SCENARIO		
Title	**Killing the witch with a ray reflected from the mirror.**	
Summery	During the course, students will be able to recall and consolidate previously learned commands and constructions of the SCRATCH language, recall the tools needed to work in the SCRATCH environment. They will remind you of the concept of a variable. They will create a game according to a developed script.	
Author/s	Jarosław Szczęsny	Date: 14/01/2020

Didactic objectives
General objectives: reminding and consolidating previously learned commands and the construction of the SCRATCH language, tool guide in the SCRATCH environment a reminder of the concept of a variable, creating a game according to a developed scenario. training the competence to create a program in the SCRATCH environment. Specific lesson objectives: 1. Students will be able to: - use appropriate structural instructions, - send messages and program responses to receiving a message, use scenes, - introduce a new sprite and compose a script for it in the SCRATCH environment create a game in the SCRATCH environment 2. Students will understand: the concept of a variable and will be able to use it in the program, the event and knew how to use it in the program

Physics☐	Mathematics☐	Information Technology☒	Robotics☐	Programming☐
Education Level:	10-12 years☐	12-14 year☒		

Problem Statement

How are the tools used in the SCRATCH environment to create games?

What is the variable?

How is the program created in the SCRATCH environment?

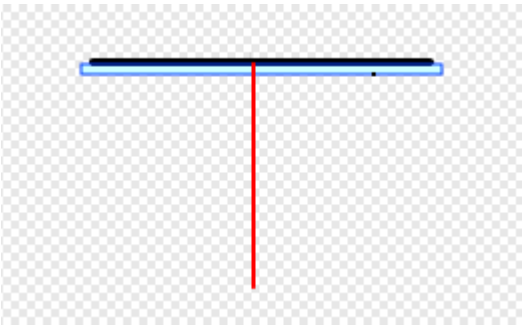
BOM (Bill Of Materials needed)

- computer station.
- SCRATCH environment installed or internet access

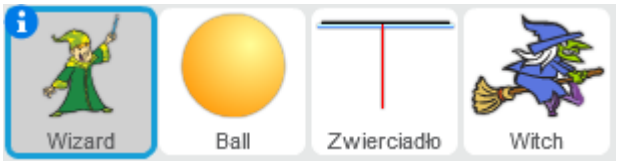
Activity description

Lesson flow:

1. Organizational and organizational activities
2. Introduction
3. Starting computers
4. Provide information to students about tasks to create the game:
   - game scenario - discussing the various stages of the game with students and discussing the strategy for completing the task,
   - creating a new sprite - a mirror with normal one marked,



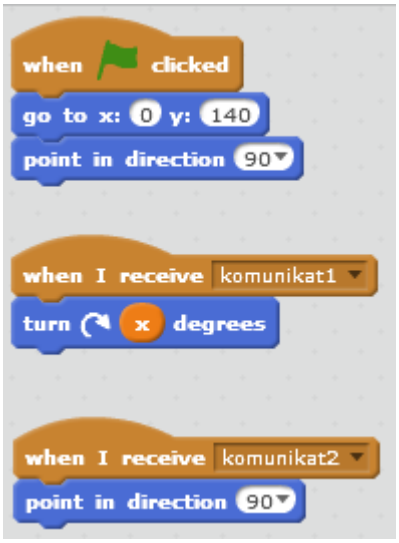
   - creating algorithms for individual sprites.



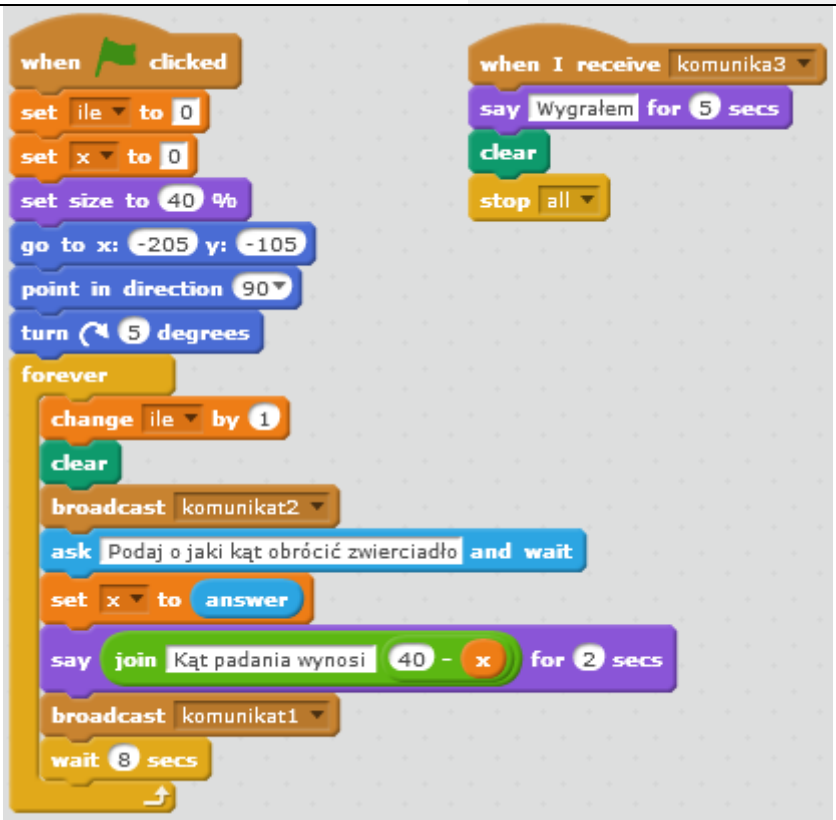
5. Exercise (completing the task)
   - Reminding participants of tools and building SCRATCH windows.
   - The instructor suggests that the sending beam is at the bottom of the screen and shoots at an angle of 50º towards the mirror.
   - Introducing a new one from the sprite library.
5. Dividing the task into smaller problems (Divide and Winner method)
   a) Checking coordinates: wizard, mirrors, balls, after starting the program.
   b) Checking the ball's direction of movement.
   c) Ball angle control. Determining its speed of movement and direction of movement in the parameters.
   d) Defining the END GAME criterion when the ball touches the witch or the edge of the screen.
   e) Determining the angle of the ball reflected from the mirror.
   f) Creating variables: how many (mirror rotation angle) and x (number of shots)
   g) Writing scripts for sprites.

Resources

- computer stadion
- script for mirror



Script for the WITCHER


when clicked
set ile to 0
set x to 0
set size to 40 %
go to x: -205 y: -105
point in direction 90
turn 5 degrees
forever
change ile by 1
clear
broadcast komunikat2
ask Podaj o jaki kąt obrócić zwierciadło and wait
set x to answer
say join Kąt padania wynosi 40 - x for 2 secs
broadcast komunikat1
wait 8 secs
when I receive komunika3
say Wygrałem for 5 secs
clear
stop all

Ball script

The final result

Students' Evaluation

The student will be assessed for commitment and proper performance of experiments.

Bibliography

Lubię to! - Podręcznik do informatyki dla klasy siódmej szkoły podstawowej
Authors: Grażyna Koba

https://scratch.mit.edu

Scalability

Script modification and improvement.

More information

Solving tasks using the program.