

xploris

ARTS

Symmetrical Art

xploris

ARTS

SYMMETRICAL ART

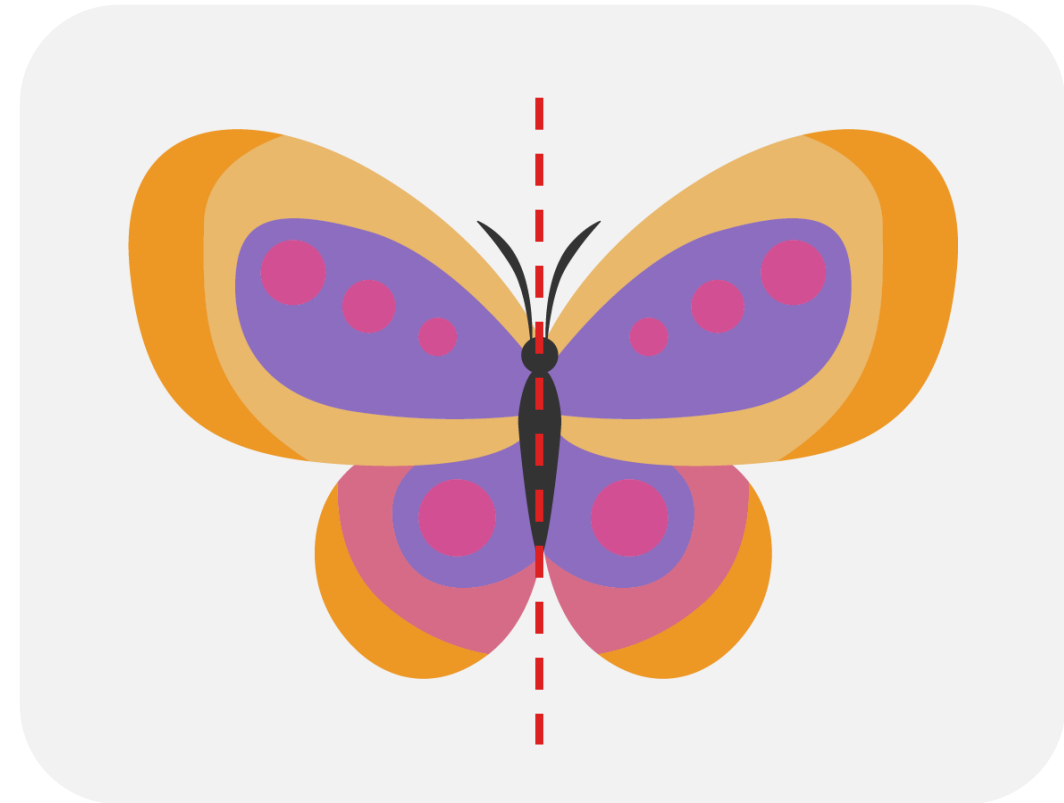
- 1 Introduction
- 2 Design
- 3 Questions
- 4 Activity summary

1 Introduction

Symmetry can be found in many aspects of our lives, from nature to art and architecture. An image is considered symmetrical when one part mirrors the other, like the wings of a butterfly, the human face, or a snowflake.

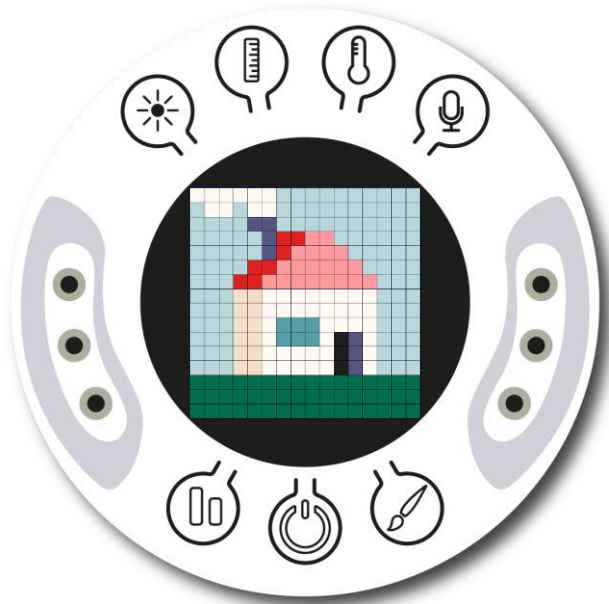
In mathematics, axial symmetry refers to a type of symmetry where a figure is reflected across a line, much like looking into a mirror. This line is called the axis of symmetry, and it divides the figure into two identical parts, with one side being a perfect reflection of the other.

