

# **MiLABEx™ User Manual**

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# Introduction

MiLABEx™ is a powerful app that collects, displays, and analyzes experiment data. MiLABEx™ must be paired with the einstein™ tablet or the einstein™ LabMate, which allows you to transform any PC and Android/iOS device into a holistic digital lab and works with unique brand sensors that collect data such as temperature, humidity, light, and many more.

Designed for K-12 educators, MiLABEx™ offers comprehensive features and capabilities for a unique learning and teaching experience:

- Create and share workbooks with experiments and enriched learning
- Create and run experiments
- Collect and display data in real-time
- View data in various formats, including graphs, tables, and meters
- Export data

# Getting Started

MiLABEx™ can be used on the einstein™ tablet or any PC or Android/iOS device when paired with the einstein™ LabMate. If you have the einstein™ tablet, the MiLABEx™ app will already be installed. Simply tap the MiLABEx™ icon to start: 

For any other device, the MiLABEx™ app needs to be installed. Please see the instructions below for your device.

## ***Installation on an iOS Device***

To download MiLABEx™, [tap here](#) from your iOS device or follow the instructions below.

1. Tap the App Store icon on your device
2. Search for MiLABEx
3. Tap “Get” to start the download

Once downloaded and installed, the MiLABEx™ icon will appear on your home screen. Tap it to open the application.

## ***Installation on an Android Device***

To download MiLABEx™, [tap here](#) on your Android device or follow the instructions below.


1. Tap the Play Store icon on your device
2. Search for MiLABEx
3. Tap “Install” to start the download

Once downloaded and installed, the MiLABEx™ icon will appear on your home screen. Tap it to open the application.

## ***Installation on a PC***

To download the MiLABEx™ software, visit the [Einstein World website](#).

## ***Opening the MiLABEx™ App***

Once installed, the MiLABEx™ app will appear with the following icon  on your device:


Simply tap it to open the app. If you can't find the app, tap the App Store icon (for iOS) or the Play Store icon (for Android) and search for MiLABEx. If the application is already installed on your device, you will be able to tap the Open button. If the button says “Get” or “Install”, follow the installation instructions to install the app on your device.

## Language & Unit Settings

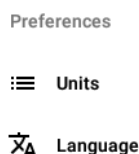
Once MiLABEx™ is installed, you can set it up according to your preferences. This includes choosing the language the interface will be in and the units you'd like it to use throughout your experiments (for example, Celsius vs. Fahrenheit).

Open the MiLABEx™ app and tap the **MiLABEx** button.

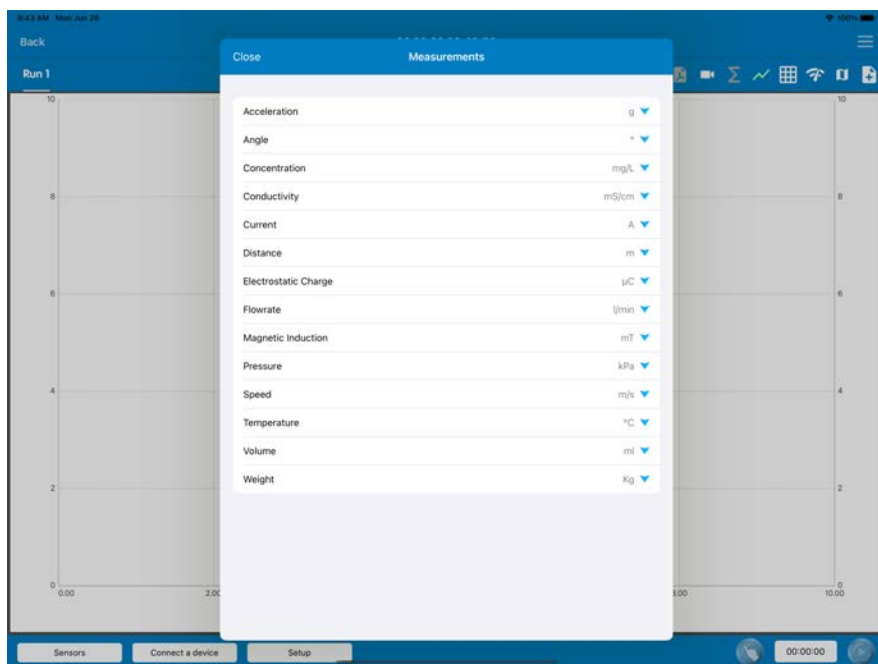


Tap the three menu lines at the top left of the screen 

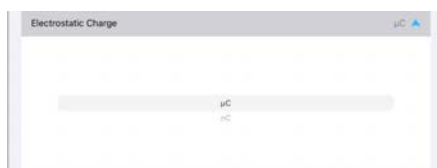
A menu will open, allowing you to select your unit and language preferences.



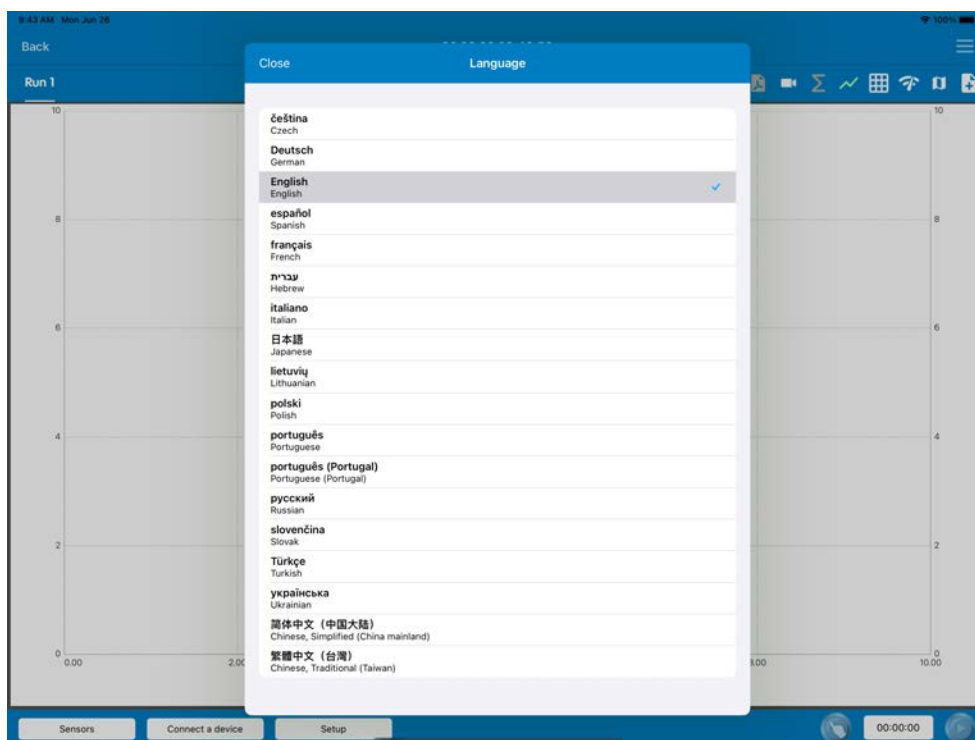
To configure your unit preferences, tap **Units**. This will open a menu of all of the different measurements you can select units for.



To change a measurement's units, tap the small blue arrow and select a unit:



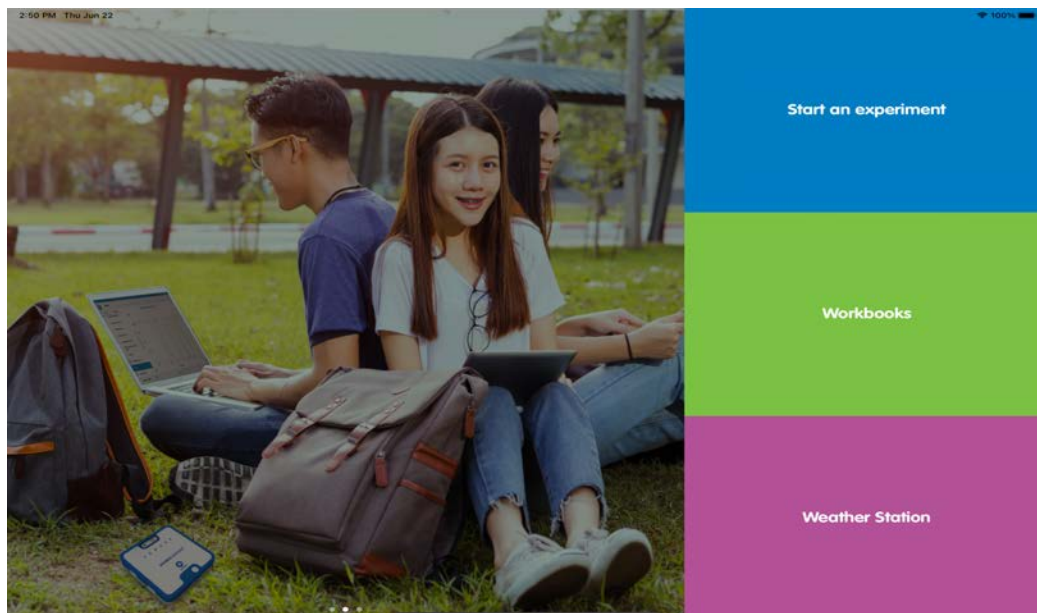
To configure your language preferences, tap **Language**. Select the desired language by tapping it. A gray checkmark will appear next to the selected language. Please note that changing the language here will only change the language in MiLABEx™.



