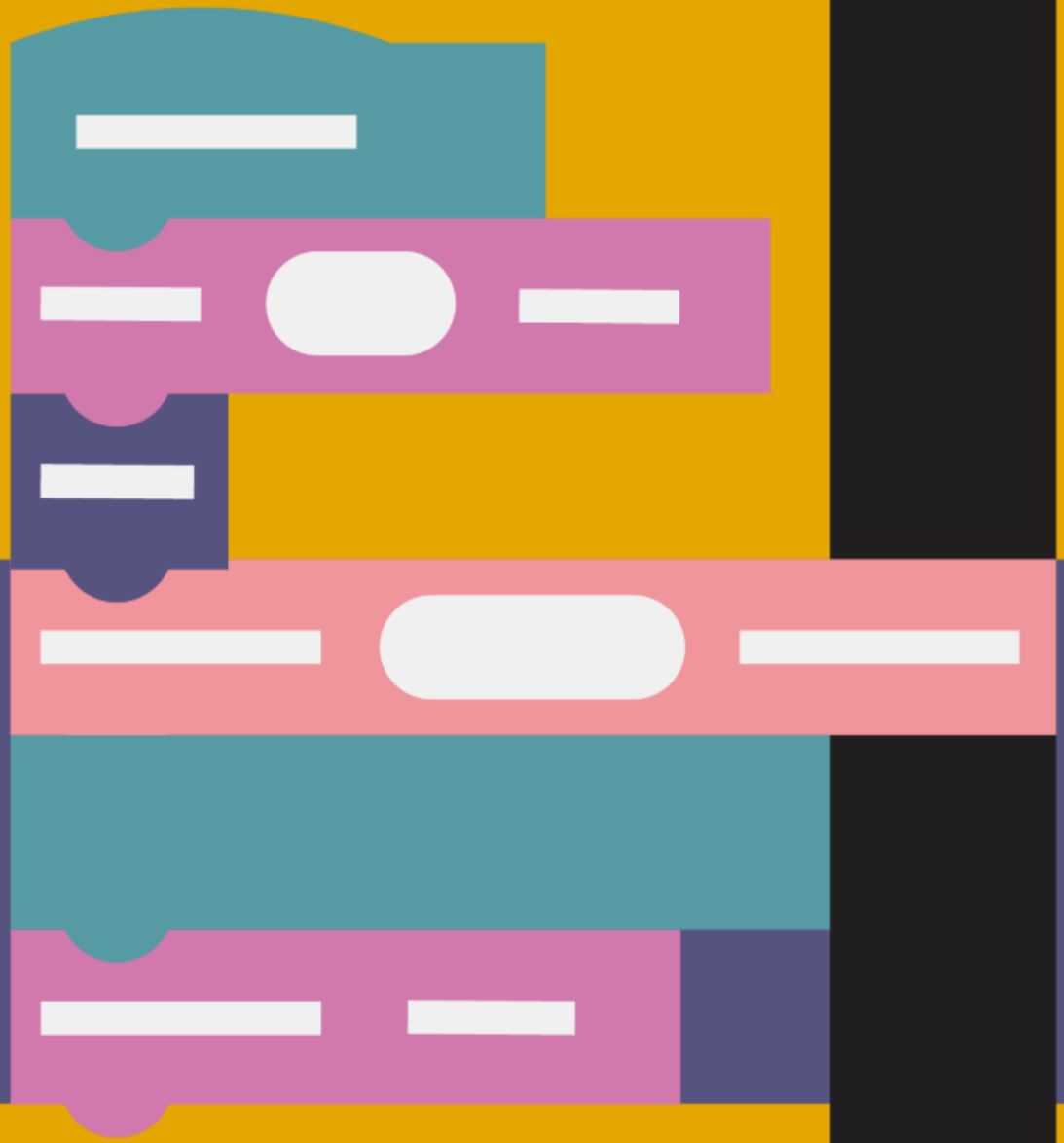

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CODING MATH

Fractions

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CODING MATH

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FRACTIONS

1. Introduction
2. Theory
3. Activity setup
4. Coding
5. Activity summary

1 Introduction

Have you ever wanted to share your sweets or a piece of cake with friends and make sure everyone gets an equal share?
To do that, you need to understand fractions. Learning about fractions will help us share fairly and equally!

But we're not just going to learn the concept—we'll see it in action visually.

Using amazing tools like the code in our Xploris and animation with Animator, we'll bring what we've learned to life in a fun and dynamic way.

