google project to encourage tomorrow's programmers. The games are designed to be self-paced and self-teaching. It can be used both inside and outside the classroom.

MOVE 100
TURN 90
MOVE 200



Turtle is a deep-dive into loops. It uses nested loops to paint a picture. Then publish your art to Reddit for the world to see.

MATERIALS NEEDED

- A computer
- Turtle Graphics software (can be used offline or online)

- ❖ Online software: <https://blockly.games/turtle?lang=en>
- ❖ Offline Software:
<https://github.com/google/blockly-games/wiki/Offline>
- Pen and notebook.

PROCEDURES

Step 1: Drag and Drop the codes as shown in the pictures for each task.

Step 2: Each block shows lines of codes on the JavaScript IDE which can be accessed by clicking the button on the left-side of the programming interface.

Step 3: Run your program to ensure it works exactly how it was programmed.

Step 4: If it doesnt program doesnt work, keep exploring the blocks-of-code till it is gotten correctly.

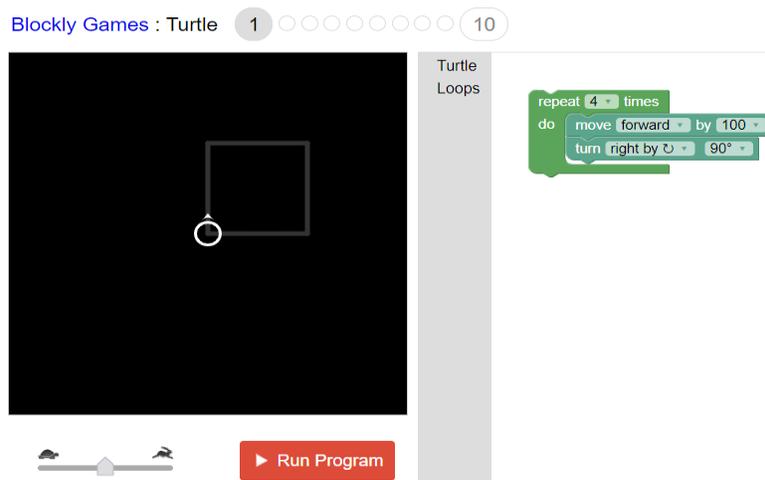
NOTE:

- “Move Forward, turn right, turn left etc.” block moves the robot until it get to the destination
- “Run program” button makes the robot to do what the block says.
- It is not compulsory to utilize all the blocks. The program will still run if the codes are correct.

LET'S CODE

TASK 1: Program the turtle to draw a square shape.

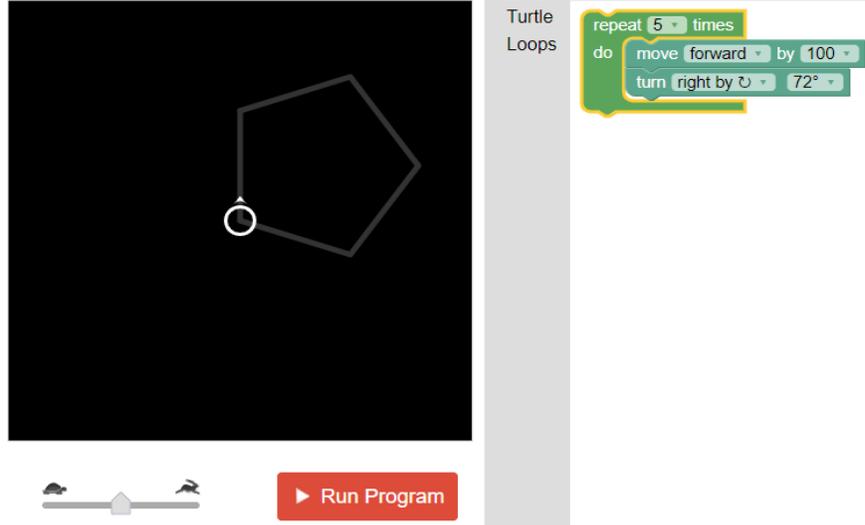
- Create a program that draws a square.
- Use the turtle and the loops blocks



TASK 2: Program the turtle to draw a pentagonal shape

- Change your program to draw a pentagon instead of a square.

Blockly Games : Turtle ● 2 ○ ○ ○ ○ ○ ○ ○ ○ ○ ○ 10



The screenshot shows the Blockly Games interface for the 'Turtle' category. The stage displays a white turtle cursor at the bottom left of a black canvas, with a grey pentagon drawn. The code block on the right is a 'repeat 5 times' loop containing 'move forward by 100' and 'turn right by 72°'. A 'Run Program' button is visible at the bottom right.