In this lesson, we are going to create several symmetrical drawings with pixels. Let's get to work!



Will we be able to draw symmetrical elements in our Xploris?

2 Design



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



Open the XploriLab software on your computer or tablet.



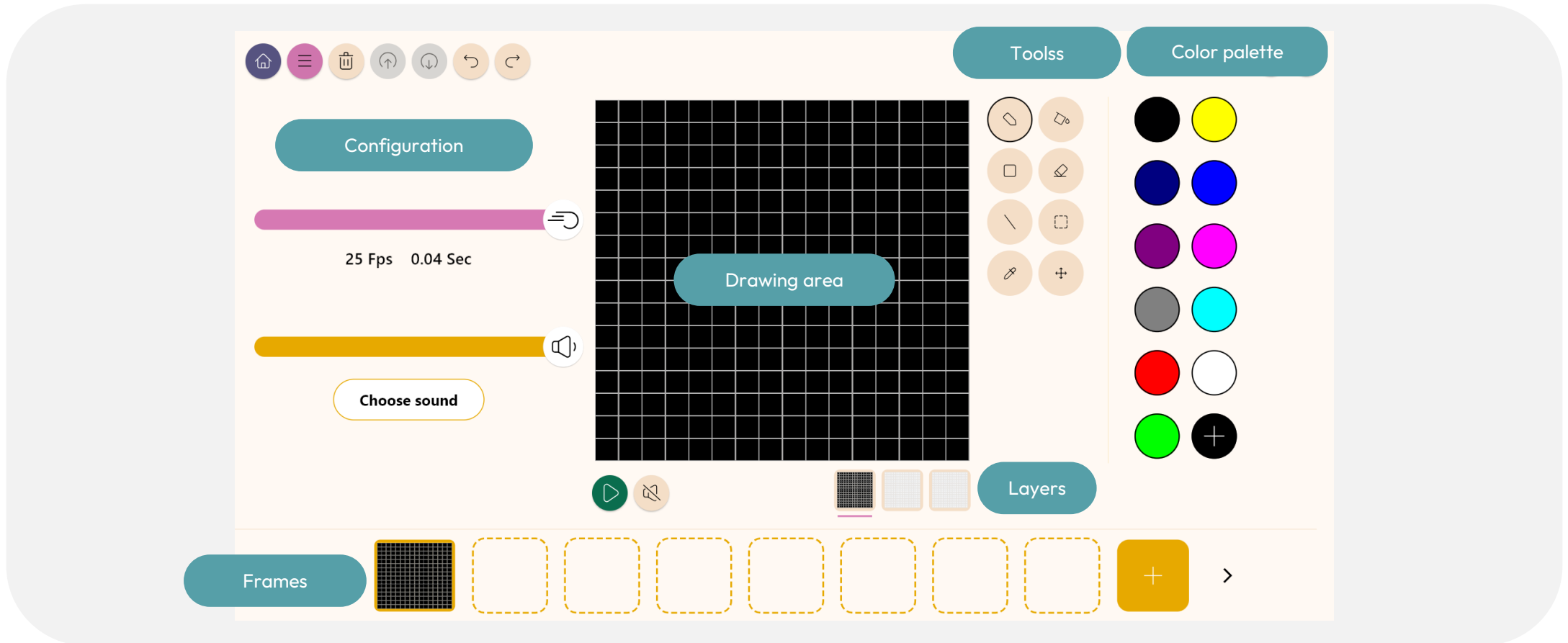
Once inside XploriLab, select the icon to connect the device via cable or bluetooth as applicable.



Go to the ART section and then to ANIMATOR.

2 Design

Inside the main window you will find several sections with the necessary tools to make a digital artwork.



2 Design

Use the different Xploris tools to create a symmetrical drawing.

Tools



Pencil: Adds color to a pixel.



Bucket: Fills the inside of a closed shape with color.



Rectangle: Creates a rectangle on the screen.



Eraser: Erases a single pixel.