It's going to be a lesson you'll enjoy and want to share!

2 Theory

Fractions are a way of representing parts of a whole.
When something is divided into **equal parts**, each part is a fraction.

A fraction has two numbers:

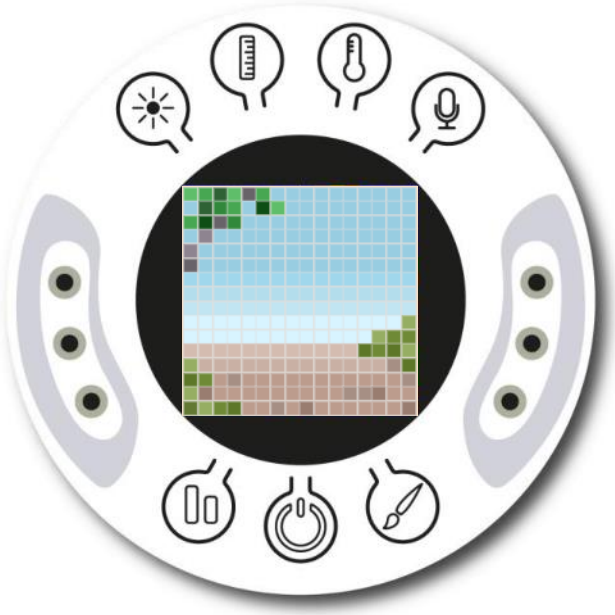
$$\frac{3}{8}$$

Numerator (top): Tells you how many parts you have.

Denominator (bottom): This indicates how many parts the whole is divided into.

For example, if you divide a cake into 8 parts and eat 3, the fraction that represents what you ate is 3/8.

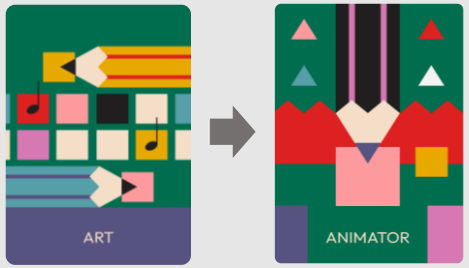
3 Activity setup



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

Open the XploriLab software on your computer or tablet.

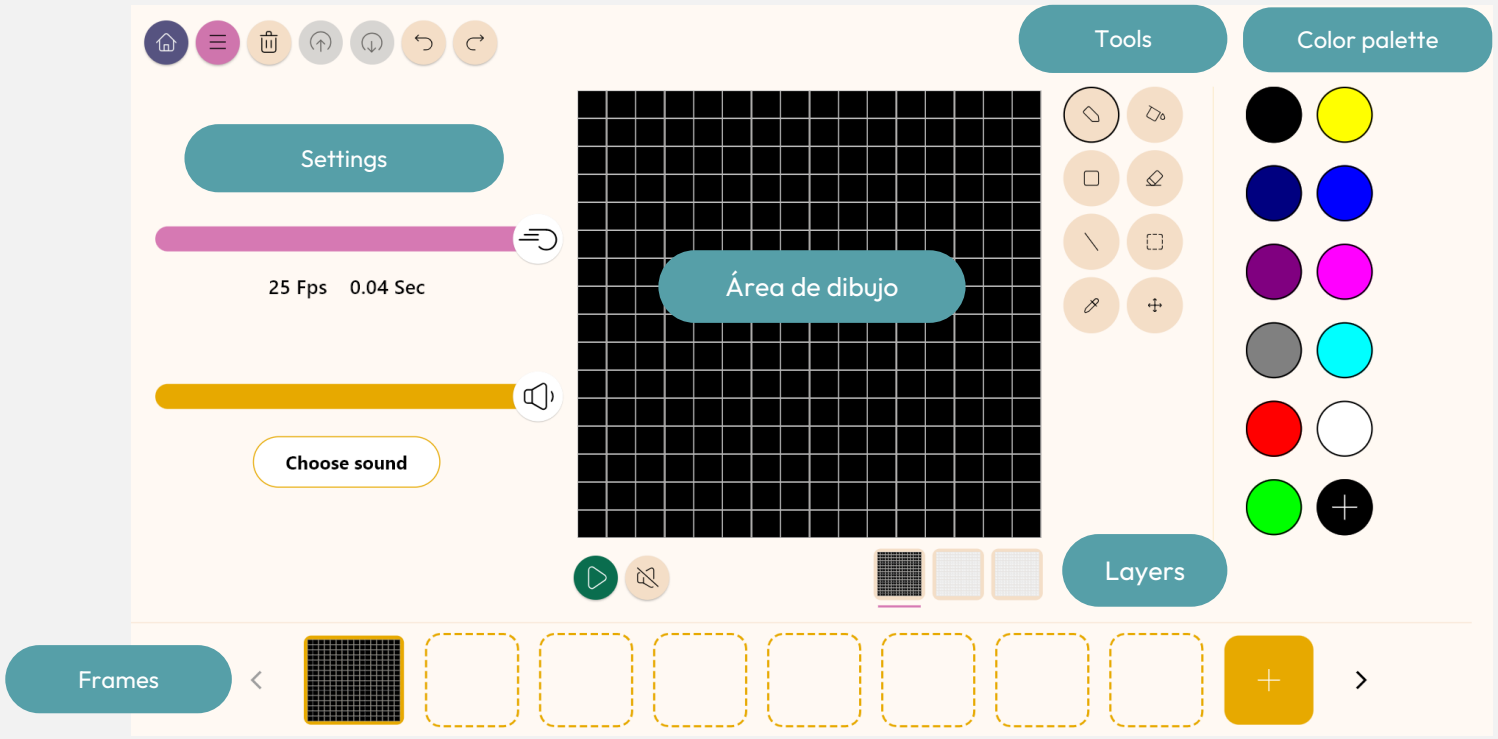
Once inside XploriLab, select the icon to connect the device via USB cable or bluetooth as applicable.



