

Learning Design for: Learning through games

Context

Topic: Coding, gaming and robotic

Total learning time: 500

Number of students: 36 pupils of two fifth classes in an Italian Primary School

Description: During this month, two hours per week were dedicated to improve the computational thinking through a series of activities about coding (first unplugged and then with the use of ICT) and gaming

Aims

1. understand and apply the fundamental principles and concepts of computational thinking (abstraction, logic, algorithms, data representation...) 2. analyse problems in computational terms, and have repeated practical experience of writing computer programs in order to solve such problems 3. use game to motivate pupils in learning

Outcomes

Knowledge(Knowledge): Brain storming and discussion about computational thinking and gaming

Comprehension(Comprehension): Watching videos

Application(Application): Experiences of unplugged coding Creation of simple game with the use of apps and software online

Analysis(Analysis): Coding and gaming with Scratch

Synthesis(Synthesis): Creation of simple games using Scratch and Powerpoint

Evaluation(Evaluation): At the end of the activities, pupils give their evaluation, choosing the best one; while teachers reflect about the reached competences.

Teaching-Learning activities

KNOWLEDGE & COMPREHENSION "What does computational thinking mean?"

Discuss 60 minutes 36 students Tutor is available

1. Brainstorming: pupils discuss about some topics regarding computational thinking (meaning, people that use it...)

Read Watch Listen 20 minutes 1 student Tutor is available

2. Watching videos. The videos are in English, but it could be subtitled,

APPLICATION

Practice 30 minutes 2 students Tutor is available

1. Pupils, divided in couples, make experiences about unplugged coding

Practice 60 minutes 3 students Tutor is available

2. Pupils, divided in small groups, make experiences about coding using games for tablets (The Foos, Run Marco, Tynker) and PC (Star Wars, Minecraft...)

ANALYSIS

Investigate 120 minutes 4 students Tutor is available

Pupils start using Scratch using the "learning by doing" methodology. They use a list of video tutorial to discover the basic rules of Scratch. Before starting, teachers need to create an account (<http://scratch.mit.edu>) for each group in order to save the projects made by pupils.

SYNTHESIS & EVALUATION

Produce 90 minutes 2/3 students Tutor is available

Some pupils create animation and games using Scratch. At the end they split the other activity.

Practice 90 minutes 3 students Tutor is available

Other pupils create an adventure game using powerpoint

Read Watch Listen 30 minutes 1 students Tutor is available

Pupils' evaluation, through a survey made with Kahoot! At the end they split the other activity.