INTRODUCTION TO PROGRAMMING WITH SCRATCH JR.

DIGITAL CONTENT CREATION > 3.4 PROGRAMMING

TARGET GROUP	AGE GROUP	PROFICIENCY LEVEL	FORMAT	COPYRIGHT	LANGUAGE
School drop outs, Students (primary school), Students (secondary school)	Children, Teenagers	Level 1	Activity sheet	Creative Commons (BY-SA)	English, French

In this workshop, participants will learn some programming basics via the Scratch Jr software

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General Objective Skillset building

Preparation time for facilitator less than 1 hour

Competence area 3 - Digital content creation

Time needed to complete activity (for learner) 0 - 1 hour

Support material needed for training Tablets connected to Wi-Fi Projector Cardboard, or solid support for the board game

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Resource originally created in French

WORKSHOP DIRECTIONS

1   Preparation

In this workshop, you will use a board game to explore some basic notions of programming. You will need to prepare the material, either by using things you have (e.g. a chequered mat), and/or by creating and printing simple images. You could also draw them on strong paper. You will need:

- a chequered board of 8×8
- an object symbolising a house
- an object symbolising a car or a person — it should be clear what direction it is facing
- 6 'straight on' arrows
- 3 'face left' arrows
- 3 'face right' arrows
- Optional: one of two objects symbolising obstacles (e.g. lego)

Note: 'face' does not mean 'turn', the latter being less precise. Better to be **precise** and keep the term 'face' to avoid confusion. Hint: use different **colours** for the various arrows (to help distinguish them, help colour-blind participants, help those having trouble differentiating left from right). Meanwhile, print the **cards** (cf. material used).

Facilitation advice:

- Explain things that seem obvious. Even simple things must be clear.
- Make sure everyone understands and explain again if required. Everyone needs to feel involved in the workshops and for the building of the project to come.
- Involve participants: whether beginners or more experienced, everyone needs to participate and exchange amongst each other. Be wary of off-topic questions and don't elaborate when answering them.

2   Introduction (5 mins)

Afterwards, confirm the registered participants and where necessary having filled in the number of participants, have them enter the room and gather them around the table. In order to keep their attention at the beginning, don't give them tablets straight away.

Start by **introducing** each other: first name, favourite game… This puts a start to the exchange in a good atmosphere. Feel free to go around the table asking each person to introduce themselves one by one and encourage dialogue between the group, ask them their age and if they have already tried programming via Scratch or something else, with whom…

3   Giving context (10 mins)

It is important to contextualise the workshop: what are we going to do? What is Scratch? Make the questions explicit and answer them yourself or by first asking participants if they have an idea (and complete where needed).
Explain the **structure** of the workshop: first a quick game for an introduction to the ideas, then a presentation of the app, then creation time on the app.

4   Offline board game (25 mins)

Lay out the game components: put the board in the centre of the group, the house in a corner, the vehicle/person in the opposite corner of the same side of the board, facing the house.

Explain the **rules**: participants need to find the route that will bring them home. This route will be indicated using the arrows and by giving orders. If you have a small group (6 people or fewer), you can let everyone consult together. Otherwise, you can have each person take turns to place the next arrow. When the group thinks all the necessary arrows are laid out, ask one person to execute the vehicle's route, by following the arrows exactly (no improvisation or interpretation). Two 'straight on' arrows should be all that is required here.
Second level: put the house further away and let them come up with a new solution. Make sure everyone understands what 'face left/right' means. Clarify this before starting here.
Third level : place on obstacle in the middle of the board in such a way that there are two obvious solutions. If the group decides on one way, ask them if there was another and leave them find it. If participants find it hard to settle on the right instructions, or if they have difficulty in moving the car, feel free to invent other levels.
Explain that you will now **reflect** on the activity that just took place. Ask participants to explain what happened. Use guided questions ('do we need to be exact when ordering the way forward, or can we be

a little vague?') to help them to the conclusion that precise instructions need to be given. Each order makes one thing happen, which is clear and unambiguous. If we give a wrong instruction, the car will not reach its destination (the car cannot think: it is the players that have to do that). Explain that with a computer, and in Scratch Jr., it's the **same thing**: the computer is an 'idiot': it only knows to do what we tell it to do. We need to tell it what to do by giving it simple and precise instructions. In Scratch Jr., we do this by choosing and compiling blocks which each represent an order, in the same way that we just put the arrows together.

5   Scratch Jr. Presentation (10 mins)

Now **present** the application by displaying the screen of your tablet using a projector. Explain the general principle of the tool, then the different parts of the interface, different block categories, ways blocks can be assembled…

Illustrate your explanation by carrying out simple actions gradually. Keep participants' attention by asking them to choose things like costumes, backdrops, etc.

6   Practicing the basics (30 mins)

We will follow this PDF — Scratch Jr. challenges – which was translated from an exercise found here in French.
Link to translated PDF: Scratch Jr. Challenges

Give out the tablets and the challenge cards and explain how they work. There are 16 challenges. By following these, the group will become familiar with the Scratch Jr. app in a simple, ludic and progressive way. Give the group 30 minutes to complete as many **challenges** as they can.

7   Free time (40 mins)

In this final section of the workshop, leave the group 45 minutes to **create** a simple animation or game of their choice in Scratch Jr. Either they will be able to come up with ideas or they will have no idea where to begin with this new tool. In the first case, help them to finalise their ideas by suggesting that

they use a theme (based on the calendar, recent event...), that they choose a simple protagonist and use them to tell a simple story.

If they have no ideas, give them a theme or use some inspirations from this list from Scratch: https://www.scratchjr.org/teach/activities.

Each exercise is comes in printable format and are ideal for this kind of workshop. You may need to accompany those who do not have advanced reading skills. If there are more experienced group members, you can put them between the beginners to encourage them to help.

Tips:

- No one will learn to program by watching other people work. If you are forced to have two kids per tablet, which can be good for a spirit of collaboration, it is essential that each has a turn to program. If necessary, impose a change of user every 5-10 minutes.
- As the audience will be very young, make sure to explain the expected results in as much detail as possible.