

Learning Design for: Introduction in Coding

CONTEXT

Topic: Drawing geometric shapes with Scratch

Total learning time: 60

Number of students: 12

Description: This learning plan is for children aged 12-15. Students already are able to explain what a problem and what an algorithm is. They also can explain what a program is. This learning activities will be their first contact with a programming environment. Maybe some students have been taught basics in coding in primary school.

AIMS

To solve a given mathematical problem by writing the code

OUTCOMES

Application: To learn the free programming language Scratch - To combine blocks from different command pallets.

Comprehension: to design geometric shapes using the right blocks in scratch to compute the right angle of each geometric shape be able to correct, improve and expand the program generated by them

Psychomotor skills: To cooperate and provide the knowledge and skills to the team.

Knowledge: Recognize where they can use the block "repeat"

TEACHING-LEARNING ACTIVITIES

Demonstration of Scratch

Read Watch Listen // 10 minutes // 12 students // Tutor is available

Teacher demonstrates the programming environment Scratch which is already installed on every computer in the computer room. He introduces new concepts like block, script, sprites, event driven programming, object oriented programming. The teacher shows also the online platform in scratch.mit.edu.

Read Watch Listen // 2 minutes // 12 students // Tutor is available

The teacher distributes the working sheet with the task for the students.

Collaborate // 10 minutes // 2 students // Tutor is not available

The students have to write a program where the sprite draws a square. The blocks they need are given on the working sheet.

Investigate // 10 minutes // 2 students // Tutor is not available

The students have to write a program where the sprite draws a triangle. Here they have to think about the degrees of each angle of the triangle.

Investigate // 5 minutes // 2 students // Tutor is not available

Now the students have to think about making some changes in their program with the result to use less blocks to draw a square and a triangle.

Discuss // 5 minutes // 12 students // Tutor is available

Teacher discusses with all students the usage of the block "repeat".

Practice // 5 minutes // 2 students // Tutor is not available

Students have to change their programs and use the block "repeat" and reduce the number of blocks they used

Produce // 10 minutes // 2 students // Tutor is not available

Students then have to draw a house and a ship by using the squares and triangles and they have to think about the degrees the sprite has to turn around when drawing a house and a ship.

Discuss // 3 minutes // 12 students // Tutor is available

In the end of the hour the teacher makes a revision of what they have learned and answers questions

[View this lesson plan online.](#)

This lesson plan was created as part of the online course [‘How to Teach Computing: An Introduction to Concepts, Tools and Resources for Secondary Teachers’](#), funding for which was provided by the Grand Coalition for Digital Jobs.



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