Selection: Select a section of the frame to copy, paste and move.



Line: Creates a straight line.



Eyedropper: Copies the color of a pixel.



Move: Move the selected pixels.



More: Change the selected color in your palette.



Undo: Deletes your last action.



Redo: Redo an action you have deleted.



Upload: Upload your drawing or animation to the Xploris device.

2

Design

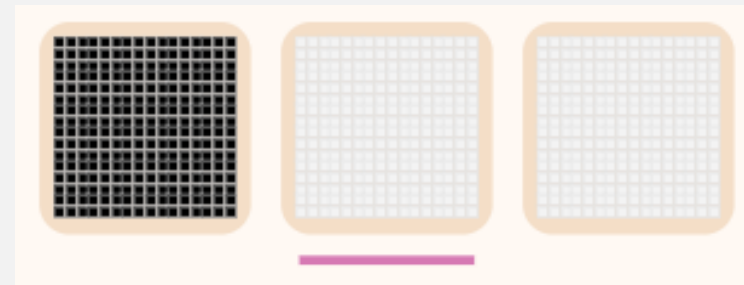
1

In this activity, we'll complete **5 different** exercises to practice symmetry. We'll draw:

- Tree
- Ladybug
- Skyscraper
- Arrow
- The city

The goal is for you to figure out the symmetries on your own, without seeing the final result until the end.

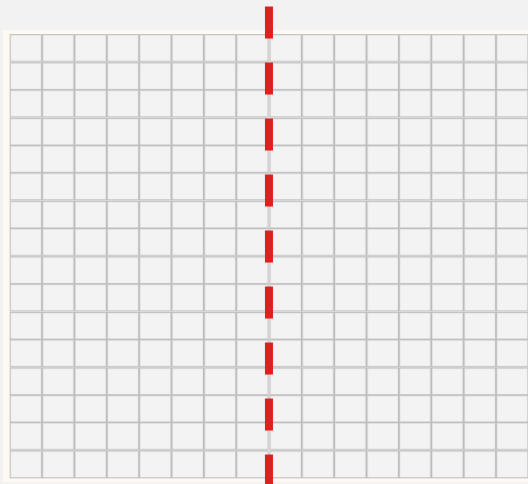
2



Below the drawing area, you'll see the layers. The first, in black, is the background, and the other two are the work areas for drawing elements. Select the second layer, as that's where we'll be working.

2 Design

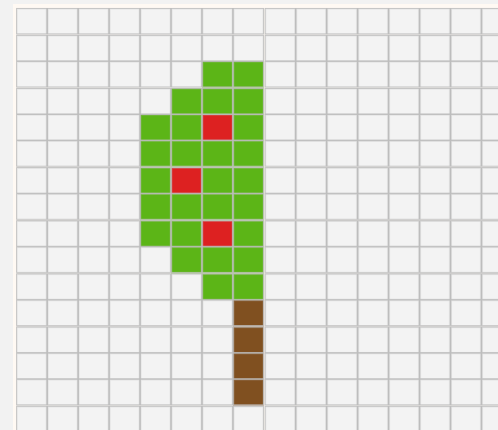
3



Determine your axis of symmetry, which is an imaginary line that acts like a mirror, allowing you to draw elements on one side and reflect them onto the other. In this case, our axis will be vertical.

Note: If on the left side a pixel is 3 squares away from the line, on the right side it will also be located 3 squares away from the line, and so on with each pixel drawn.

4



Let's start with the tree. With the help of the pencil tool, copy the image above and once finished try to replicate it on the other side of the imaginary line.

Save each exercise you complete from now on, and at the end of the activity, review your work to see if you've successfully achieved the correct symmetries.

2

Design

To save your drawings for later viewing.

Tap the three-bar icon at the top of the screen.



Save your drawing by pressing “Save” and give it a name.

You can even upload your drawings to your Xploris for easy viewing. Press the “Upload” icon at the top of the screen, wait for it to upload and watch your drawing appear in Xploris.




