

## EARLY Teaching Scenario

**Topic: Code & Go Robot Mouse beginners.**

**Pre-lesson with grade 4-5 and lesson 2 & 3 with student tutors together with preschool/grade 1.**

**Learning outcome: Learn how to**

- build a maze with the grids using the STEM activity cards
- use the buttons to program the movements and actions of the robot mouse
- perform step-by-step path programming using the coding cards
- make corrections through trial and error and
  - add to the code
  - clear the code to start over
- solve mazes progressing from levels 1 to 20
- make own mazes
- tutor younger students

## Applying the 7 key competences



## Curriculum

### Finnish curriculum

Programming is a part of mathematics and crafts and at the same time forms part of the ICT-competence, which is one of the seven key competence in the Finnish curriculum. Illustrated in the picture.

**Target group:** beginners level, preschool/grade 1 The pupils work together with tutor students from grade 4-5.

**Age of students / School level:** from preschool/grade 1

**Number of pupils:** maximum of 12

**Duration (estimated time/number of lessons):** 3 x 45 minutes

### Prerequisites (necessary materials and online resources):

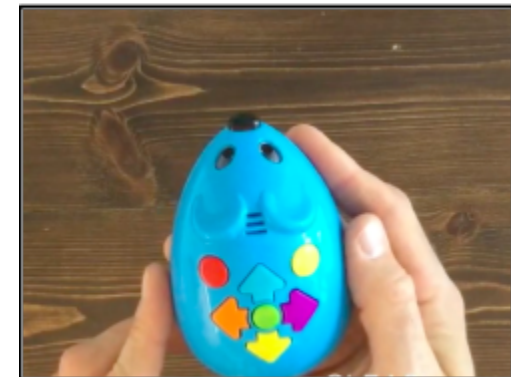
- Code & Go Robot Mouse Activity Sets
- 3 x AAA batteries (rechargeable recommended) for the robot mouse.
- Screwdriver to open battery hatch.
- table/floor space, preferably 100 cm x 100 cm

### Introduction to the scenario (*incl. possible applications, alternatives, and risks*):

- it is preferable working in pairs or small groups of three students.

### Before the sequence begins (preparatory work for teacher):

- watch the [unboxing video](#) and the robot mouse setup
- divide the pupils carefully into pairs or groups (one tutor-student + one or two preschooler/1st grader)
- prepare the activity sets, check the batteries.
- look at [this tutorial](#) before planning your lesson



## **The main part of the scenario (3 lessons):**

### **lesson one: pre-lesson with grade 4-5**

#### **Preparations:**

- Use one set to present the different pieces of the activity set and for demonstration. Place the rest of the kits on tables in the classroom (coding stations).
- Choose one activity card to solve as an example.

#### **1. Gather the students for an introduction. Present**

- activity set content
- robot mouse buttons and functions, how to set speed to “normal”
- maze building from activity cards, how to connect grids and maze walls
- step-by-step path programming with coding cards
- how to add to the code and how to clear code.
- instructions for the remaining of the lesson.
- objective: Colby wants cheese!

#### **2. Work in pairs at coding stations**

- test the different levels presented on the STEM activity cards and get familiar with the functions of the robot mouse.

#### **3. Troubleshooting:**

- what to do if the robot mouse runs out of battery (change batteries, charge empty batteries)
- tutoring (how to set rules, guide and teach the younger students, etc.)

## 5. Evaluation

- What did you learn today?
- What was challenging?
- What do you want to learn next?

### lesson two: Student tutors teaching younger students using STEM activity cards

#### Preparations:

- Designate one tutor-student together with one or two from preschool/grade 1
- Use one set to present the different pieces of the activity set and for demonstration. Place the rest of the kits on tables in the classroom (coding stations).

#### 1. Gather the students for an introduction. Present

- the aims for the lesson: tutor students teaching preschool/grade 1
- the instructions for the remaining of the lesson.
- the objective: Colby wants cheese!

#### 2. Work at coding stations

- to complete as many activity cards as possible. Progression according to coding skills.
- tutor students help younger students.

