

xploris

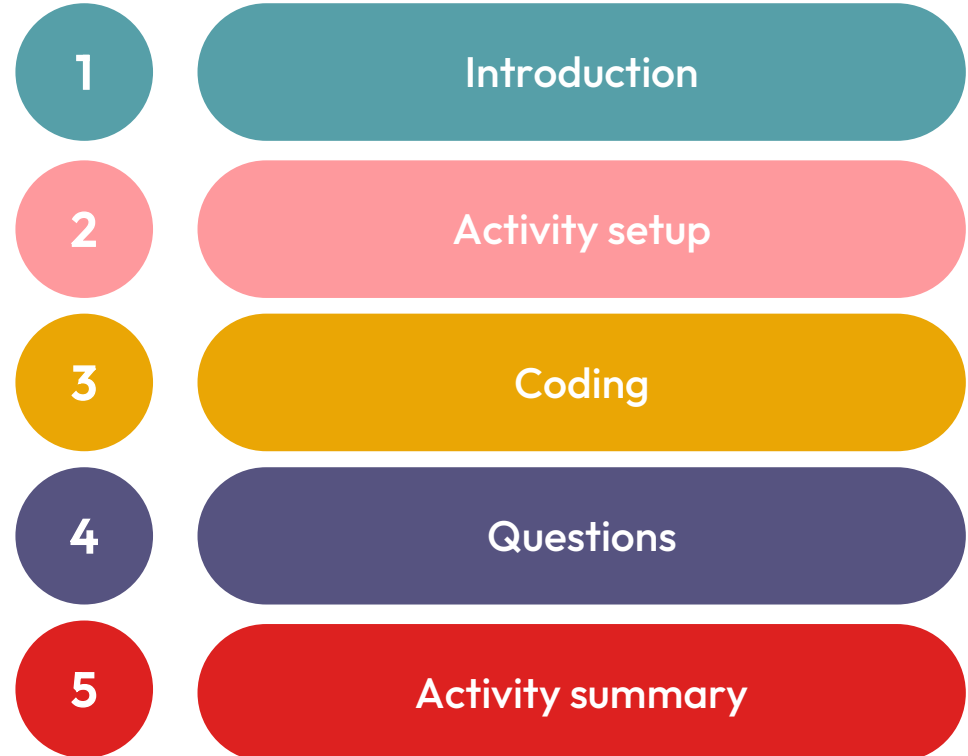
CODING

Scrolling Arrow

xploris

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SCROLLING ARROW



1 Introduction

Have you ever played a video game where your character moves along a path, overcoming obstacles and reaching new areas? It's exciting to see their progress! Life is a path too, and we move forward along it—this is what we call progress.

Imagine you are learning to ride a bike. At first you fall, you wobble, but you keep trying! Little by little, you learn to keep your balance and to pedal. You have learned something new and you have become better at it.

In this activity, you are going to improve your programming skills using block language and the Xploris device. We will learn how block programming works to display an animation on the Xploris device screen.



2 Activity setup



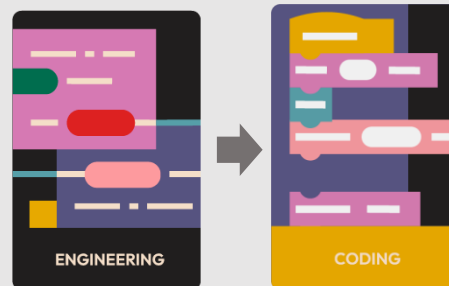
Turn on your Xploris and connect it to your computer or tablet.



Open the XploriLab software on your computer or tablet.