Xploris planet


Upload Open

Local

Save  Open

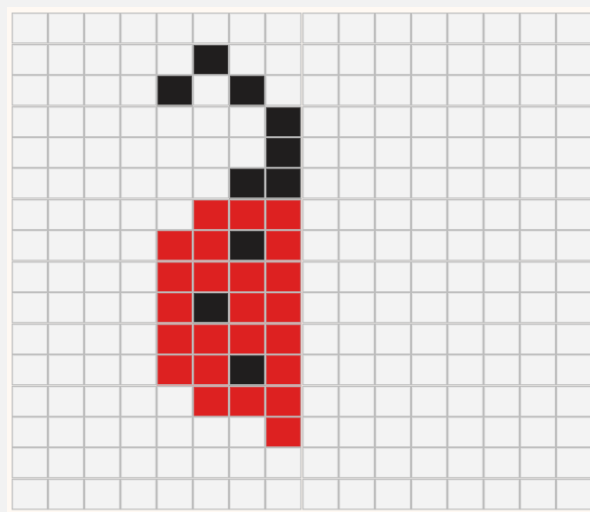
 Export animation

 Import animation

 Lesson Plans

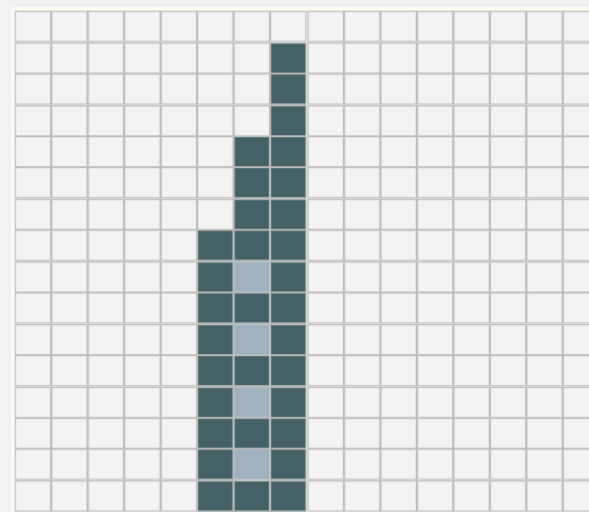
2 Design

3



Let's continue with a ladybug. First, determine your axis of symmetry—an imaginary line that acts like a mirror, reflecting all the elements from one side to the other. In this case, our axis will be vertical. Complete the image, and don't forget to save your work!

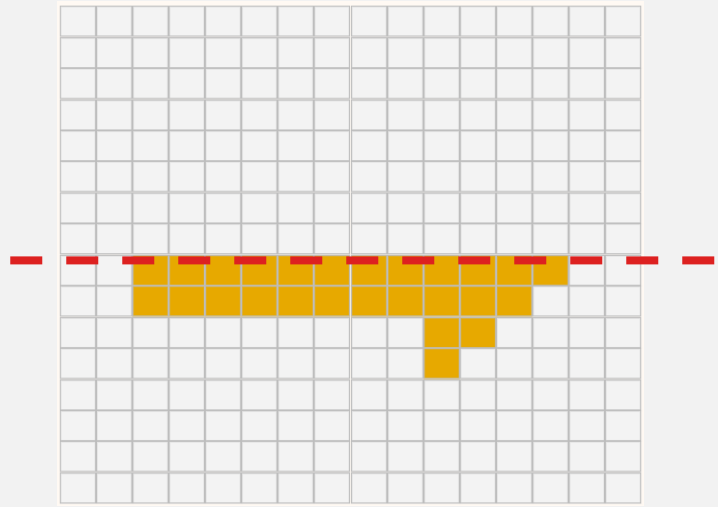
4



Now let's make a skyscraper. The axis of symmetry will not always be in the middle of the screen. How will the drawing look when the axis is to one side? Try to solve it and save the result.

2 Design

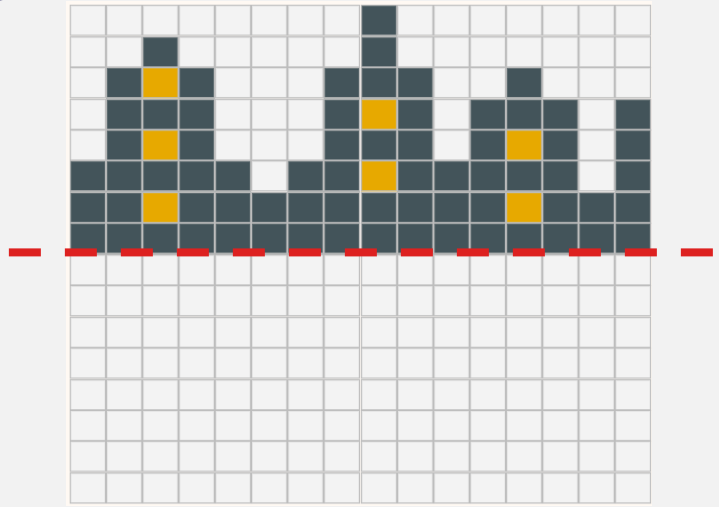
3



Now we are going to complete a drawing with a **horizontal** symmetry axis . Everything that is above this line will be reflected below or vice versa.