#### 3. Evaluation

- What did you learn today?
- What was challenging?
- What do you want to learn next?

## lesson three: Creating coding challenges

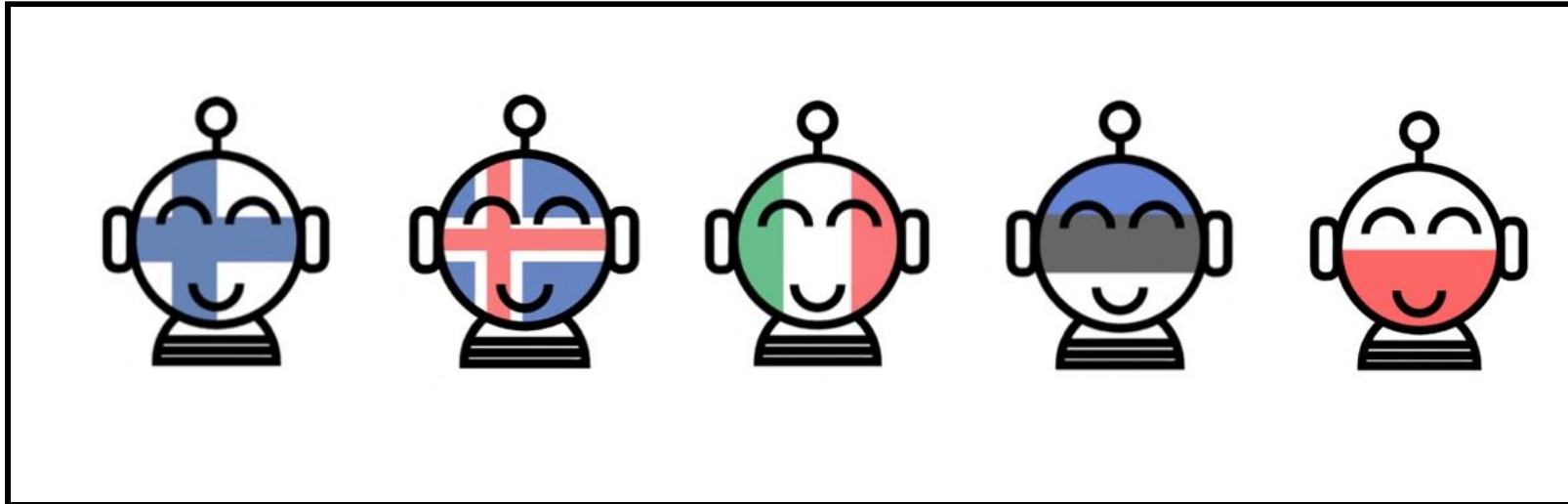
### Preparations:

- assemble the same coding groups who worked together in lesson two
- at each coding station: a Robot Mouse Activity set, pen, eraser, ruler, paper (big squared).

#### 1. Gather the students for an introduction.

- what did we learn last time?
- present the task:

1. create a maze on the piece of paper with your group, remember to add actions  $\neq$  as well.
2. switch with another group, solve each other's mazes and program Colby to find the cheese
3. Rate the difficulty level of the maze based on the amount of grids and maze walls used, time consumption, amount of coding steps.
4. 1 = easy, 5 = hard.
  - a) Write your valuation on the paper and give it back to the makers.
  - b) Color the faces according to the difficulty levels.



**2. Students work with the task at coding stations**

**3. Gather the students for closing words and evaluation**

**Summary (knowledge, skills, understanding):**

1. Students will know:

- how to build a maze with the grids using the STEM activity cards
- how to use the buttons to program the movements and actions of the robot mouse
- how to perform step-by-step path programming using the coding cards
- how to solve mazes progressing from levels 1 to 20

2. Students will be able to:

- make own mazes
- tutor younger students
- work with others

3. Students will understand:

- the idea of programming on a basic analog level
- that through trial and error they must make corrections and
  - add to the code or
  - clear the code to start over