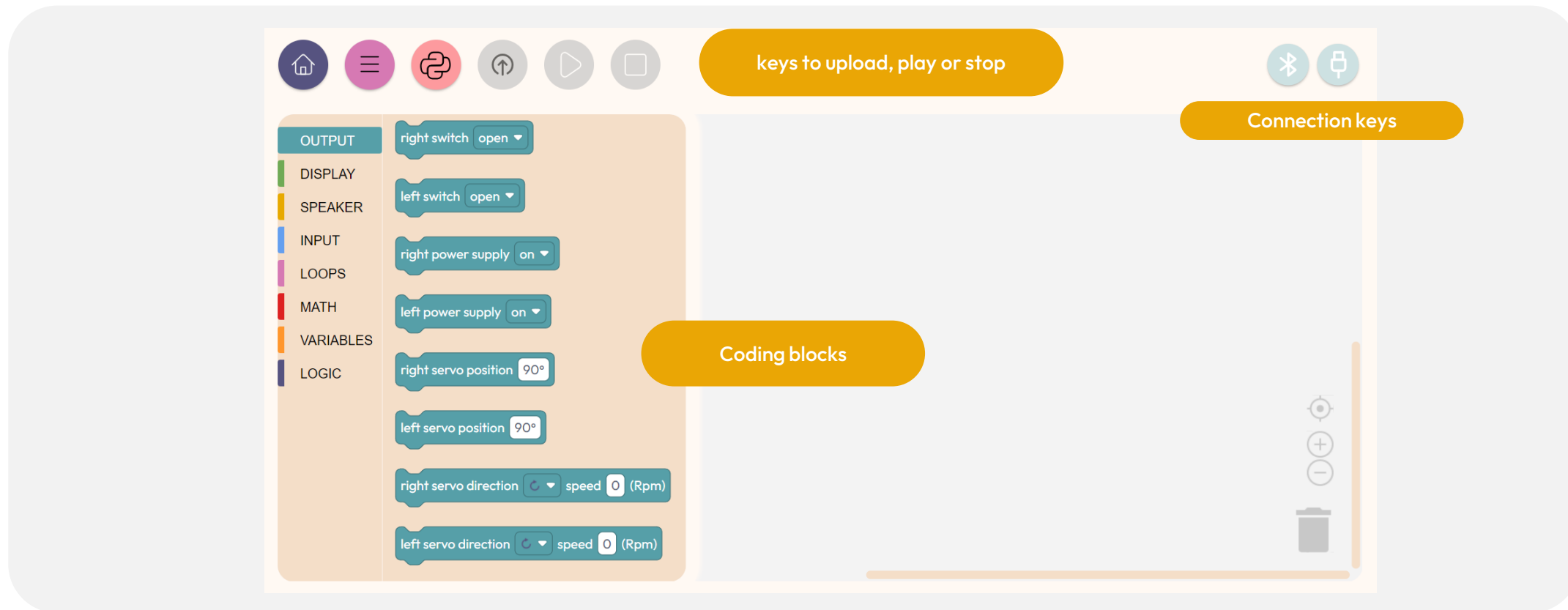
Once inside XploriLab, select the icon to connect the device via USB cable or bluetooth as applicable.



Go to the ENGINEERING section and then to CODING.

3 Coding

In the Coding window, you will find the tools you need to create code using blocks.



3 Coding

The available tools represent blocks that allow you to perform various actions.

Functions

OUTPUT

Output blocks to activate Xploris switches, power source and/or servos.

DISPLAY

Blocks to control the Xploris screen.

SPEAKER

Blocks to control the Xploris speaker: play sound tracks, notes and control the speaker volume.

INPUT

Blocks that enables you to use all Xploris keys and sensors, such as temperature, light, distance, sound and voltages.

LOOPS

Loop blocks to perform an action continuously or as long as their conditions are met.

MATH

Mathematical blocks, such as +, - and many other math functions.

VARIABLES

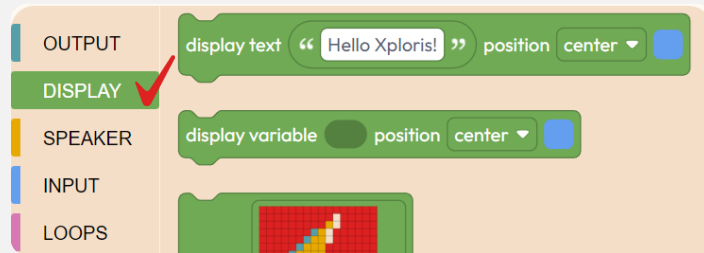
Blocks for creating variables, assign and replace their values.

LOGIC

Logic operators that will allow decisions to be made based on the state of the data.

3 Coding

1



In this activity, you will learn how to program an animation on the screen of your Xploris device. We will use block-based programming, where blocks represent programming instructions. The objective is to display a moving arrow. To achieve this, we will start by exploring the Display group blocks **DISPLAY**.

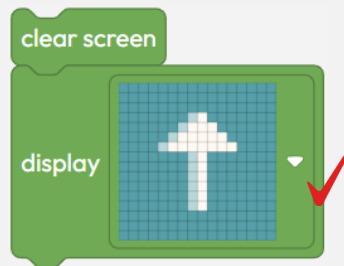
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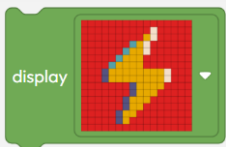
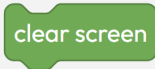
Use the block **clear screen** of the group **DISPLAY** to clear the screen of our Xploris, thus ensuring that we have a clean space in which to display the results of our programming.

To use it, select it and drag it to the workspace located on the right.

3 Coding

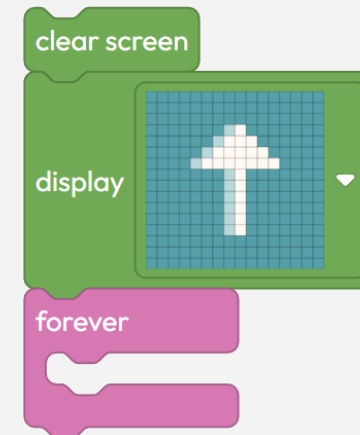
3

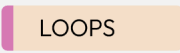



Select  and link it to 

In this block, we can choose the image we want to display on the Xploris screen. Use the drop down menu to choose the arrow pointing upwards image.