Go to the ART section and then to ANIMATOR.

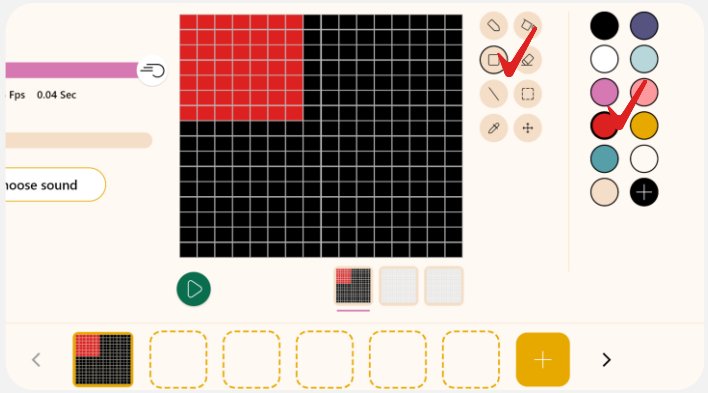
3 Activity setup

Inside the main window you will find different sections with the tools needed to create digital art. We will use these tools to design four squares divided into different colors, visually representing fractions in a clear and creative way.



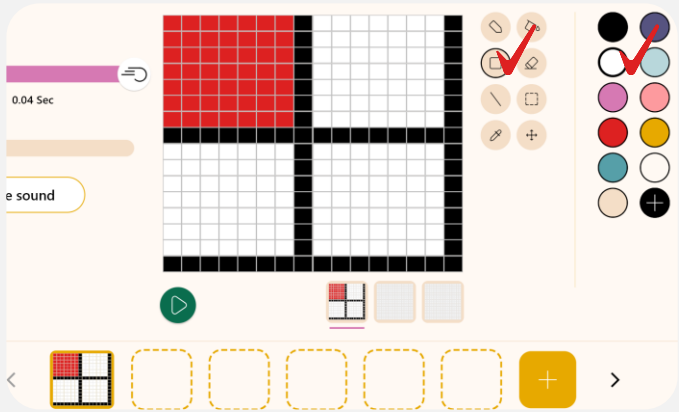
3 Activity setup

1



To create a 7x7 pixel square in the top left-hand corner, we will use the “Rectangle” tool. We will select the color red and then drag the mouse over the area where we want our square to appear.

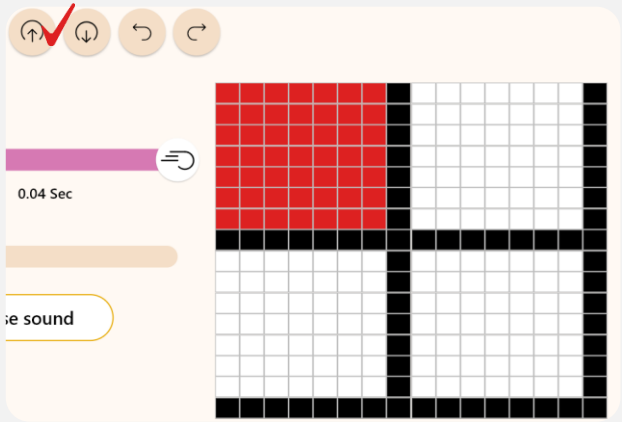
2



Next, we will repeat the previous step to create three white squares, each 7x7 pixels in size. These squares will be positioned with a distance of 1 pixel to the side and 1 pixel down from the red square.