Don't see your language here? Contact our developers and let them know what language you'd like us to add: [support@einsteinworld.com](mailto:support@einsteinworld.com)

# Navigating the MiLABEx™ App Home Screen

The MiLABEx™ home screen is the main screen to access all of the different areas within the app:



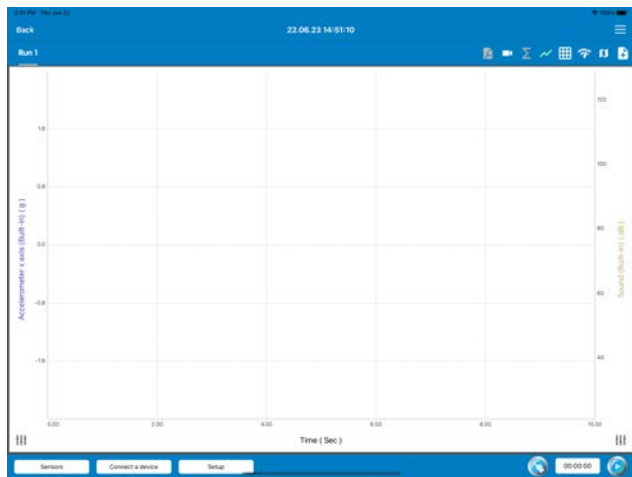
- **Connected LAB**– This is where you can configure your preferences, access the version information and user guide, and create and run new and saved experiments.
- **User Guide** – Get quick access to the MiLABEx™ user guide.
- **My Experiments** – Any saved experiments will appear here. Simply tap the button to see a list of all of your saved experiments. For saved experiments, see [Saved Experiments](#).
- **Workgroups** – The Workgroup section allows you to enter a workgroup ID and view all of the workbooks shared with that workgroup.
- **Workbooks** – Log into your einstein™ user and access the workbooks section, where you can create workbooks and workgroups, view your workbooks, and view public workbooks in the einstein™ store.
- **Weather Station** – Opens the “Weather Station” window, which will be described in the page.



# Navigating the MiLABX™ Experiment Main Screen

MiLABX™ allows you to create and run new experiments, run saved experiments, and view and analyze your data visually in various display formats. To access MiLABX, click the **MiLABX™** button in the main MiLABEx™ home screen.

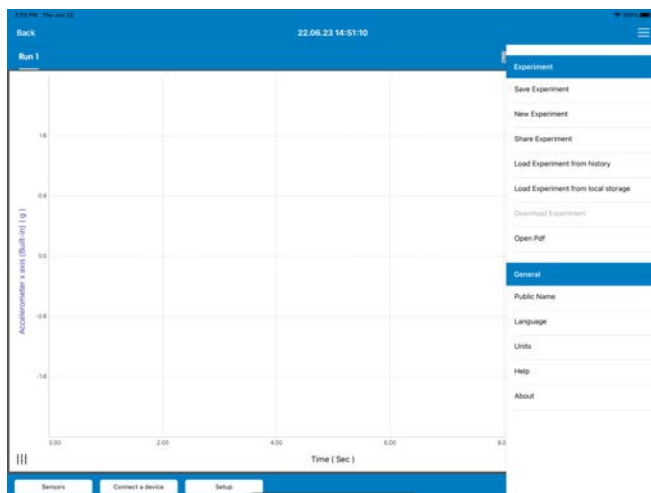
By default, MiLABX™ opens on a new experiment screen:



The MiLABX™ screen includes three main parts:

## *Top Navigation Bar*

The navigation bar at the top allows you to carry out actions on an experiment. Buttons that are enabled are blue, while actions that are not available are gray.



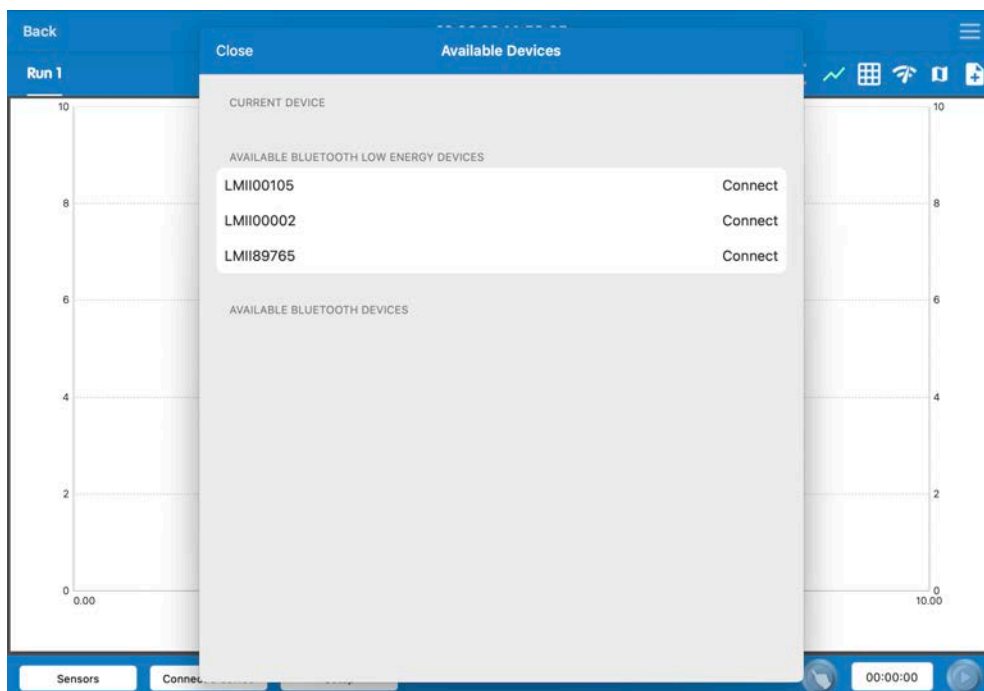
- a. **Save Experiment:** Tap to save. This can only be done after an experiment has run and contains data. In the above image, this button is gray, which means that the experiment is currently empty and cannot be saved.
- b. **Share Experiment:** This action is enabled only when an experiment contains data. Tap the icon to share the experiment via email. The application will automatically launch the email provider you selected when setting up the application (i.e., Yahoo, Gmail, etc.). The experiment file will be attached as a .mib or .csv file in the email. If the user decides to share via .mib, the recipient must have the MiLABX™ desktop application on his/her laptop in order to view the experiment.
- c. **Delete Experiment:** This action is enabled only when an experiment contains data. To delete the data without saving, select “Clear without saving”. If you wish to save first, select “Save and clear”. To cancel, tap the Cancel button.
- d. **New Experiment:** Tap to create a new experiment. This option is not enabled if a new and empty experiment is already open.
- e. **Select Saved Experiment from App:** Select and load an experiment from the “Saved Experiments” in the application.
- f. **Select Experiment from Device:** Select and load an experiment saved on the device’s internal storage folders. This allows you to load experiments sent to you by another user, saved on your device.

### *Bottom Experiment Setup Bar*

The bar at the bottom of the screen allows you to setup experiments.



- a. **Sensors:** Opens the list of all connected sensors, both external and built-in.
- b. **Connect a device:** Opens the list of devices you can connect to the app via Bluetooth. Once connected, the device name will appear in the bottom bar instead of “Connect a device”. For example, if you are using the einstein™ tablet, the button will say “einstein™Tablet+3” like in the above image. Tapping the button will always open the same list of devices that can be connected. When using an iOS/Android device or PC, the LabMate must be connected in order to access the sensors and run experiments.



There are three types of devices that can be connected: Internal, Bluetooth, and BLE (Bluetooth low energy). When using the einstein™ tablet, the tablet name will appear under the “Internal Logger” menu. When using any other tablet, only Bluetooth and BLE menus will be available.

