

# Creating and Programming Games

CoyoteLearner STEM Academy e-course



## Curriculum

The "Creating and Programming Games" e-course follows a spirited approach to learning as it first introduces important programming concepts, then repeats them through their use until the students use the principles naturally.

### Requirements

In a class following this curriculum every student needs his or her own computer to practice. The teacher may choose to show the videos using a projector. Alternatively the students can use a headset and Internet connection to watch the videos, and pause and restart as they wish.

### Curriculum

25 modules make up the course 'Programming and Creating Games.'

Modules 1 to 4 are introductory. They talk about electronic games and their original **design**. In those modules, you will also find enough general information about the Scratch application.

Modules 5–10 refer to basic **programming concepts** you need to know to be able to create games.

Modules 11–19 guide you step by step to creating the game 'The Banana's Hunt.'

Modules 20–25 guide you to make the game 'Grab the bone.'

At the end of the course, students will have learned the basics concepts of computer programming and will be able to create simple electronic games with Scratch application.

### Analytical Curriculum

Modules	Educational concepts	Suggested teaching hours
Module 1	The importance of designing a project	1 hour
Module 2	Electronic Games categories and game planning	1 hour
Module 3 and Module 4	Meet Scratch online and offline, Test your Scratch	1 hour
Module 5	Basic Programming Concepts – Coordinates	2 hours
Module 6	Basic Programming Concepts - Variables	2 hours
Module 7	Basic Programming Concepts - Sequence Structure	2 hours
Module 8	Basic Programming Concepts – Selection Structure	2 hours
Module 9	Basic Programming Concepts – Iteration Structure	2 hours
Module 10	Basic Programming Concepts – Events and message exchange	2 hour

Module 11 & 12	Game presentation and game play	1 hour
Module 13	Game Development - Sprite movement by user's mouse	1 hour
Module 14	Game Development - Automatic Random Motion of an Enemy Character	1 hour
Module 15	Game Development - How Our Hero Will Lose Extra game development	2 hours
Module 16	Game Development - The Enemy Character Following the Hero	1 hour
Module 17	Game Development - Show Enemy Character at Random Position	1 hour
Module 18 - 19	Game Development - The Game Gets Difficult as Time Passes – finish the game and discuss about its improvement.	2 hours
		24 hours

**Important Notice.**

There are 25 modules provided. We suggest that you let students follow modules 20-25, on their own, at their homes. They have, by now, acquired the knowledge and experience required to succeed. Teachers may choose to continue these lessons at school. In that case, according to our experience, 6 teaching hours should be enough.