



# Globisens

## Award-Winning Mobile STEM Labs



# WORLDWIDE SUCCESS

MORE THAN **1 MILLION** STUDENTS USING OUR SOLUTIONS

MORE THAN **150,000** STEM LABS INSTALLED

# FULL STEAM AHEAD

One device does it all



# UNIQUE STEAM SOLUTION

Xploris - a compact, hand-held disc that does it all!



## Engineering

By producing various control outputs



## Science & Math

Experimentation with Xploris 5 built in sensors



## Coding

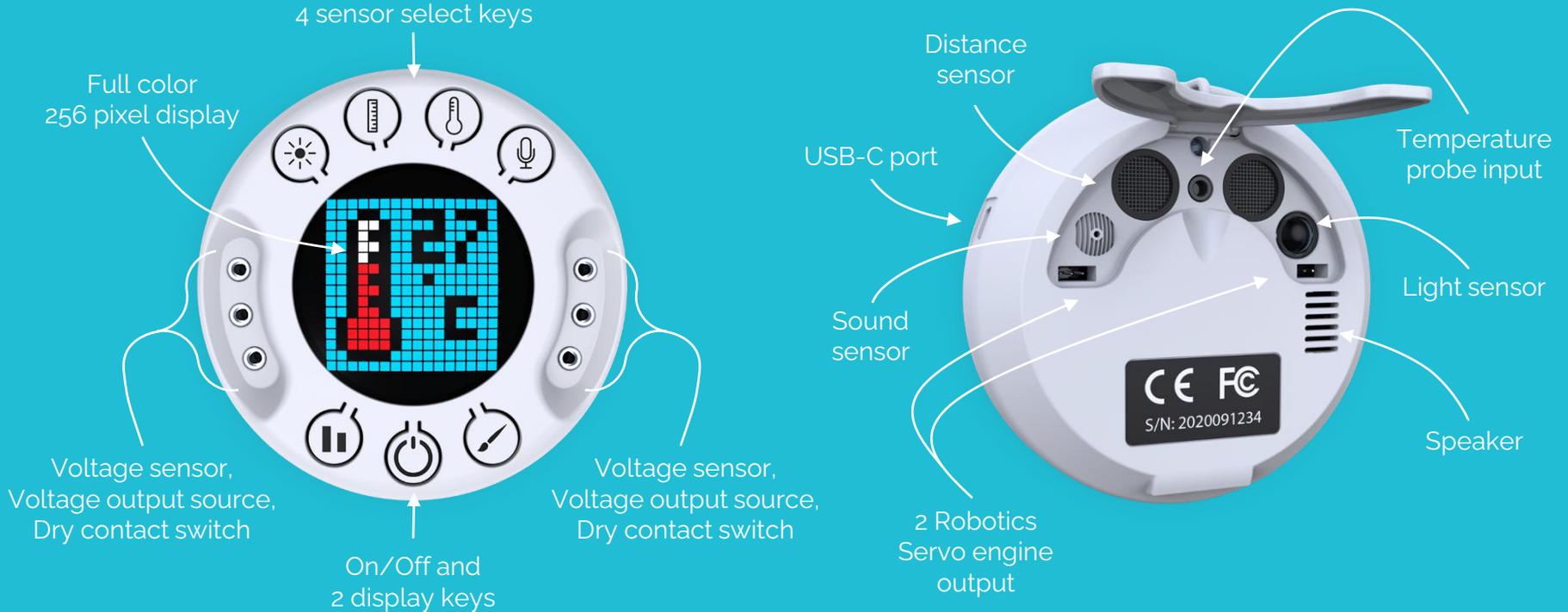
Through Blockly and Python languages



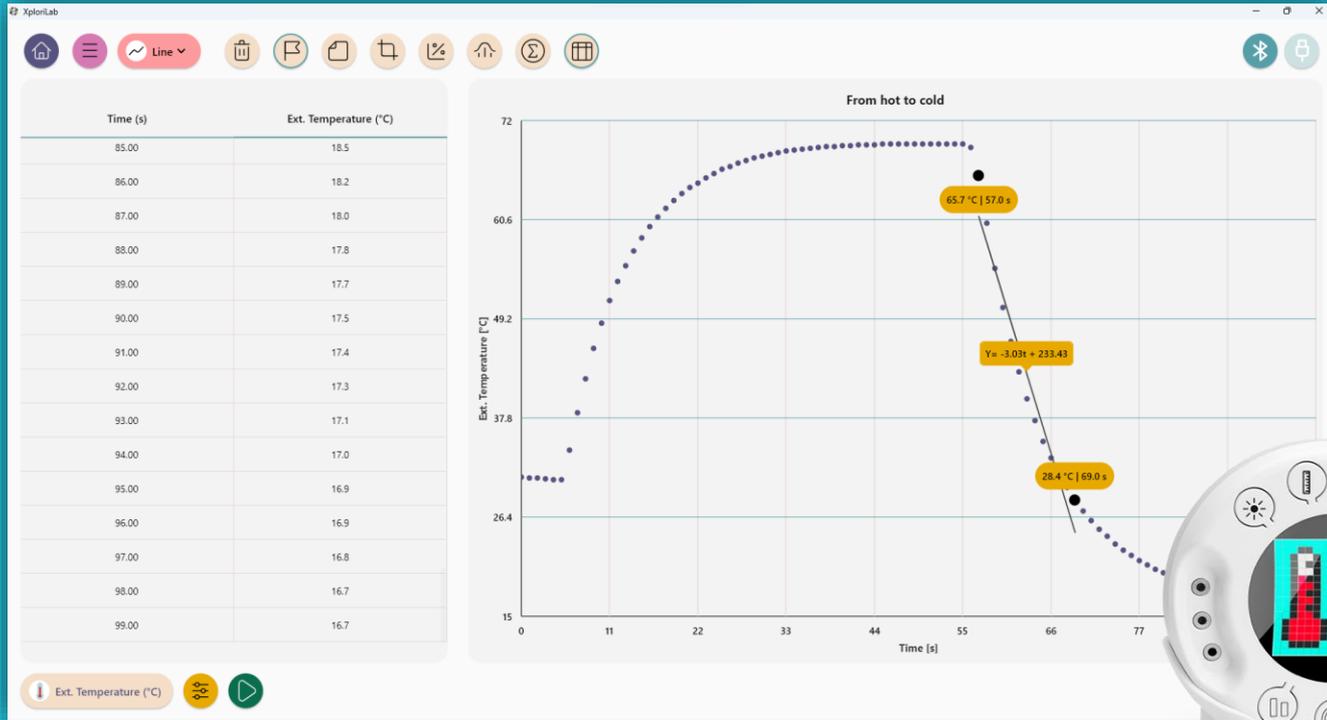