- c. **Setup:** Tap to set up an experiment. If an experiment is already opened, you can tap the button to edit its existing settings. The text on the button will change according to the existing experiment settings.
- d. **Duration:** Displays the experiment’s duration in real time. When the experiment is running, the timer will run.
- e. **Prediction tool:** Allows you to use the prediction tool before running an experiment.
- f. **Run (“Play”) button:** Tap to run the experiment.

Note: The **Run** button will change depending on the sampling type you select for your experiment.


### *Experiment Screen*

The experiment screen is the large area in the center. It contains the main screen view and a number of menus. The experiment menu allows you to view the different experiment runs, and display your data in additional formats:




- a. Every experiment can have multiple runs. The number of runs is limited by the device's memory and CPU capacity. To view a run, simply tap the tab with the run number you'd like to see. This is particularly useful to compare different runs of the same experiment and to show how certain parameters can change the result, such as when and where the experiment was run each time.
- b. Graph: Each experiment run is shown in graph format by default. You'll see that the graph icon is automatically selected. Multiple display formats can be chosen, but one must always be selected. To view a different format in the main view, select it and then deselect the graph icon.
- c. Table view
- d. Meter view: The meter view includes 4 different meters (see [Meter View](#)).
- e. Map view
- f. Notes view: Add notes by tapping the icon and the text area. You can then either type a note on your keyboard or use Google Voice-to-Text to add a note with your microphone.

# Creating and Running Experiments


Once an experiment runs, it is not possible to change the unit formats and language. Before running an experiment, choose your preferences by tapping the top menu . Visit page 6 for step-by-step instructions on how to change unit and language settings.

Make sure that a device is connected to the app. Click **Connect a device** at the bottom experiment menu

bar and select the relevant einstein™ device: 

If you are using the einstein™Tablet, it will automatically be selected. If you are using any other device, connect and select the LabMate device.

Once a device is connected, the 'Connect a device' button will change and show the device name, for

example: 

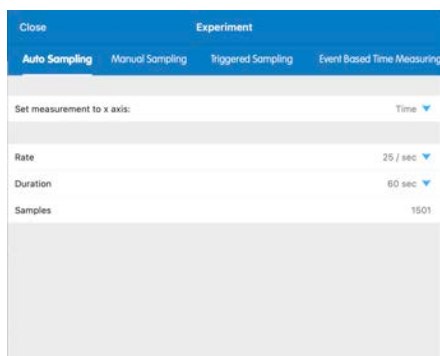
## Setting Up Parameters for Your Experiment

To start setting up the parameters for your experiment, click 'Setup' at the bottom menu:




The **Setup** menu allows you to control:

- The sampling type of the experiment
- X-axis
- Sample rate
- Duration
- Sample number




### Sampling Type

There are four sampling types: Auto Sampling, Manual Sampling, Triggered Sampling, Event-Based Time Measuring. By default, **Auto Sampling** will be selected.

- **Auto Sampling:** Allows you to run any experiment using default setting or change the setting according to your needs.
- **Manual Sampling:** For some experiments, you will want to manually determine when to take a measurement. Ideal for experiments in which you have various light sources: for example, if you are measuring light and want to see the parameters of each light source individually mapped on the graph. When selected, you can tap the pen icon () to record the light measured by the sensor at that precise moment. This is useful if you are measuring light from multiple lamps, as it records data accurately for every lamp generating light.
- **Triggered Sampling:** Sometimes, you will only want to start an experiment when a certain condition is met, for example, when a solution reaches a certain temperature. This is called a trigger. When setting up triggered sampling, select your triggered parameter to ensure the relevant measurements appear on your graph. For example, when measuring light, select the number value and whether the device should collect data below or above that numerical value. Triggered data based on the values you define will then appear on the graph.
- **Event-Based Time Measuring:** This sampling type is for physics experiments and is used with the photogate sensor.

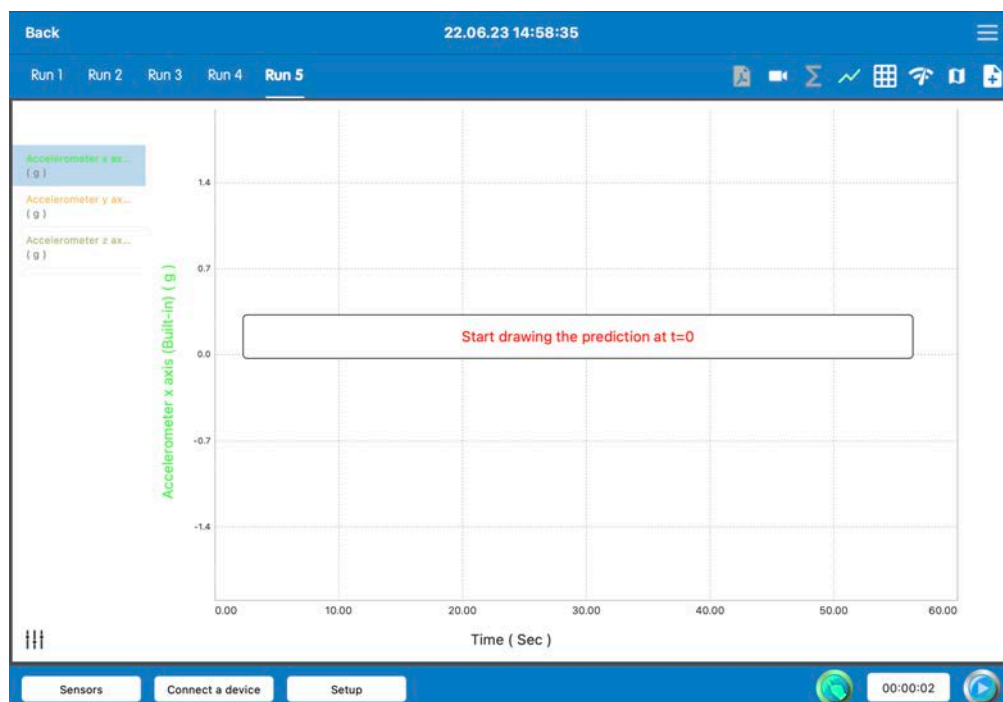
### Prediction

The **Prediction** tool is available when selecting the **Auto Sampling** sampling type, and allows you to draw your prediction of the experiment outcome in the graph before running, and compare it to the actual result. This is a great way to provide students and yourself with exercises that compare your answer and input to real-time results.

To use the **Prediction** tool, select it at the bottom of the main experiment screen: .

Before using the **Prediction** tool in the experiment, make sure your sensors are set up. To see how to set up your sensors, visit page 18.

Once everything is ready, you'll be able to use the **Prediction** tool in your main experiment window.



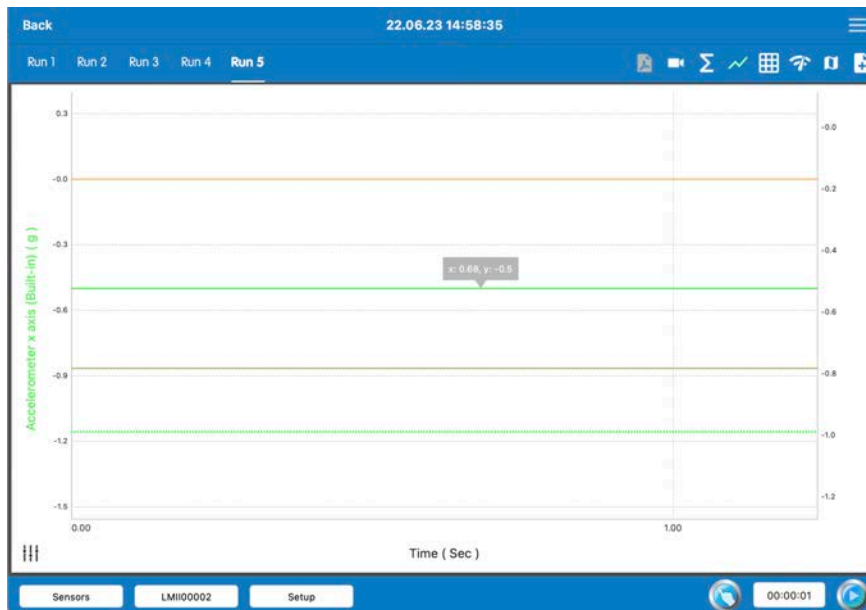
Simply start drawing the line from the Time=0 line to predict the outcome of the experiment on the graph. The image below shows the graph after we've drawn our "predicted" line on it:



Next, tap the run button at the bottom of the screen to start the experiment:

