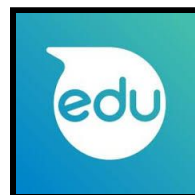


Sphero drive and draw–EARLY Teaching Scenario

Topic: Get started with Sphero Bolt – drive and draw

Learning outcome: Learn how to:

- get started with the Sphero Edu app (lesson 1–3)
- connect the robot with the app (lesson 1–3)
- use the guest account (lesson 1–3)
- aim the robot (calibrate) (lesson 1–3)
- move the robot around the room (driving, drawing) (lesson 1–2)
- plan and implement a track (lesson 3)



Sphero Edu app

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 here next in the picture.

Applying the 7 key competences



Target group: beginners level, pupils in primary school

Age of students / School level: from 10 years– (3rd grade)

Number of pupils: maximum of 20

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

Prerequisites (necessary materials and online resources):

- Ipads/tablets/mobile phones with the Sphero Edu app downloaded
- Spheros
- paper and coloring pencils
- floor space
- cones or other marking tools
- exact starting point

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

- it is preferable working in pairs or in groups no more than four pupils
- it is also preferable that the pupils work in the same pairs or groups throughout the whole scenario
- the Sphero robot is durable but don't drive it down the stairs or in high speed towards a wall

Before the program begins (preparatory work for teacher):

- charge the Ipads and Sphero before the lesson!
- divide the pupils carefully into groups
- book the space needed in advance
- divide the room into sections, as many as the number of groups
- collect all the necessary equipment needed
- take into account pupils with special needs
- look at [this tutorial](#) before you plan your lesson

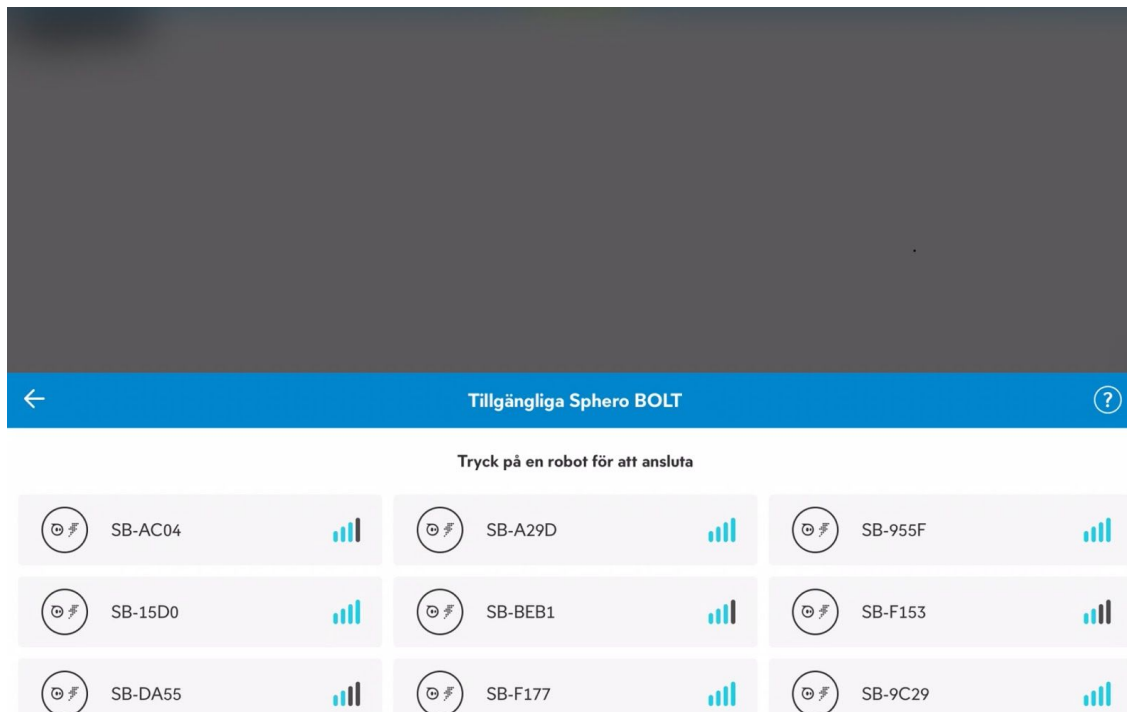
The main part of the scenario (three lessons):