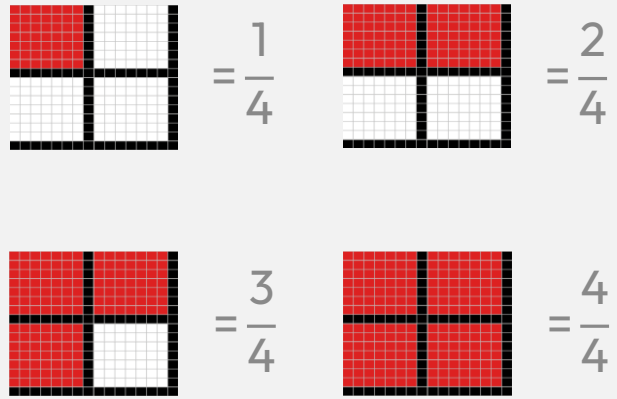
3 Activity setup

3



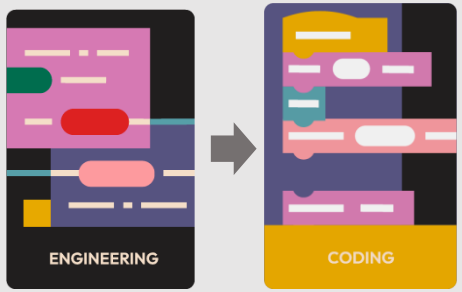
Once you have finished this process, upload the images to Xploris by pressing the “Upload” button. Remember to identify the position of the image within the storage of our Xploris so that you can use it correctly later on.

4



Finally, repeat these steps to create and store 3 more images for the fractions 2/4, 3/4 and 4/4, as shown above.

3 Activity setup



Leave ANIMATOR and go to the ENGINEERING section and then to CODING.

4 Coding

1

To represent fractions visually on our Xploris, we will use programming blocks.

Use the clear screen block in the DISPLAY group to clear the screen of our device. This step will ensure that we have a clean space to display the results of our programming.

Note: If you don't find the block right away, you can scroll the Display section to search for it.
Let's place it as the **first block** in our program

2

From the LOOPS group, use the forever block.

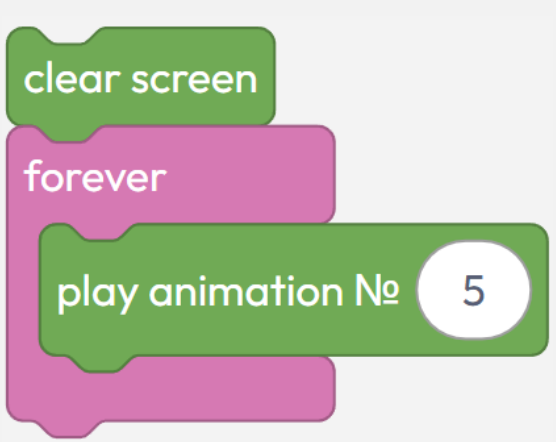
This block will allow us to **repeat indefinitely** the instructions that we place inside it.

Drag the **“Forever”** block and drop it into your program. Then, add the necessary instructions inside this block.

4 Coding

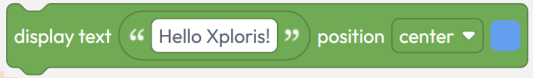
3

- From the DISPLAY group, select the play animation № 1 block and set it to the number corresponding to the animation **1/4 fraction** stored on your Xploris (in this case, number 5).