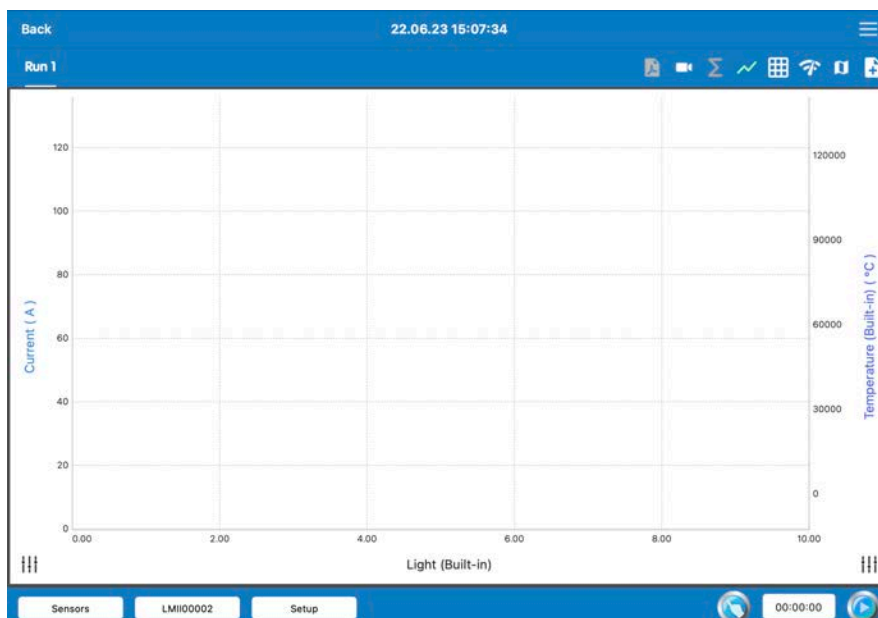


The line with the actual readings will appear on the graph together with the one you drew – allowing you to easily compare your prediction with the result.



### *X-Axis Title*

Select **X-Axis Title** in the setup menu and choose the parameter you want to appear in the X-axis. This can be done for any parameter, but it is especially useful for experiments measuring voltage against any parameter, or for experiments in which you'd like to see them on X vs. Y and not one above the other on the two Y axes.





### Sample Rate

Tap the arrow on the right of the **Rate** menu to select the sample rate of your experiment. For example, if you select **10 samples/sec**, the sensor will sample data 10 times per second. Some sensors have predetermined sample rates.

The screenshot shows the 'Experiment' configuration interface. At the top, there's a 'Close' button and the title 'Experiment'. Below this are four tabs: 'Auto Sampling' (selected), 'Manual Sampling', 'Triggered Sampling', and 'Event Based Time Measuring'. The main area has a 'Set measurement to x axis:' label with a dropdown set to 'Time'. Below that is the 'Rate' section, currently set to '25 / sec', with a dropdown menu open showing various sampling rates: 'Every 1 min', 'Every 10 sec', 'Every 1 sec', '10 / sec', '25 / sec' (highlighted), '50 / sec', '100 / sec', '500 / sec', and '1,000 / sec'. At the bottom, there are fields for 'Duration' (set to '60 sec') and 'Samples' (set to '1501').

### Duration

This is where you can set the period of time during which the data will be collected for the experiment, i.e., the full duration of the experiment. For example, if you select 1 hour, and your sample rate is every 1 minute, your experiment will sample data every minute for an hour and then stop. Duration can reach up to 999 hours.

**Note:** For experiments that run for a long time, we recommend connecting the device to a power source to ensure it doesn't run out of battery.

Close

Experiment

Auto Sampling

Manual Sampling

Triggered Sampling

Event Based Time Measuring

Set measurement to x axis:

Time

Rate

25 / sec

Duration

60 sec

hrs

min

sec

0

1

0

1

2

1

2

3

2

3

4

3

4

5

4

Samples

1501

### Sample Number

The sample number is calculated as follows:  $(\text{Duration} \times \text{Sample Rate}) + 1$ . The (+1) is because the sample number calculation always starts at 0 and adds 1. This can be seen in table mode view on the main experiment screen, where you'll see the measurement at 0 because of the N+1 formula.

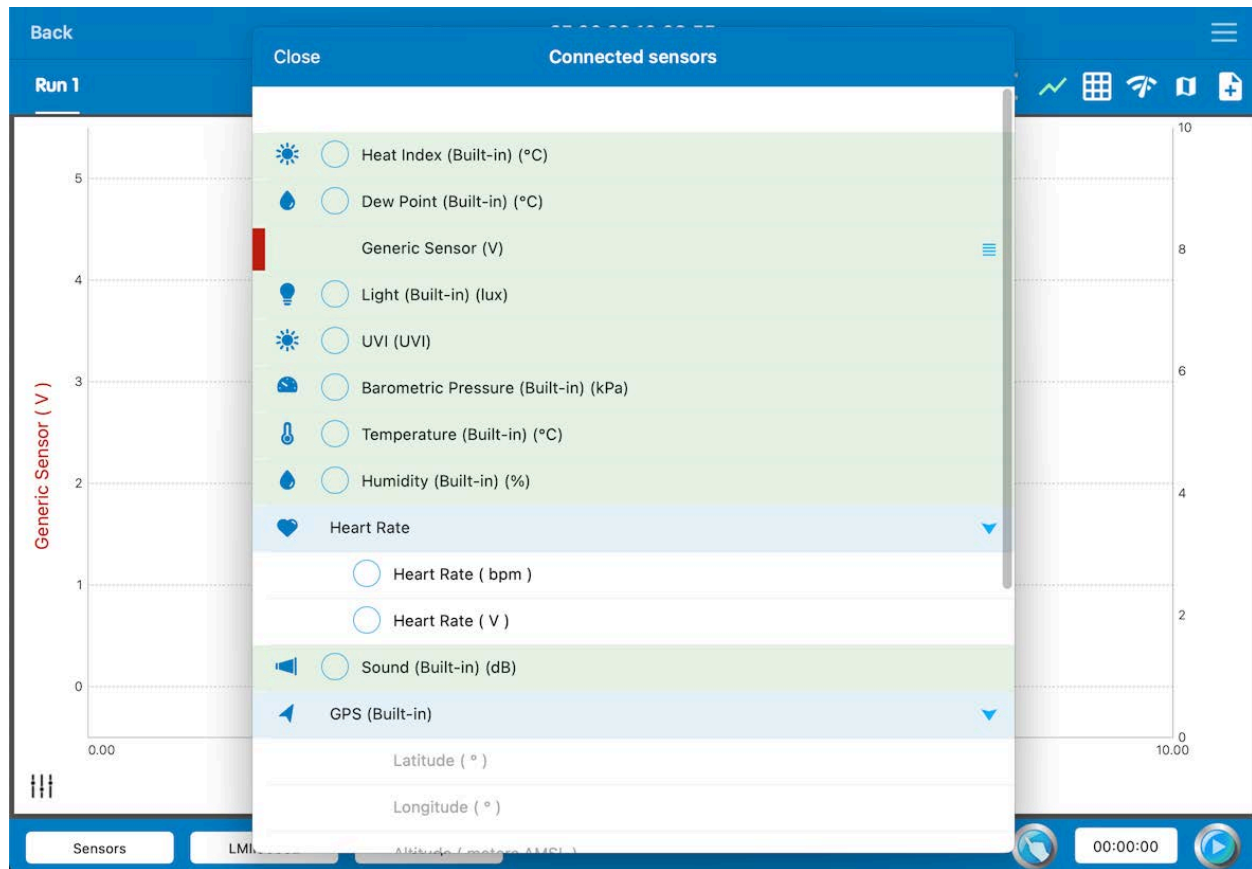
### Sensor Setup

The einstein™ tablet and LabMate are equipment with built-in sensors and can connect to over 60 different external einstein™ sensors compatible with MiLABX™.

