Scratch Activity

What is Scratch and how can you download it?

Scratch is a programming language that has its own stand-alone environment. It is free and userfriendly. It is a great way to introduce difficult programming concepts, such as:

- **Parallel programming**: Many programs that seemingly run in parallel.
- **Object-oriented programming**: Each object is programmed separately, such as our character or obstacles.
- **Event-driven programming**: The object moves based on events / events that occur, such as pressing a button.

You can use Scratch online as well as standalone on a computer/tablet.

Below you can find ways to download the appropriate program for your needs.

- **Online**: You can download Scratch from the link below:

https://scratch.mit.edu/projects/editor/

- **Desktop app**: You can download Scratch for your computer from the link below:https://scratch.mit.edu/download

Follow the instructions based on your operating system.

You can also download the app from Microsoft Store or Mac App Store.

- **Mobile devices (mobile/tablet)**: You can download Scratch using the play store of your device (**Google Play**, **App Store**, etc.).

Women in Science storytelling program

Aims of the activity

- Students will learn to work cooperatively.
- Students will be introduced to the concept of programming.
- Students will be introduced to algorithmic thinking.
- Students will understand how a character can speak through a cloud dialog.
- Students will learn how to search for facts in the Internet.

Tools and materials you will need

- Tablet or computer (laptop/desktop), in which the Scratch app is pre-installed.
- Internet connection so students can search for facts online, or books with information, or students can search information as homework the day before.

Activity description

Introduction

- The theme is introduced to the students with questions such as: "Do you know a great woman scientist?".
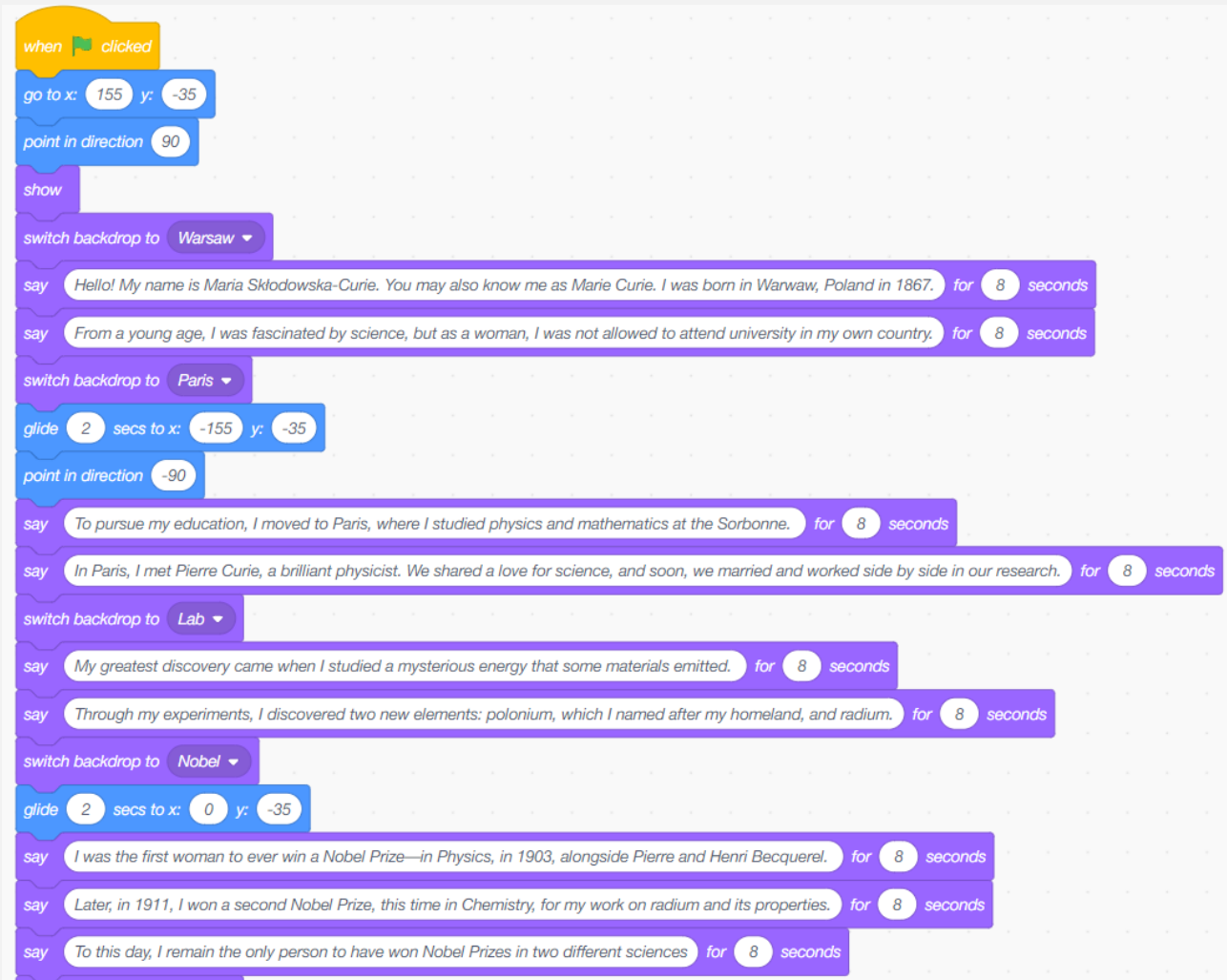- Introduce the Scratch environment to the students.