## Art

By creating pixel-art images/animations

# XPLORIS – PORTS AND CONTROLS



# FOR SCIENCE & MATH



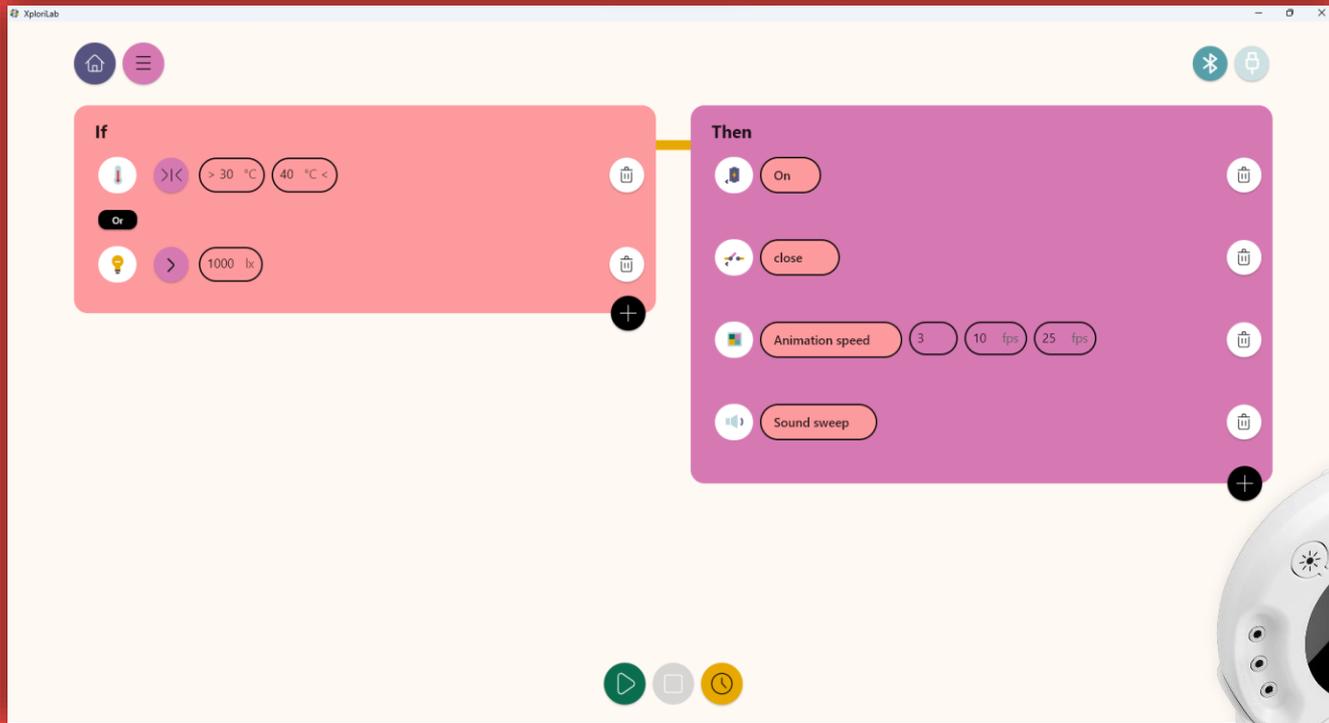
# FOR CODING

The screenshot shows the XplornLab coding environment with three distinct code blocks:

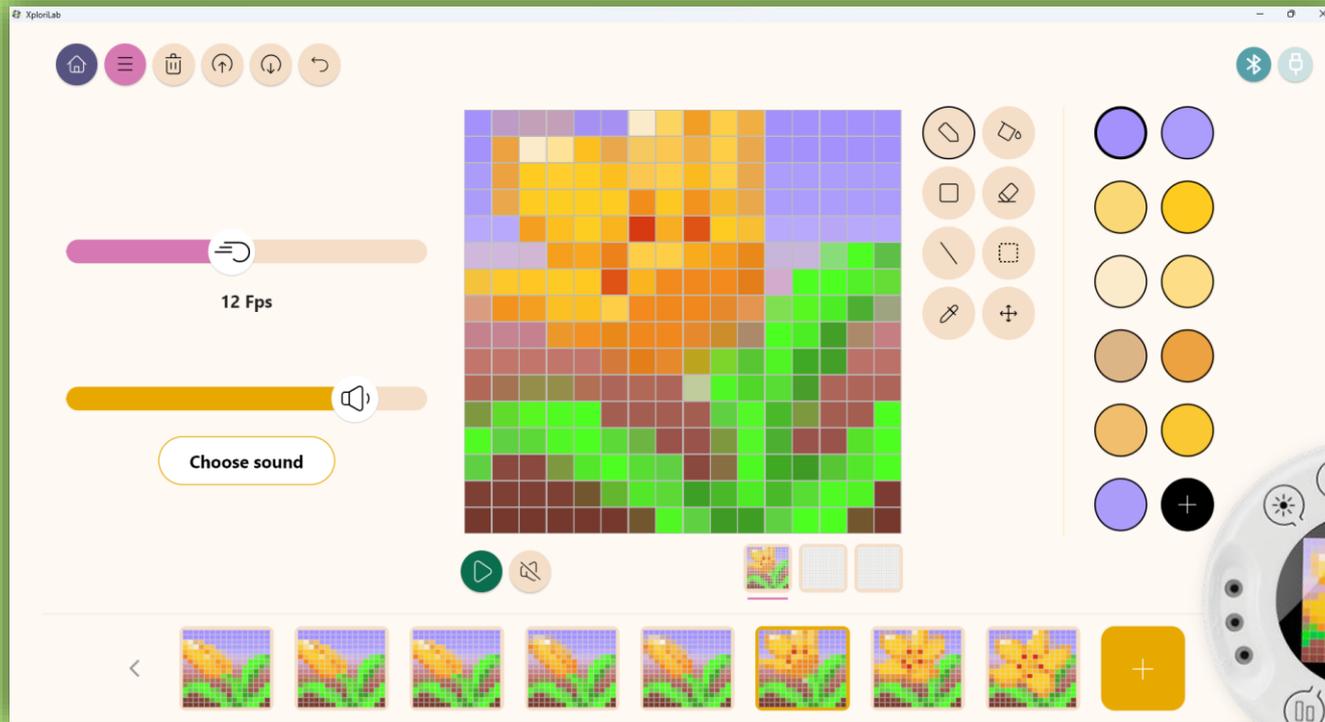
- Block 1 (Left):** A 'repeat while' loop with 'True' as the condition. Inside, an 'if' block checks 'light [lux] << 1000'. If true, it sets 'right\_switch' to 'on' and displays a lightning bolt. If false, it sets 'right\_switch' to 'off' and displays a star.
- Block 2 (Middle):** A 'count with' loop for 'j' from 0 to 15 by 1. Inside, an 'if' block checks 'sound [dB] << 70'. If true, it plots 'i' and 'j' on a green grid and plays a 400 Hz tone for 200 ms. If false, it plots 'i' and 'j' on a red grid and plays a 400 Hz tone for 200 ms. A 500 ms pause follows.
- Block 3 (Right):** A 'repeat while' loop with 'distance [cm] << 300'. Inside, it increases volume by 1%, plays a 400 Hz tone for 10 ms, and displays a downward arrow. A 'button bar' is pressed to break the loop, followed by setting volume to 50% and a 100 ms pause.



# FOR CONTROL & ENGINEERING



# FOR ART



# XPLORIS LESSON PLANS

## Activities in Coding, Science, Animation, Music and Control

**Introduction**

Greenhouses offer a wide variety of fruits and vegetables, but you might notice that some are out of season or originate from distant regions. Imagine: more of these crops can still be grown locally. How is this possible? One key factor is the use of **greenhouses**. These remarkable environments create optimal conditions for plant growth, allowing for the cultivation of diverse species year-round. Greenhouses provide protection from harsh weather and pests, enabling farmers to produce fresh, high-quality produce regardless of the season.

In this lesson, you will explore the environmental changes that take place inside a greenhouse, utilizing Xploris temperature sensors to gather and analyze data.

The question you will answer will be:

**How does the temperature inside a greenhouse compare to the temperature outside?**

**The Greenhouse Effect**  
Science & Engineering

**Introduction**

Symmetry can be found in many aspects of our lives, from nature to art and architecture. An object 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 if divided 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 Xploris. Let's get started!

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

**Symmetry Art**  
Art & Math

**Introduction**

Has it ever happened to you that you have done a lot of exercise and you feel how your heart beats faster and with a bit of beat? That's because the heart starts to beat with oxygen and nutrients to the body in order to function. In other words, exercise increases the heart rate to keep working.

In this activity, you will start how your body changes after exercise, using the Xploris heart rate and pulse sensors.

The question you will answer will be:

**How do my pulse and heart rate change after exercise?**

**Heart Rate**  
Science, Health & Math

**Introduction**

Molecules, the tiny building blocks of everything around us, behave in fascinating ways depending on temperature. When an object heats up, its molecules move more rapidly and vibrate vigorously, almost as if they're dancing with energy. Conversely, as something cools down, the molecules slow their movement significantly, settling closer to a standard.