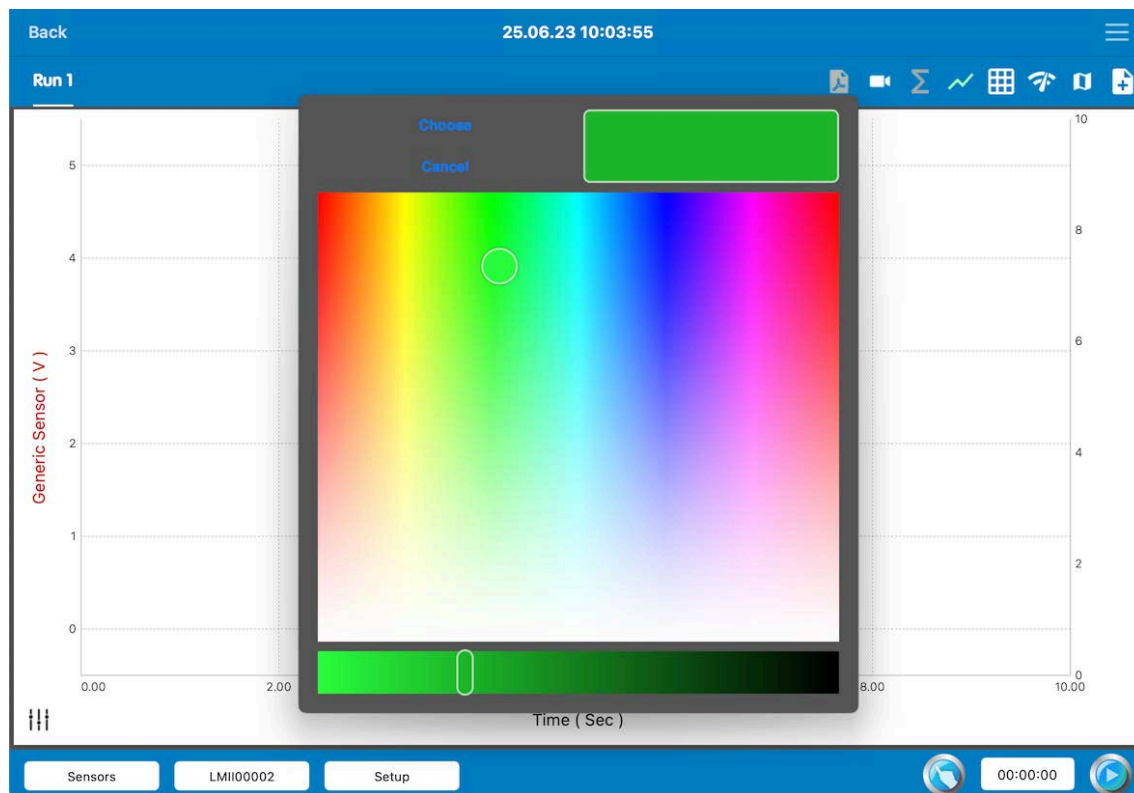
Tap the **Sensors** button at the bottom menu of the MiLABX™ interface:



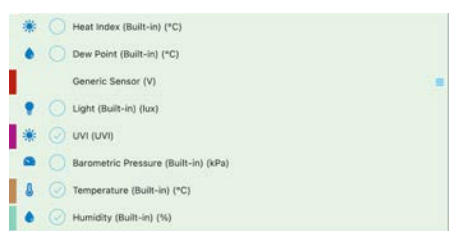
This allows you to see all of the internal and external sensors of your device.



Each sensor can be assigned a color as its plotline in the experiment graphs. Tap a sensor in the list, and then tap the sensor's icon on the right to choose its color.



When an external sensor is connected to the device, the app will automatically assume you want to use it in your experiment and will select it as “in use” with a colored check mark indicating it will be measured.



When selecting a sensor, confirm your selection by tapping the checkmark at the top of the screen.

### Available Sensors

The LabMate has six built-in sensors:

- Heart rate
- Light: 0-124 klux
- UVI: 0-12
- Temperature: -30°C to 50°C

- Humidity: 0-100%
- Barometric pressure: 260 to 1260 hPa

Additionally, MiLABX™ will detect and use any sensors built-in to the device you're using, such as camera, GPS, heart rate sensor, etc.

The einstein™ tablet has 10 built-in sensors:

- Humidity: 0-100%
- Temperature: -30°C to 50°C
- Barometric pressure: 260 to 1260 hPa
- UVI: 0-12
- Light: 0-124 klux
- Heart Rate: There are two heart rate parameters available, which measure the heart rate in volts or BPM. To measure heart rate, the einstein™ tablet does not require an external device. Simply place your finger over the camera lens, which acts as a sensor. The tablet will start to measure your heart rate automatically once you've selected the heart rate sensor. Please note that you will be using the back camera, which is placed near the flashlight, and not the front camera.
- Microphone (-2.5-2.5V)
- Sound (30.0-120.0 dB),
- Accelerometer: Includes three options for the experiment graph (xyz). You can select which axis to measure the parameter.
- GPS: Includes six options - Latitude, Longitude, Altitude, Velocity, Bearing, Time. You can view your location on the map in the main experiment screen, along with additional measurable parameters from point A to B.

### *Sensor Calibration:*

Tap a sensor to select it for calibration. If an external sensor is connected, it will appear at the top of the 'Connected Sensors' list.

- From left to right, the first row displays the current reading value from the sensor (this simply shows the reading without saving the data), the name of the sensor and its range, and an icon. The icon will be in the color you selected for the sensor. The icon itself does not change.
- The second row shows if the sensor supports zero calibration. Specific sensors can be set to zero calibration, such as voltage.
- The third row will be displayed if the sensor supports range selection. If the sensor supports either one-point or two-point calibration, the fourth row will display a calibration panel. Manual calibration can be set up varying based on the sensors used for the experiment. For example, measurement of carbon dioxide in the air can be set at one parameter of measurement, whereas measurement of dissolved oxygen is set at two parameters of measurement.

MiLABX™ supports 3 types of manual calibrations:

- **One-Point and Two-Point Calibration:** To set the calibration, tap the line below the title “Real Reading”, enter the known value, and tap the lock icon. When doing this, measure something with a known value (e.g., atmospheric oxygen = 21%). Once completed, the ‘Calibrate’ button at the top will turn green. Tap it to complete the manual calibration.
- **Set Zero Calibration:** Some sensors can use set zero calibration in addition to either One Point or Two-Point Calibration. Tap the sensor to view its calibration options and tap the toggle button for **Set Zero** to turn it on/off.

Additional calibrations are available for specific sensors:

- **Wheel Calibration:** This option can be found in the rotary motion sensor. There are three different diameters to the wheels. Select the correct diameter of the wheel relevant to your experiment before starting.
- **Drop Counter Calibration:** Used for measuring drops and the volume of liquid drop accumulation in experiments. For example, when measuring the total fluid that drops from a bottle, the user must calibrate both the number of drops to measure and the volume of each drop-in order for the experiment to evaluate it accurately. This is important due to liquids varying in drop rate, weight, and volume (for example, water vs oil).
- **Smart Pulley Calibration:** This is relevant when a wheel is used for physics experiments with a photogate device. You must calibrate the size for the wheel being used.

## ***Connecting External Sensors***

External sensors can be connected with a mini-USB cable. Simply connect the cable into one of the four numbered ports in your einstein™ tablet or LabMate. Once connected, the sensor will appear in the ‘Sensor List’ and can then be selected or unselected along with the built-in sensors.

Note: Some older sensors may require an adaptor to connect to your device. In these cases, an external sensor may need to be identified manually. When this happens, the sensor will appear as “Empty 1” in the list. Simply tap the “Empty 1” box and select the current sensor from the list.

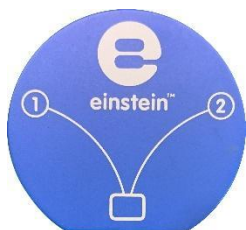
## ***Working with Multiple Sensors***

MiLABX™ can operate with multiple sensors in order to create sophisticated experiments. If only one sensor is connected, you’ll see the Y-axis on the left side, listing the units for one active sensor.

If two sensors are selected, you’ll see two Y-axes – one on the left and one on the right. The Y-axis on the left represents the first sensor, and the Y-axis on the right represents the second sensor. When two identical sensors are connected (for example, two temperature sensors), they will appear as one Y-axis.

If three or more sensors are selected, you will only see 2 Y-axes on the left and right as described above. To view a different sensor on the Y-axis, tap the plotline of the desired sensor, the sensor's name and measurement units will be displayed.

The einstein™ tablet and the LabMate each have four numbered slots to connect external sensors. If more sensors are needed, you can use an einstein™ splitter device (seen in the image below), which will split one slot into multiple slots.





# Data Views

You can select more than one view for each experiment run by selecting views in the top right menu of the experiment screen:



More than one view can be selected to show multiple views at the same time.

