

SilverCoders

DIGITAL LITERACY IMPROVEMENT THROUGH EFFECTIVE
LEARNING EXPERIENCES FOR ADULTS



LEARNING SHEET #4 PHYSICS

LEARNING SHEETS DESCRIBE ACTIVITIES
THAT HELP INSTRUCTORS INTEGRATE THE
SILVERCODERS CHALLENGES AND TOOLS
INTO THEIR TRAINING PRACTICES.

CODING TRAINING PROGRAMME FOR +55 ADULTS



SILVER CODERS

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STRUCTURE OF THE ACTIVITY

GENERAL DESCRIPTION, CONTEXT AND GOAL

The main goal of the activity is for the learners to understand a few ideas about physics. The GDevelop environment already has a Physics behavior that hides most of the complexity involved in using Physics in games. In this Learning sheet we will address some of the basic physics laws and how we can use them in games.

Learners will use the Cannon challenge that uses the Physics behavior to fire the cannon ball. Then they will make changes to the game to replace this behavior with their own code.

LEARNING OBJECTIVES

In the end of this activity, the learner will be able to...

1. Understand what physics is
2. Understand the laws of gravity, kinematics and ballistics
1. Use physics in their games

INSTRUCTIONS

STEP 1 - PREPARATION

The trainer should read the learning sheet beforehand and follow all the instructions to make sure he/she fully understands the required steps. This will also allow the trainer to make sure that all resources are available and to look for additional resources if the original ones are not available.

RESOURCES

- <https://en.wikipedia.org/wiki/Physics>
- <https://www.youtube.com/watch?v=H0m97YJavH4&list=PLybg94GvOJ9FAFBqQGf5-4YbfKpWbJtGn>
- <https://en.wikipedia.org/wiki/Gravity>
- https://en.wikipedia.org/wiki/Projectile_motion
- <https://www.youtube.com/watch?v=aY8z2qO44WA>

STEP 2 - PRESENTATION

The trainer presents the problem to the class and shows the required resources. Learners are challenged to read the web pages. The trainer should discuss this with learners taking care not to convert the exercise in a theoretical presentation about Physics and should keep it light. Therefore it is suggested to focus on videos like the ones indicated.



STEP 3 – PLAY THE GAME

Learners should then play the game Cannon (final version) and analyze the code with the trainer. The trainer can take the opportunity to explain more the concept of behavior in GDevelop.

RESOURCES

- Challenge # Cannon
(https://silvercoders.eu/training/pluginfile.php/100/mod_resource/content/4)
- <https://wiki.gdevelop.io/gdevelop5/behaviors>

STEP 4 – CODE THE GAME


The trainer should then ask the learners to change the game and to apply the physics formulas of projectile motion. Learners should maintain the original code (two cannon balls will be shot) to compare the paths.

STEP 5 – DISCUSSION

Each group of learners displays the results. The class should discuss as a single team the results and the underlying physics. They can also envision other physics laws that might be used in games.

STEP 6 - ASSESSMENT

THE TRAINER CAN ASSESS LEARNERS ON THE BASIS OF THE ACHIEVED RESULTS IN STEP 4 AND ON THE INVOLVEMENT IN STEP 5.



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