In this lesson, you will build a control diagram with Xploris that will allow us to visually represent this phenomenon.

The question you will answer will be:

**How do you think molecules would look as the temperature changes?**

**Molecules In Motion**  
Science, Math, Art & Coding

**Introduction**

Are you sure you've played a video game or used a smartphone at the same time? Have you ever noticed how they tend to heat up after a while?

Both people and devices perform best when they're at the right temperature. If a game too hot, we feel drained and struggle to focus. Devices work the same way—they can slow down, malfunction, or even get damaged if they overheat. It's like a runner trying to race under the burning sun!

In this activity, you are going to become a scientist and a programmer! You will use block language and the Xploris temperature sensors with the real-time temperature probe to build your own thermometer that will let you know if the temperature is comfortable for people.

**How do you think the temperature will change when you exercise?**

**My Thermometer**  
Math & Coding

**Introduction**

Did you know that **sunflowers, snails, and flowers are all connected to magic numbers**?

This number belongs to the **Fibonacci sequence**, a special list where each number is the sum of the two previous ones. It's 0, 1, 1, 2, 3, 5, 8... The pattern appears in nature and helps us understand how many things around us are organized.

In this class we will explore about this incredible sequence and program it in our Xploris, combining mathematics and technology to create something that is useful.

**Are you ready to discover the magic of Fibonacci and how to bring it to life with coding?**

**How do you think the Fibonacci sequence will change when you exercise?**

**Fibonacci Sequence**  
Science, Math & Coding

**Setting up the experiment**

You will measure the voltage produced by three energy sources – AAA battery, a lemon, and a potato – using the Xploris voltage sensor. This experiment will explore whether it's possible to generate electrical energy from these environmental sources and how their output compares to that of a standard battery.

**MATERIALS**

- Xploris
- Voltage sensor
- Batteries
- Lemon
- Potato
- Xploris wires
- Pieces of copper

**How do you think the battery will change when you exercise?**

**Build Your Own Battery**  
Math & Science

**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:

- 3** Numerator (top): Tells you how many parts you have.
- 8** 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  $\frac{3}{8}$ .

**How do you think the fraction will change when you exercise?**

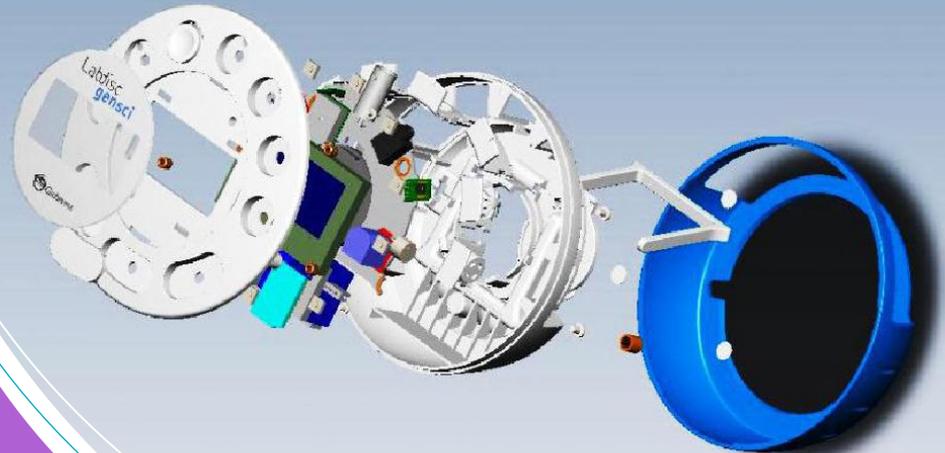
**Fractions**  
Math & Coding

# STARTING STEAM AT A YOUNG AGE



# ABOUT US

- 10 employees
- Hi-tech production facility in Israel
- Labdisc first launched Oct 2011
- Nearly 150,000 units shipped
- Returns < 0.2%





THANK YOU!