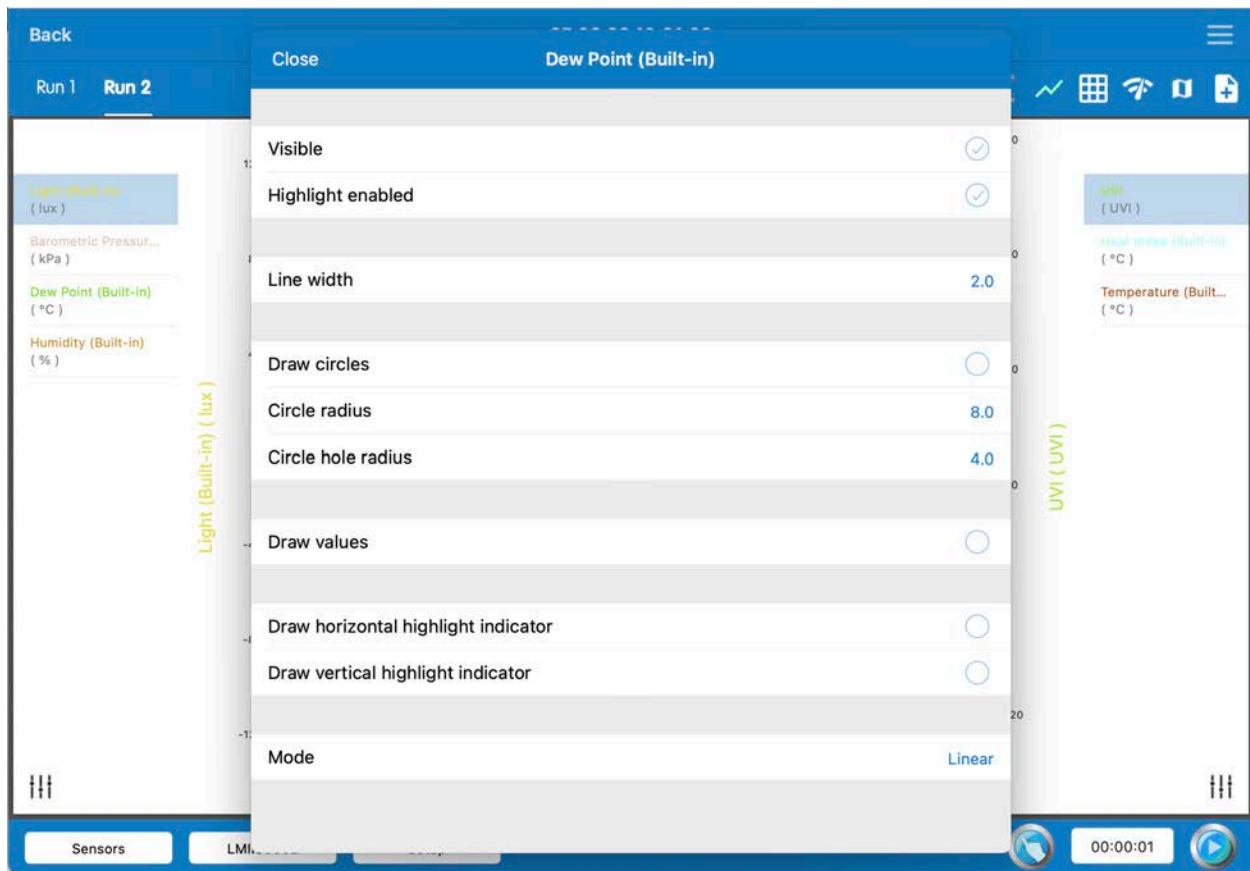
## Graph View



The default plot style is a line. Tap the bottom menu icon to select a different sensor view:

You can customize each plot style in plot setting screen. To open this screen, press and hold the selected plot name in the plot list.





### Table View

The below image shows the graph view as the main view, and the table view selected on the right. To show the table view in the center, simply tap the graph view icon to remove its view.

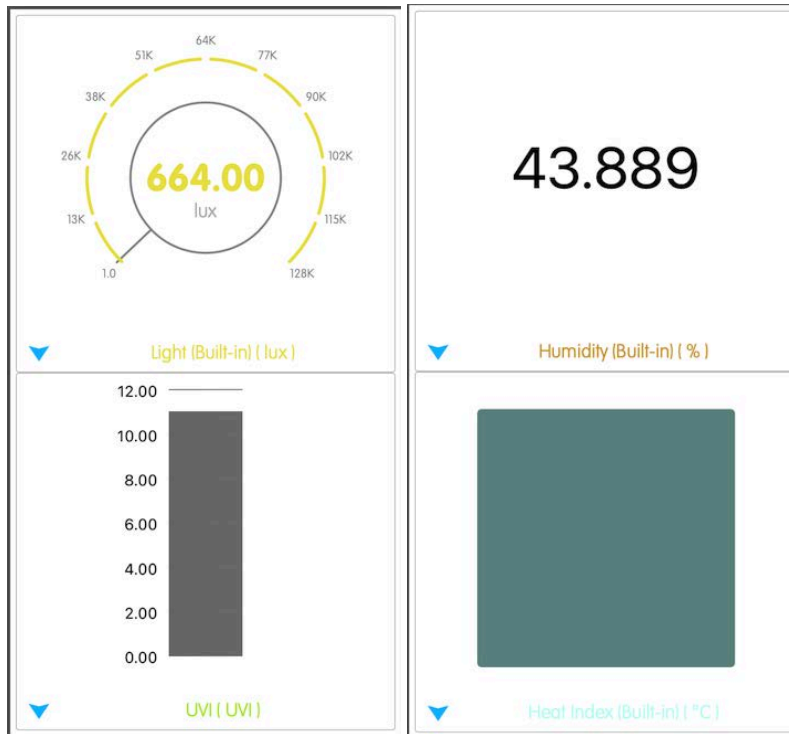


## Meter View

The below image shows the graph view as the main view, and the meter view selected on the right.

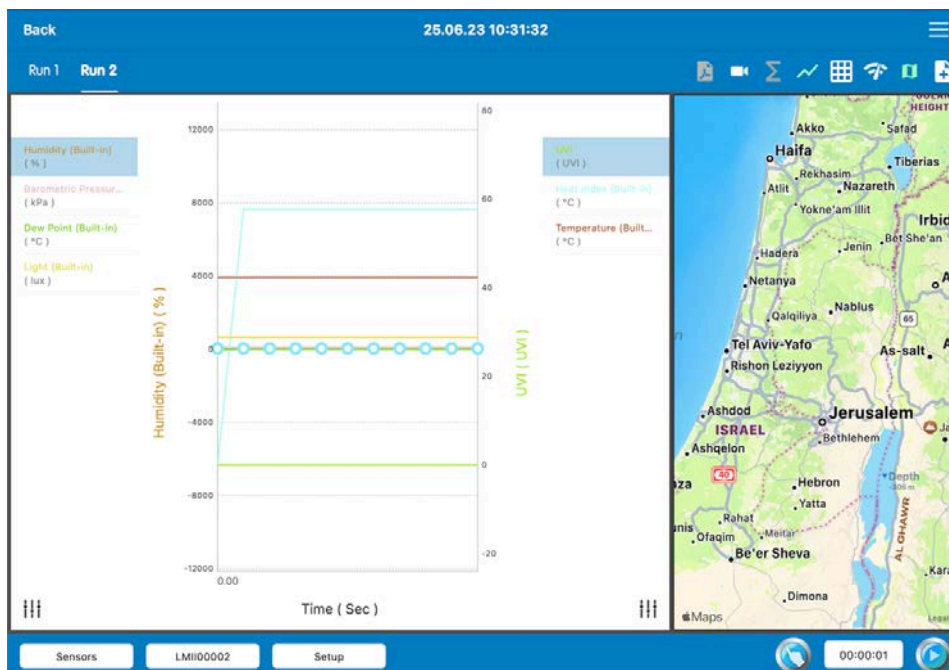


There are four types of meter views: Digital, Analog, Bar Graph, and Color.



## Map View

The below image shows the graph view as the main view, and the map (GPS) view selected on the right.



## Notes View

The below image shows the graph view as the main view, and the notes window selected on the right.



Simply tap the text area to type in your note.

### ***Zoom In & Out of Graphs & Maps***

Graphs in MiLABX™ represent the data from one or more sensors. By default, graphs auto-scale, which means you'll be able to see the entire graph on the screen. To zoom in on one part of the graph, touch the screen with two fingers and spread out. To zoom out, touch the screen with two fingers and pinch.



Pinch to zoom out

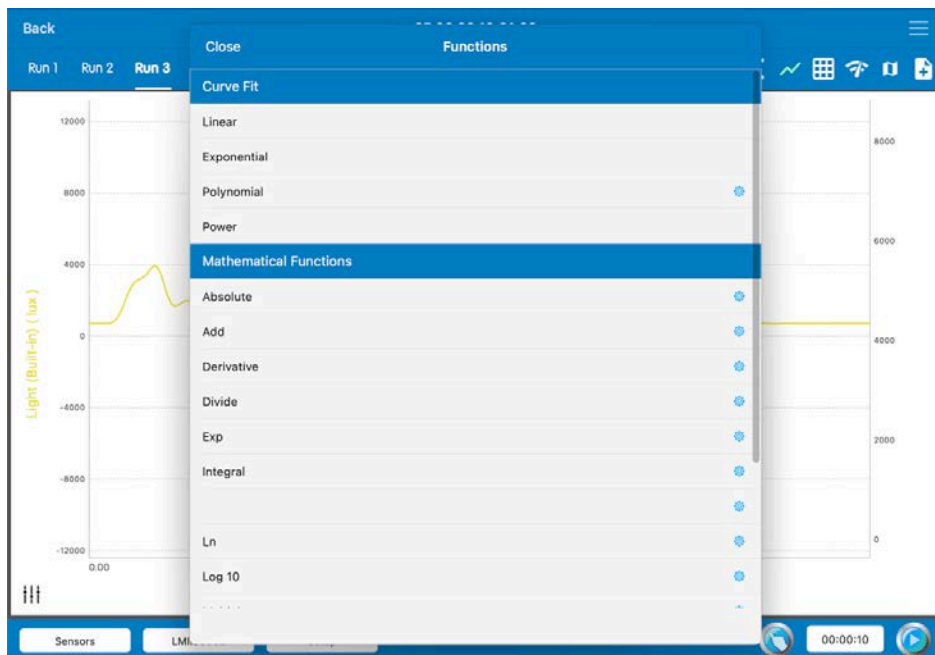


Spread to zoom in

The same method can be applied to zoom in and out of the map view.