Try to solve it and save the result.

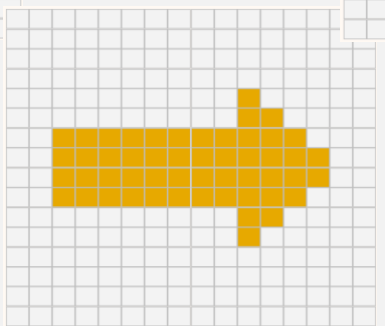
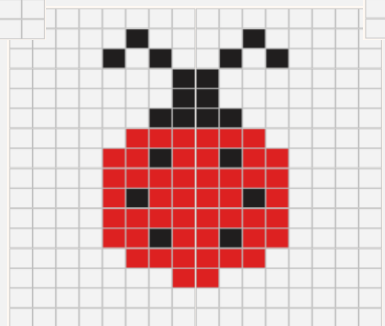
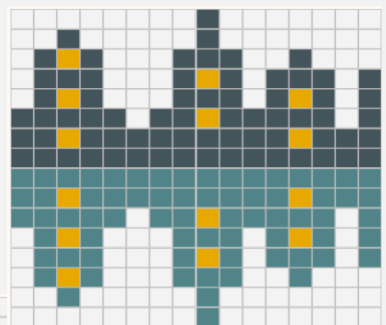
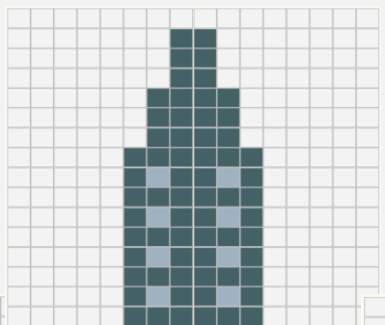
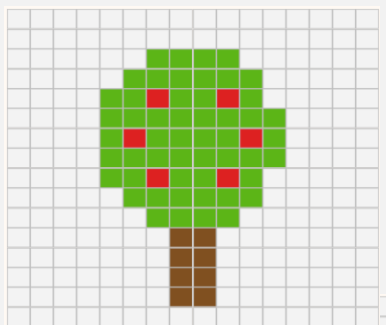
4



Not only mirrors reflect things, water also has a similar effect. **Have you ever seen how a city is reflected in a lake at night?** It looks like the buildings are upside down. Complete the drawing and let's see the result you saved.

2 Design

9



Congratulations, you've completed the activity! On this page, you'll find the results showing how your symmetry exercises should look. If they don't match exactly, don't worry—you can always try again until you get it right.

Think about symmetrical objects in your daily life and challenge yourself to recreate them in Xploris to keep practicing !

3

Questions

1

Mathematics

Why do you think symmetry is important in the design of buildings and bridges?

2

Trends

Nowadays many brands have symmetrical logos. Can you identify some that meet this condition?

3

Let's keep experimenting!

Cats and many other animals typically have symmetrical faces. Do you think you can create one on your Xploris?



4

Activity summary



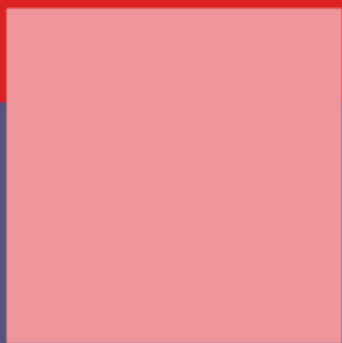
We used the Xploris software to create 5 different symmetrical drawings.



We learned the concept of axial, vertical and horizontal symmetry, to apply it in our drawings.



We identified elements of our daily life that are symmetrical.



xploris
ARTS

Symmetrical Art