Activity

The aim of this activity is to create a storytelling program for a woman in Science or technology. This example is a storytelling for Marie Curie.

- Students create teams of 2-4 people, each team can take on the task of presenting another female scientist (Marie Curie, Grace Hopper, Katherine Johnson, Hedy Lamarr, Ada Lovelace, etc.)
- At first, students need to find the facts for the woman they chose.
- They can also search for a picture or a sprite to use as the narrator of the story.
- Students can also find images to use as background for their story.(optional)
- They can use movements so their story is more interactive, and not just a simply narration. (optional)
- They can also create a background with a known quote from the person they chose. (optional)

The basic program can be found in the images below.

For the narrator's sprite:

```
when 🏳 clicked
go to x: 155 y: -35
point in direction 90
show
switch backdrop to Warsaw ▾
say Hello! My name is Maria Skłodowska-Curie. You may also know me as Marie Curie. I was born in Warwaw, Poland in 1867. for 8 seconds
say From a young age, I was fascinated by science, but as a woman, I was not allowed to attend university in my own country. for 8 seconds
switch backdrop to Paris ▾
glide 2 secs to x: -155 y: -35
point in direction -90
say To pursue my education, I moved to Paris, where I studied physics and mathematics at the Sorbonne. for 8 seconds
say In Paris, I met Pierre Curie, a brilliant physicist. We shared a love for science, and soon, we married and worked side by side in our research. for 8 seconds
switch backdrop to Lab ▾
say My greatest discovery came when I studied a mysterious energy that some materials emitted. for 8 seconds
say Through my experiments, I discovered two new elements: polonium, which I named after my homeland, and radium. for 8 seconds
switch backdrop to Nobel ▾
glide 2 secs to x: 0 y: -35
say I was the first woman to ever win a Nobel Prize—in Physics, in 1903, alongside Pierre and Henri Becquerel. for 8 seconds
say Later, in 1911, I won a second Nobel Prize, this time in Chemistry, for my work on radium and its properties. for 8 seconds
say To this day, I remain the only person to have won Nobel Prizes in two different sciences for 8 seconds
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```
switch backdrop to [Lab ▾]
glide (2) secs to x: (155) y: (-35)
point in direction (90)
say [During World War I, I developed mobile X-ray units, called 'Little Curies', to help doctors treat wounded soldiers on the battlefield.] for (8) seconds
say [My research paved the way for many medical advancements, including cancer treatments using radiation therapy.] for (8) seconds
say [I devoted my life to science, and though my exposure to radiation ultimately harmed my health, I do not regret my work.] for (8) seconds
say [I believed that science should be used to benefit humanity, and that knowledge belongs to everyone] for (8) seconds
say [To young women in science, I say:] for (8) seconds
say [Be curious] for (2) seconds
say [Be determined] for (2) seconds
say [and never let anyone tell you that you cannot achieve greatness] for (5) seconds
switch backdrop to [υπόβαθρο2 ▾]
hide
```