### ***Working with Functions***

After running an experiment, you can mark points on the graph for X and Y coordinates and use a formula function. Once points are selected on the graph, the sum icon (or sigma symbol) will appear at the top of the screen. Tap it to view the available functions you can use:



Functions are divided into two categories: CURVE FIT and MATHEMATICAL FUNCTIONS.

While some, like LINEAR, work automatically when selected, others may require configuration. To do so,

tap the settings gear icon near the function you'd like to use: 

Note: In order to run a function on a data set, the X-axis must show progression. In experiments where the X-axis represents time, this is not an issue. However, in some cases the X-axis displays fluctuating

data. When this occurs, functions will not be available.

### Available Functions

In the formulas below,  $G_1$  and  $G_2$  represent selected data sets or time series, and A, B, and C are constants that you can enter.

Curve Fit:	Shows a curve fit line based on the graph and two selected points. Can be exponential, linear, polynomial, or power.
Absolute:	$y = A BG_1 $ <p>Draws a line of the absolute values of a data set.</p>
Add:	$y = AG_1 + BG_2$ <p>Draws a line of the addition of two data sets.</p>
Derivative:	$y_n = \frac{y_{n+1} - y_{n-1}}{2\Delta t}, \Delta t = \frac{1}{\text{sampling rate}}$ <p>Draws a line of the slopes of every three consecutive points of a data set. For high recording rates and a small <math>\Delta t</math>, this line may be very noisy, which is why smoothing the data set is recommended before applying the derivative function.</p>
Divide:	$y = \frac{AG_1}{BG_2}$ <p>Draws a line of the division of two data sets.</p>
Exp.:	$y = Ae^{BG_1} + C$ <p>Draws a line of <math>e</math> raised to the power of a data set.</p>
Integral:	$y = A + B \sum G_1 \Delta t$ <p>Draws a line in which each point is the discrete integral of all the preceding points in a data set.</p>
Linear:	$y = AG_1 + B$ <p>Draws a line of linear displacement of a data set. This function is useful when you want to change the point of origin of a data set.</p>



Ln:	$y = A \ln(BG_1)$	Draws a line of the natural logarithm of a data set. The argument $BG_1$ must be positive.
Log 10:	$y = A \log_{10}(BG_1)$	Draws a line of the logarithm of a data set to base 10. The argument $BG_1$ must be positive.
Multiply:	$y = AG_1 \cdot BG_2$	Draws a line of the multiplication of two data sets,
Subtract:	$y = AG_1 - BG_2$	Draws a line the subtraction of two data sets.
Square (X <sup>2</sup> ):	$y = A(BG_1)^2$	Draws a line of the squares of a data set.
Square root:	$y = A\sqrt{BG_1 + C}$	Draws a line of the square root values of a data set. The argument $C_2G_1$ must be greater than or equal to zero.
Reciprocal (1/X):	$y = \frac{A}{G_1 + B} + C$	Draws a line of the reciprocal values of a data set.

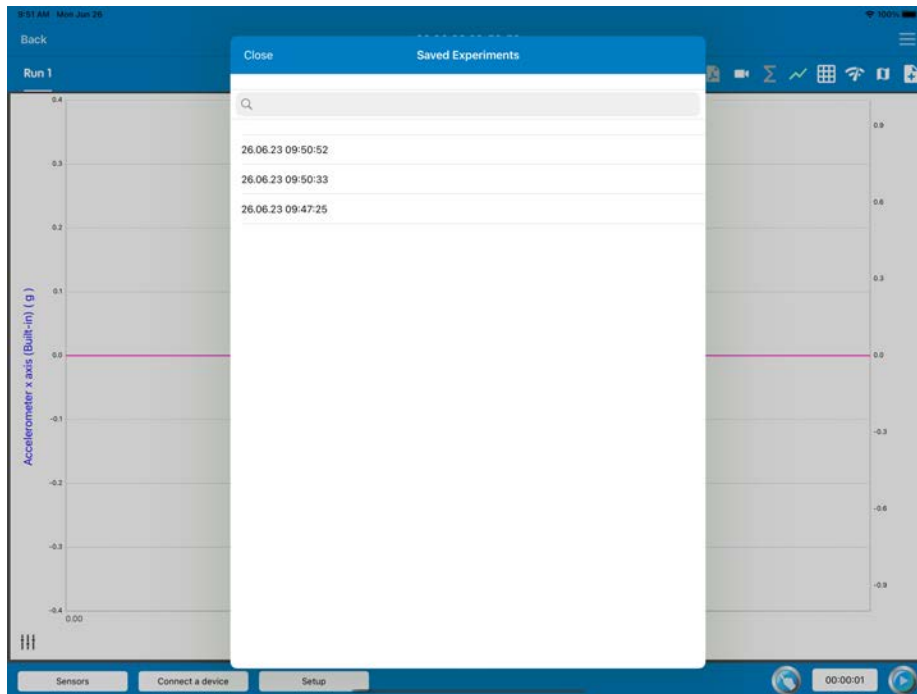
Once a function is selected, a new plotline will appear on the graph displaying the results.

Note: Some functions, such as **Subtract**, require that you select 2 points.

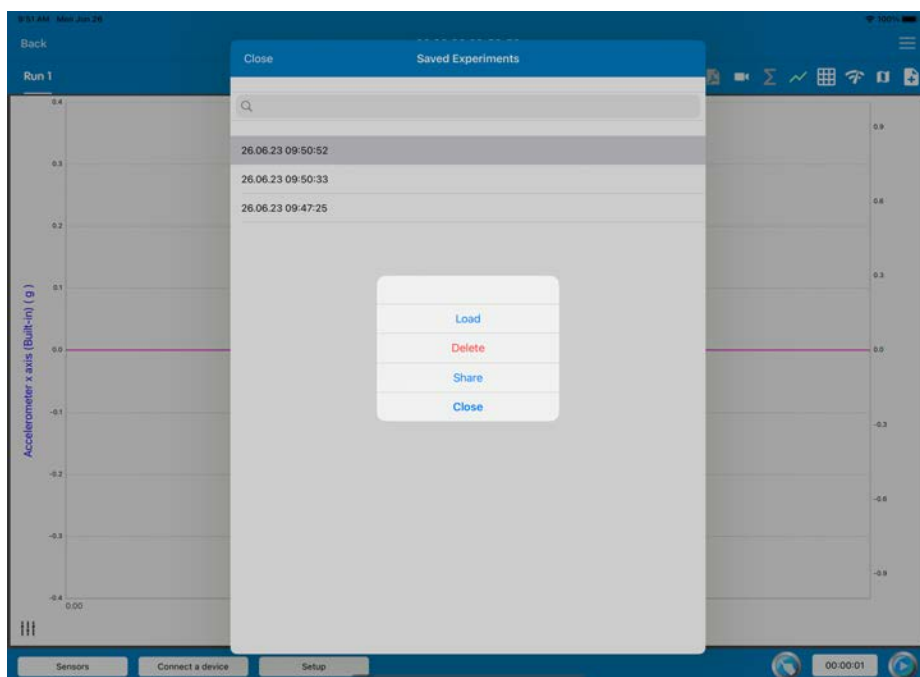
# Saved Experiments

Saved experiments can be accessed from two locations:

1. The main MiLABEx™ home screen: Simply tap 'Load Experiments from history' from right-side menu to continue.
2. MiLABX™ top menu: Tap the following icon to access saved experiments:



To select an action for a saved experiment, tap the three menu lines beside the experiment name:

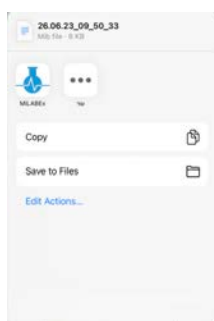


### ***Load Experiment***

Tap the three menu lines on the row of the experiment you'd like to load and tap **Load**.