Lesson one

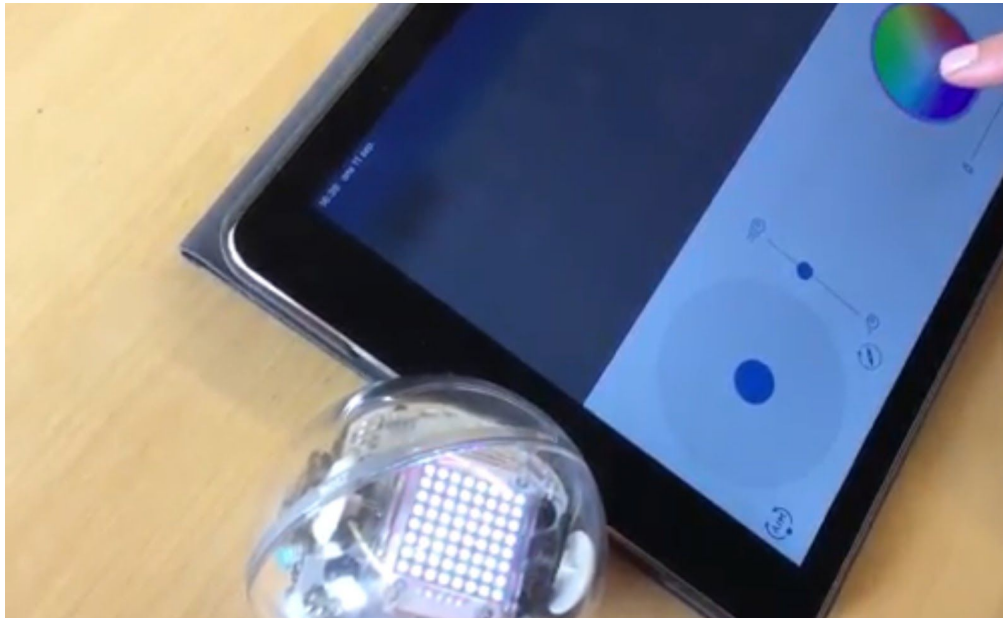
Sphero Bolt beginners, first lesson –Get to know the Sphero Bolt

Preparations:

- the teacher sets a simple track in order, for example with two cones.
1. Grab an Ipad and open the Sphero Edu app, use the guest account.



2. Go to the charging box and connect, grab the Sphero that lightens up.



3. Put the Sphero at the starting point and aim, it is important to aim precisely. (Include everyone in the group.)
4. Drive the track, let everyone drive at least once.

Development if there is still time left.

5. Let the pupils expand the track and drive again.
6. Evaluate the lesson.

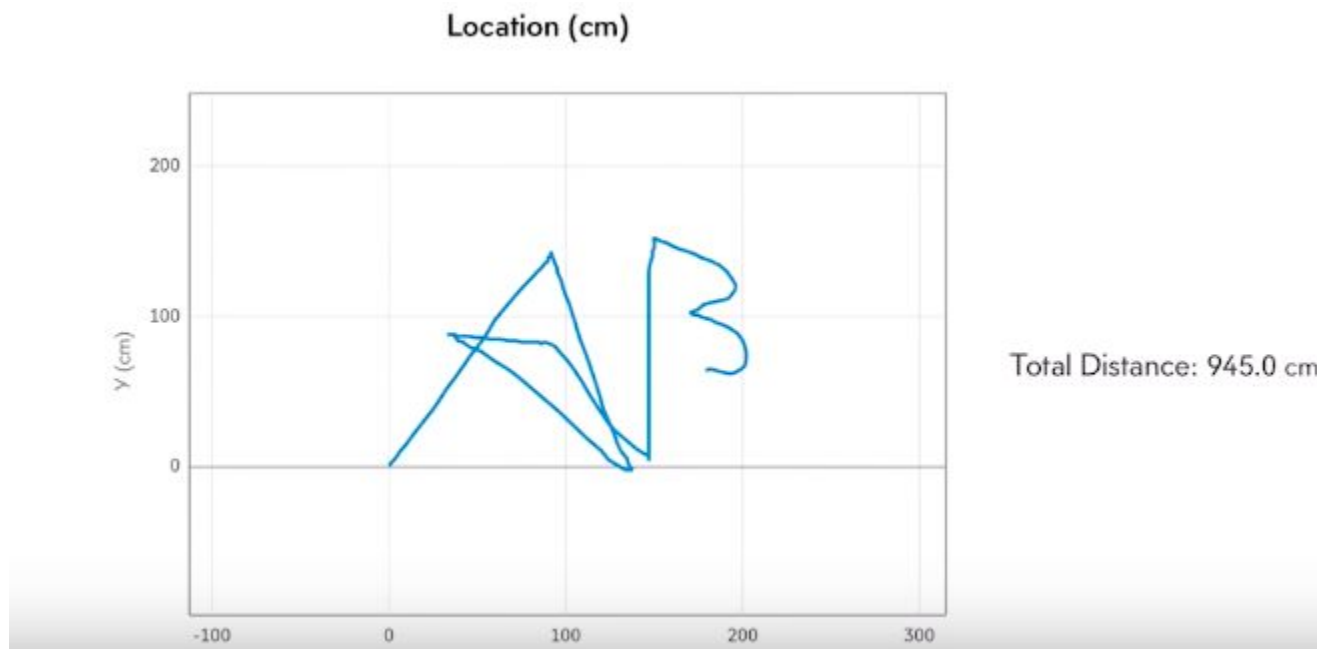
Examples:

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

Lesson two

Preparations:

1. Start by watching [this video](#) with the pupils!
2. Connect the Spheros to the Sphero Edu app.
3. Let the pupils explore the drawing function originating from the video.
4. It is important that the pupils get to show the teacher their results.
5. Give a new task to the pupils after watching their first drawing: draw capital A and capital B close to each other the smartest way (so that the robot doesn't need to draw so many extra lines).



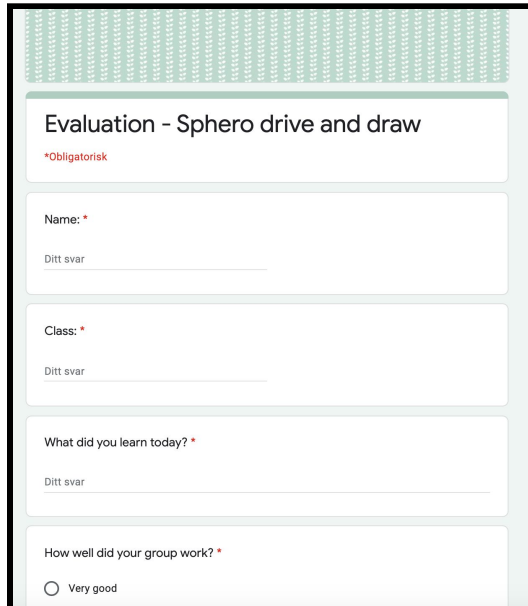
7. Evaluate the lesson

Examples:

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

Lesson three

Plan and implement a track



The image shows a digital evaluation form with a green header and a light blue background. The title is 'Evaluation - Sphero drive and draw' with a red asterisk and the word 'Obligatorisk' below it. There are four input fields, each with a red asterisk and a label: 'Name:', 'Class:', 'What did you learn today?', and 'How well did your group work?'. Each field has a 'Ditt svar' (Your answer) label and a text input area. The first field has a red asterisk and the word 'Obligatorisk' below it. The last field has a radio button and the text 'Very good'.

Preparations:

1. Let the pupils plan a track on paper according to the instructions given including the:
 - a. equipment
 - b. obstacles and
 - c. space available.
2. Let the pupils build their track.
3. Connect the Spheros to the Sphero Edu app.
4. At first, use the drive function to drive around the track
5. Second use the draw function
6. Evaluate and discuss the track and make possible improvements
7. If there is time left, let the pupils try out another group's track and give feedback on it.

Tip! We recommend that you afterward in the classroom evaluate the lesson, maybe using an evaluation form (for example [this one](#)).

Summary (knowledge, skills, understanding):

1. Students will know:
 - The most important things about how the Sphero Bolt is used
 - connecting
 - aiming
 - driving
 - drawing
 - the difference between driving and drawing
2. Students will be able to:
 - explore the Sphero Edu app
 - move the Sphero in different ways (drive and draw)
 - collaborate with other pupils
 - evaluate their work
3. Students will understand:
 - at which different speeds the robot can move
 - how the Sphero reacts on commands from the app
 - how big the drawing space is compared to the reality