4



In the  group, use the block 

This will allow us to repeat indefinitely the instructions you place inside it. Place it next to the work you've done so far!

3 Coding

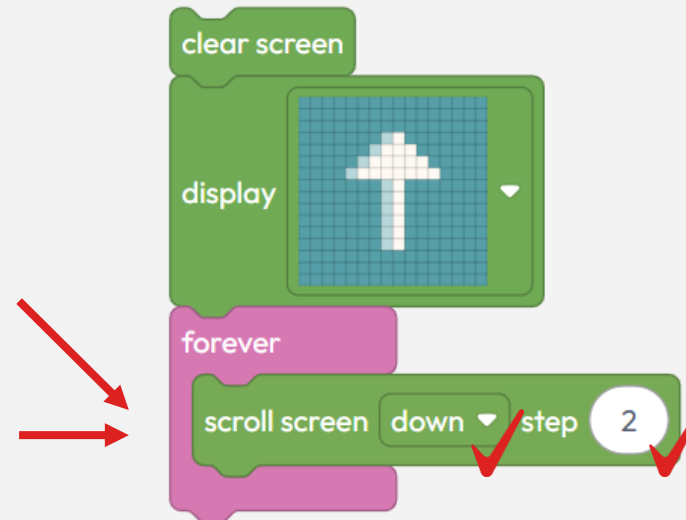
5

We're almost there! We just need to take one last crucial step: to set in motion the arrow we want to move on the screen. To do this, follow these steps:

1. Locate the `scroll screen up step 10` block in `DISPLAY`
2. Place the `scroll screen up step 10` block inside the `forever` block.


Thus the movement will be repeated infinitely.


3. Select the direction of movement: Inside the “scroll screen” block you will see a drop-down menu. Choose the “down” option to make the arrow move down the screen.
4. Define the step size: The “step” field determines how many pixels the arrow will move in each iteration of the loop. Enter the number 2 in this field. This means that the arrow will move 2 pixels downwards in each step of the animation, which will create a smooth and visible movement.




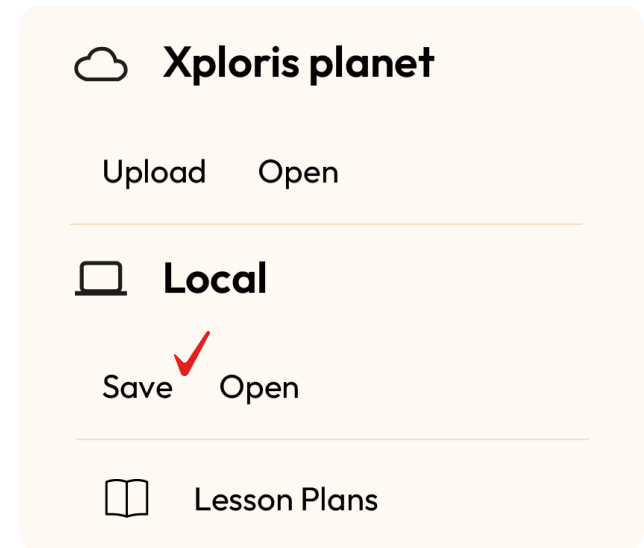
3 Coding

To make sure that the program works correctly, we will follow these final steps:

Press the three-bar icon at the top and select the “Save” option. Then, assign a name and save your program. 

Press the “Upload” button in the Xplorilab interface. This will transfer the program to the Xploris device. 

Once the program is loaded, press the “Play” button on Xplorilab software. Observe how the arrow moves downward on the screen of your Xploris. 



The screenshot shows the Xploris planet interface with the following elements:

- Cloud icon and text: **Xploris planet**
- Buttons: Upload, Open
- Horizontal separator line
- Laptop icon and text: **Local**
- Buttons: Save (with a red checkmark), Open
- Horizontal separator line
- Book icon and text: Lesson Plans

4

Questions

1

Sciences

Imagine that the arrow moves down the screen, as if you were going down a slide. If the arrow goes down 2 steps (pixels) every time the screen flashes, what would happen if it went down 4 steps every time? Would it go down faster or slower? How could we measure how fast the arrow goes down? (We could count how many steps it goes down in a second, for example).

2

Arts

If we draw the arrow using tiny squares (pixels), it appears sharp. But if we use larger squares, it looks blurry. Why do you think this happens? How does this relate to the image quality in video games or on television?

3

Let's keep experimenting!

What would happen if instead of using “down”, you used “up”, “left” or “right”? What happens if you change the value of “step” to 1 or a number greater than 2?

5

Activity summary



We used the Xploris screen to show an arrow and imitate forward movement.



We used programming block functions such as “Display” and “Loops” to repeat the movement and control the direction and speed of the arrow's movement.



We programmed using the XploriLab application, we explored changes made to the code and we loaded the created program to then test it in Xploris.



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