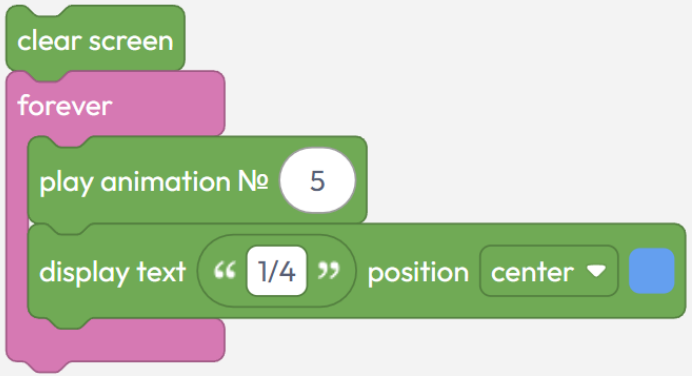


4 Coding

4

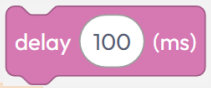
- Next, use the 

block from the DISPLAY group.
- Type “**1/4**” in the text box and set its position to **center**.
- This will make sure the fraction is clearly visible alongside the animation, reinforcing the concept effectively.



4 Coding

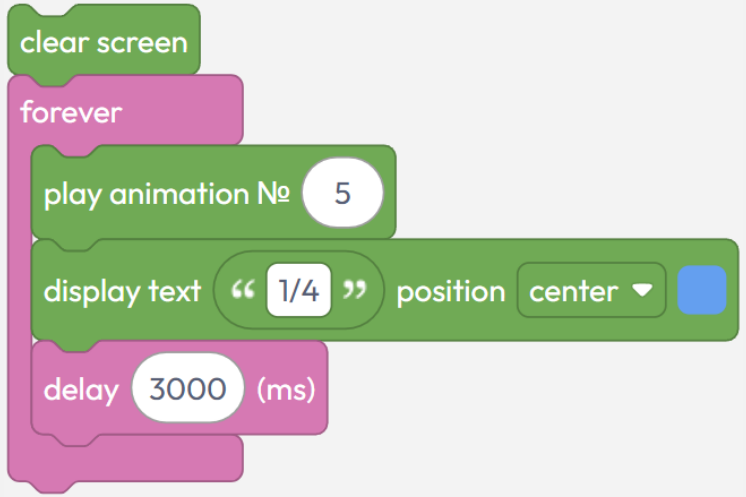
5

- To allow users to watch both the animation and the text before moving on, add a 

or 

block from the LOOPS group.
- Set the time to **3000 milliseconds** (or 3 seconds).

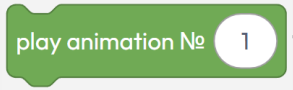
This delay will allow for a slow transition between the different fraction images.

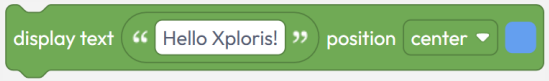


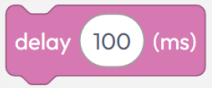
4 Coding

6

Repeat steps **3, 4 and 5** to show the **2/4, 3/4** and **4/4** fractions, adjusting each block accordingly:

- Change the number in 

for the animation of each fraction.
- Update the text in 

with “**2/4**”, “**3/4**” and “**4/4**”.
- Keep the delay at **3000 ms** in the 

block for a slow transition.

This will allow all the fractions to be displayed sequentially.

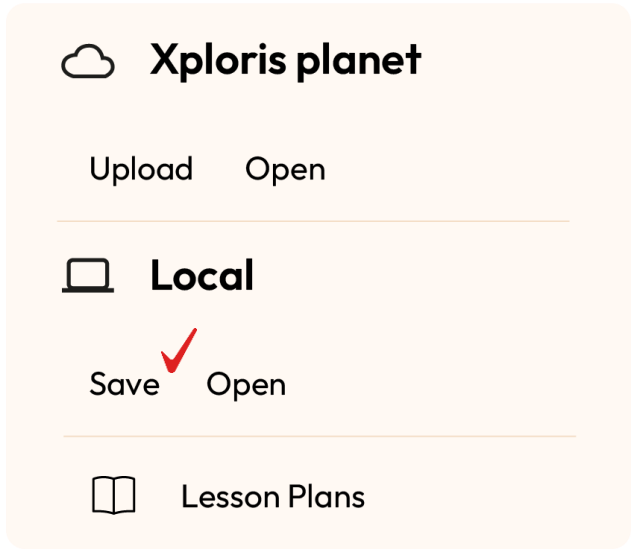
4 Coding

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. Look at the screen of the device and you will see how the images are displayed with their corresponding fractions.



5 Activity summary

- We learned the usefulness of fractions and how they are composed.
- We designed images with the **Animator** tool to represent the fractions.
- We use coding blocks in Xploris to show fractions in a visual and interactive way.

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CODING MATH

Fractions