EARLY Teaching Scenario

Topic: Mathematics and IT(programming) with Dash robot

Aim(s): Students learn how to:

- Program Dash in Blockly app
- Make Dash move around a box or a rectangle after given Informations
- Estimate distance, degrees and speed
- Improve critical thinking
- Assess their own learning

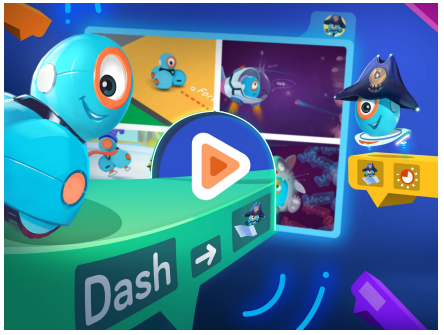
Skills pupils develop during the scenario (connect to curriculum →)

The National Curriculum Guide for Compulsory School, IT, states that by the end of class 7, students should be able to:

- use electronic study material in various forms in connection with work technology, work methods and other learning
- show independence in guided and collaborative work
- use different technological equipment in a advantageous and varied way
- new electronic and interactive study material in a variety of ways

The course components that are trained in the project are as follows:

- programming
- degrees/angle
- metric units
- Problem solving
- Critical thinking
- self evaluation



Target group: beginners level, pupils in primary school

Age of students: 9 years and older

Number of pupils: One pupil for each set of challenge

Duration (estimated time/number of lessons): 1X60 (or 2X40) minutes

Prerequisites (necessary materials and online resources):

- Ipads with the Blockly App, one for each Dash robots
- One Dash robots for each pupil
- Cards with the challenges
- Good space on the floor

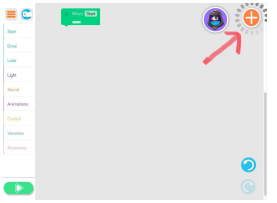
Introduction to the scenario *(incl. possible applications, alternatives and risks)***:**

- It is ideal that the are more than one pupil working the challenges at the same time.
- Have a look at this video https://www.youtube.com/watch?time_continue=2&v=Nh8Xyq7qV-8&feature=emb_logo with students before starting the challenges game, where things are explained fairly well.

Before the program begins (preparatory work for teacher):

- Print and plastic the challenges
- Have a box that has all site same length or make a rectangle with tape on the floor.
- Four iPads, fully charged and with the Blockly app.

Main part of the scenario (60 min lesson):

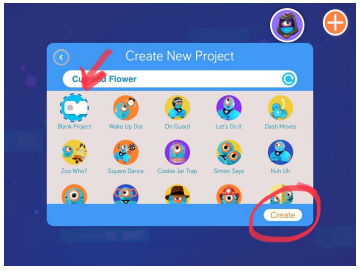


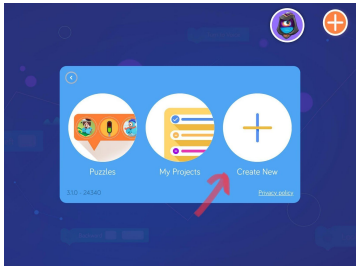
Teacher shows students the video https://www.youtube.com/watch?time_continue=2&v=Nh8Xyq7qV-8&feature=emb_logo and explains the game to students. Then he distributes the challenges and they get a box or a rectangle on the floor.

Students connect the iPad and Dash in the Blockly app by selecting the plus in the upper right corner and choosing the right Dash.

Then they line up Dash Robots with the box or the rectangle and start to solve the challenges.

In the Blockly app, they select “Create New”, Blank Project ”and“ Create ”.





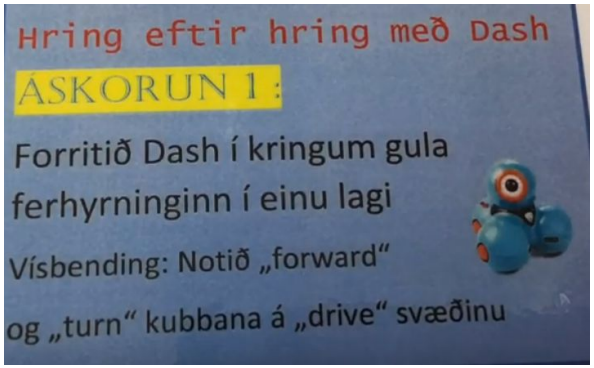
They solve their challenges by programing the speed, length and degrees it needs to turn to go around the bos/rectangle.

When students are finished programing Dash robot for solving there challenge they press play. They may have to try a few times to get it right.

Challenge 1

Program Dash robot to go around the box/rectangle in one set.
Hint: use “forward” and “turn” blocks in “drive”.

When students have finished solving the challenge they go to the next challenge.



Challenge 2

Use 4 blocks from drive to program Dash robot to go around the box/rectangle in one set.

Hint: use “control” and “repeat” blocks.

Challenge 3

Program Dash robot to go around the box/rectangle, tow laps.
Hint: Don't put any new blocks in.

Challenge 4

Program Dash robot to go around the box/rectangle and then backwards, all in one command.
Hint: use “backward” block.

When the game is over, it is good to have students evaluate the lesson. For example:

- What did you learn today?
- What was the difficult?
- What was easy?
- What do you want to learn next with Dash?

Learning outcomes

Summary (knowledge, skills, understanding):

Students understand:

- How Dash is managed with block programming

Students can:

- Browse and get to know the Blockly app
- Move Dash in different ways with blocks in the Drive section of the app
- communicate/collaborate with other students
- Evaluate their work

Students learn:

- How long one meter is
- To adjust the size of the corners in degrees
- How Dash responds to commands from the app
- Working with others
- To rejoice and take victory/loss