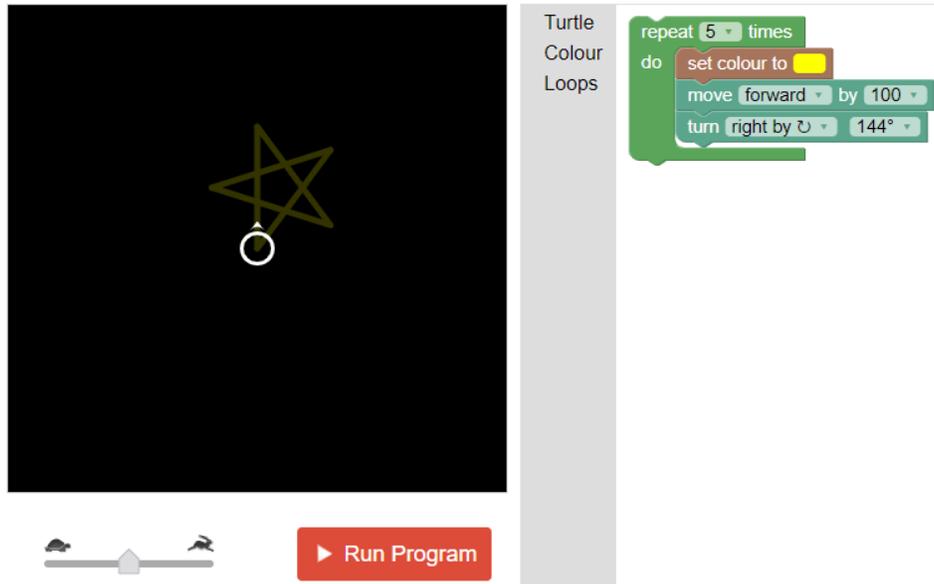
TASK 3: Program the turtle to draw a star shape with a different color.

- There's a new block that allows you to change the colour:



- Draw a yellow star.

Blockly Games : Turtle ● ○ 3 ○ ○ ○ ○ ○ ○ ○ ○ ○ ○ 10



The screenshot shows the Blockly Games interface for the 'Turtle' category. The stage displays a white turtle cursor at the bottom left of a black canvas, with a yellow star drawn. The code block on the right is a 'repeat 5 times' loop containing 'set colour to yellow', 'move forward by 100', and 'turn right by 144°'. A 'Run Program' button is visible at the bottom right.

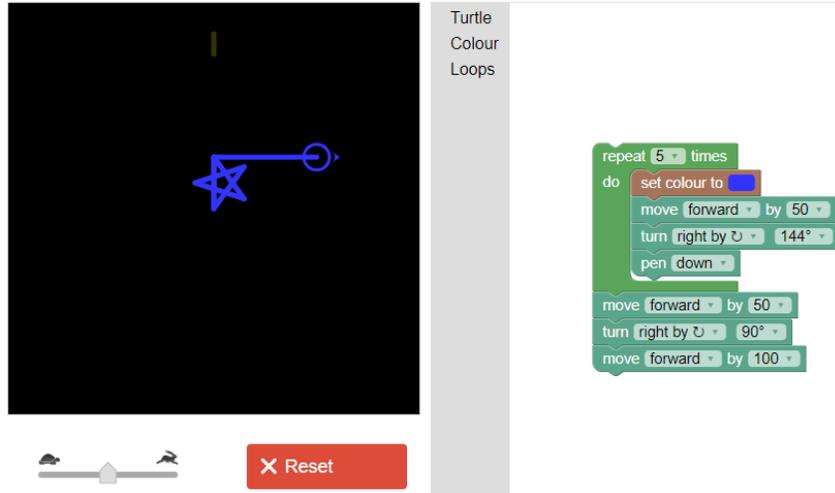
TASK 4: Draw 2 different shapes at the same time

- There's a new block that allows you to lift your pen off the paper when you move:



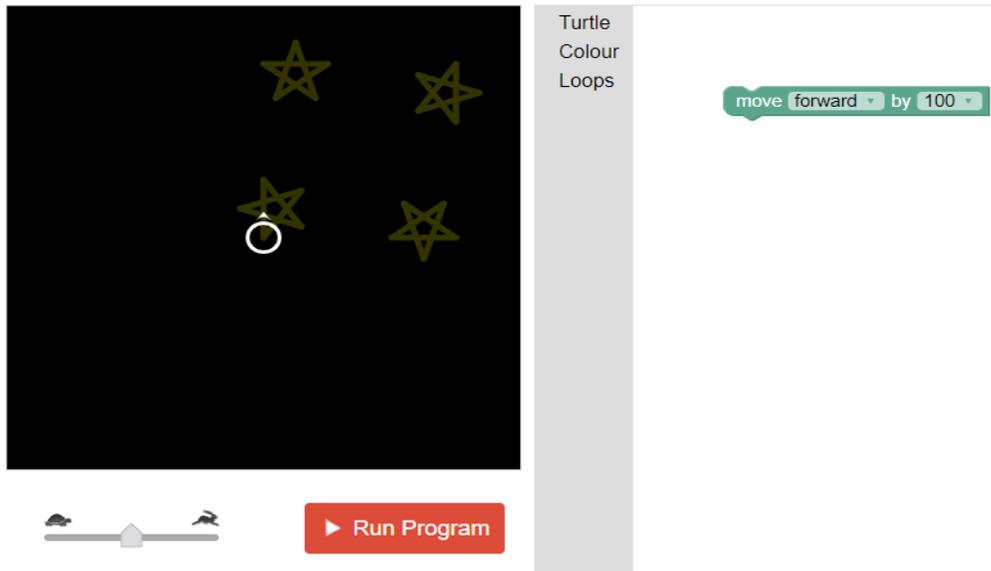
- Draw a small blue star, then draw a line above it.

Blockly Games : Turtle ●●●● 4 ○○○○○○ 10



TASK 5: Instead of one star, can you draw four stars arranged in a square?

Blockly Games : Turtle ●○○○ 5 ○○○○○○ 10



Task 6: Try to solve the other puzzle from level 6 to level 10, its interesting, all you need is critical thinking!

OBSERVATION

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- The movement of the turtle depends on codes written.
 - It required basic knowledge of Mathematics such as angles and shapes.
 - It requires critical thinking and problem solving.

REFERENCES

<https://blockly-games.appspot.com/turtle/>

<https://scratch.mit.edu/projects/11816261/>