

III.3 Three lesson plans

III.3.1. *Discover Scratch: first steps (all ages)*

- **Estimated duration:** 50 min.
- **Age:** +8 years old.
- **Materials and technological resources:** computers (1 per team), Internet connection.
- **Number of students:** 10-30.
- **Teams:** groups of two.

Activity goal: to introduce Scratch to students of any age who have no or very little previous experience.

To take into account: the activity can be conducted in teams of more than 2 but is ideal for pairs. The lesson plan was inspired by the [creative computing curriculum](#) designed at Harvard. We recommend checking it out for more ideas and variations that can be used to introduce Scratch to children.

Activity description: a quick introductory activity to Scratch, combining teacher-led elements and student self-exploration.

Step 1: During the first 15 minutes we start with a live demo explaining the different parts of the Scratch window, highlighting three main areas: the place where all action happens, the area to define and create sprites and backgrounds, and the area for programming the actions of all the sprites.

We show where all the toolboxes appear, and how by clicking on each one (differentiated by colours), a set of instructions appears at the bottom.

We also show how we can drag an instruction to the scripting area

and see what happens when clicking on the piece, for instance with the instruction “move 10 steps”.

Additionally, we can show a 1 minute video to introduce Scratch (<https://scratch.mit.edu/about>).

Step 2: then it is time for a guided demo (10 minutes) than pupils can repeat at the same time. For instance, we make the cat do a dance.

Start by dragging out the “move 10 steps” block from the “Motion” blocks palette to the scripting area. Every time you click on the block the cat moves a distance of 10. You can change the number to make the cat move a greater or smaller distance.

From the “Sound” extension, drag out the “play drum” block. Click on the block to hear its drum sound. Drag and snap the “play drum” block below the “move” block. When you click on this stack of two blocks, the cat will move and then play the drum sound.

Copy this stack of blocks (either using the Duplicate toolbar item or by right-clicking the stack and selecting “duplicate”) and snap the copy to the already-placed blocks.

Change the second “move” block to -10 steps, so the cat moves backward. Every time the stack of four blocks is clicked, the cat does a little dance forward and back.

Go to the “Control” blocks palette and grab the “repeat” block. Wrap the “repeat” block around the other blocks in the scripting area. Now when you click on the stack, the cat dances forward and back 10 times. Here the word “loop” can be introduced to participants. (They get their first “computational thinking” concept). Finally, drag the “when Sprite clicked” block and snap it to the top of the stack. Click on the cat (instead of the blocks stack) to make the cat dance.

Step 3: then, we allow participants to explore and discover by themselves (20 minutes).

We tell the participants they are going to have 20 minutes for discov-

ery by themselves. We encourage them to do whatever they want. We tell them they must not be afraid of breaking anything or doing something wrong.

We encourage them to drag an instruction to the script area, do a click and see what happens. We encourage them to link two, three and more instructions and click on the group and see what happens.

During these 20 minutes the teacher-guide goes to every group encouraging participants to discover by trying things and click on instructions and see what happens. We also encourage participants tell other participants what they have discovered.

Step 4: after the exploration, we dedicate the rest of the time to ask participants to share something surprising with the class group. This is a class exercise, where we ask for the attention of the entire group. We also emphasize that what is important is to learn to listen to each other.

Extensions and challenges

What challenges can we propose?

We can ask participants to make the cat draw a square using motion, pen, control and events toolboxes. We allow them to explore and to discover. We emphasize there can always be many solutions to one problem and let them to show different solutions.

We can ask participants to explore tutorials in Scratch. We can ask to explore and discover the graphical editor that permits us to draw and create our own sprites. The graphical editor is simple and powerful at the same time. We can also let them to explore the sound editor.

We can propose that they swap the project between teams. So teams are encouraged to continue working in a project that was initially started by their colleagues. This is interesting because this exercise encourages them to understand what other participants have done, and to follow a story that someone else started.