### ***Share Experiment***

Tap the three menu lines on the row of the experiment you'd like to share and tap 'Share'. A popup will appear at the bottom of the screen with your share options. You can share either as a .csv or .mib file. When sharing as an .mib file, please note that the recipient must have the MiLABX™ app on his/her laptop to view the experiment.



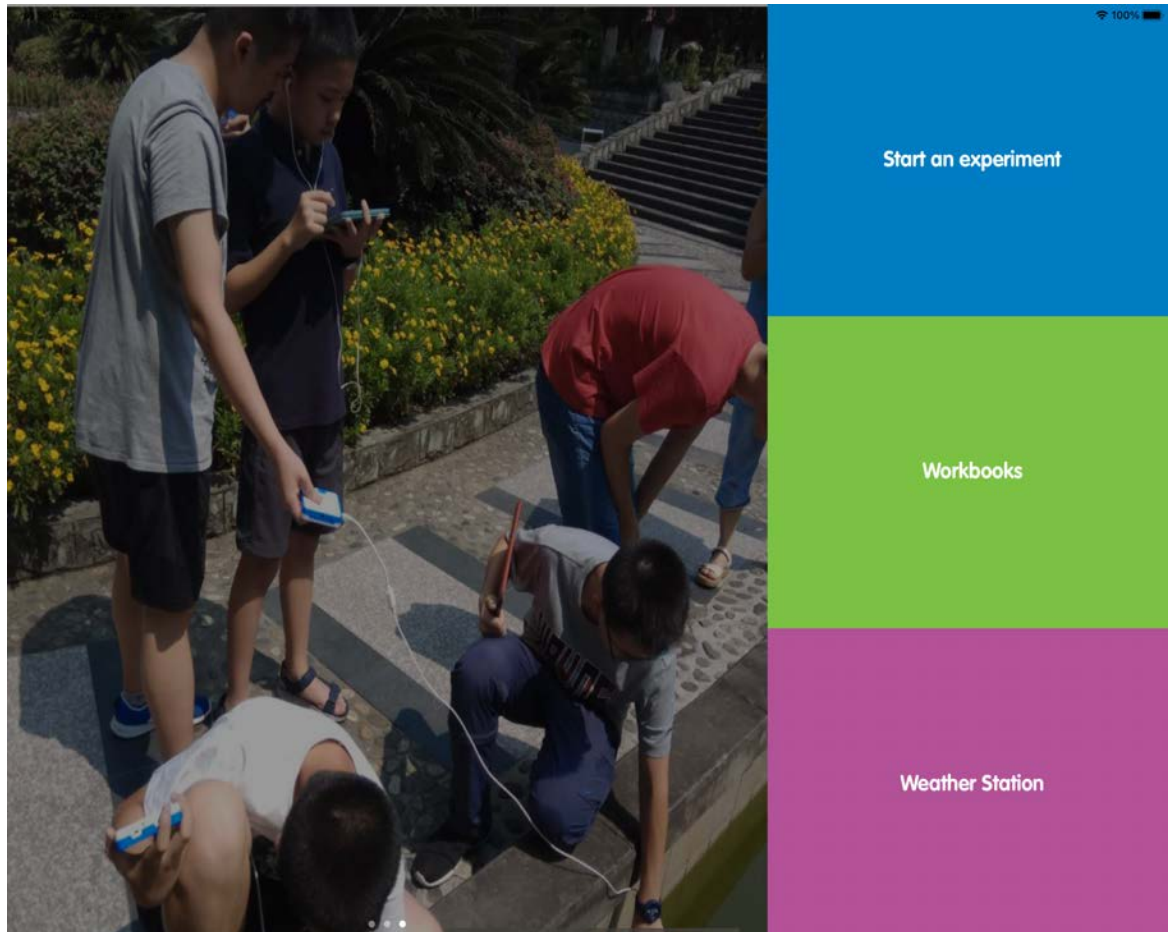
### ***Delete Experiment***

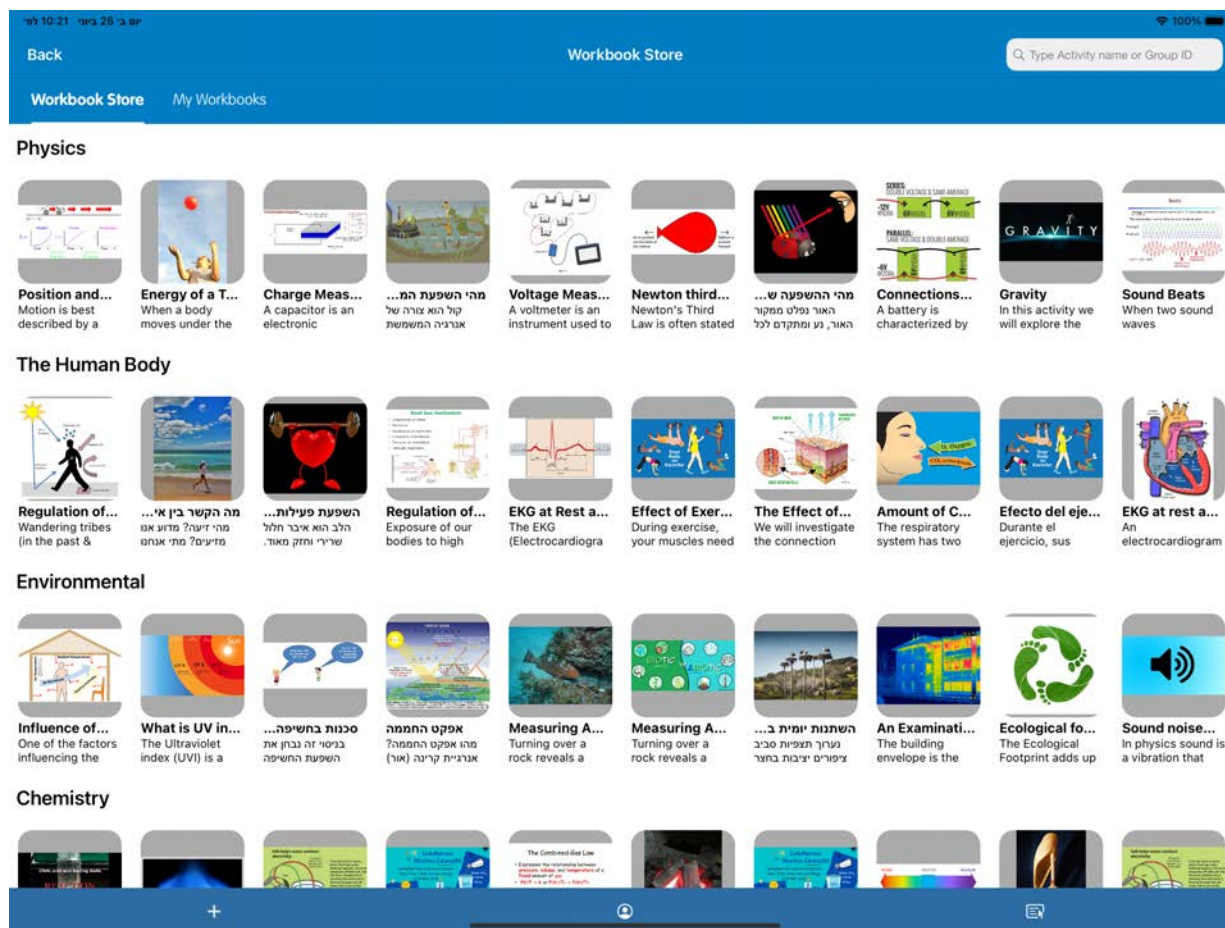
Tap the three menu lines on the row of the experiment you'd like to delete and tap 'Delete'.

# Workbooks

## *Introduction to the Workbooks Main Screen*

To open workbooks, tap Login from the main MiLABEx™ home screen.





The Workbooks area has two tabs:

- **My Workbooks:** Shows the workbooks you've added to your personal library for quick access. This includes approved workbooks you've created, and workbooks that you've downloaded from the store.
- **Workbook Store:** Shows all accessible workbooks in the MiLABEx™ store from around the world. All workbooks that appear in the store have been approved by the Einstein World team and are available for free download or for a price determined by the creator.



All workbooks are reviewed by the Einstein World team before they can be added to the store and used by all users.

The main screen's bottom menu includes three buttons:



- Create a new workbook – This icon is only available when in the My Workbooks tab
- Tap the icon to log out of your user
- Filter the workbooks view by language and/or category

The main screen view in the center is where you'll see the results of your selection, i.e., workbooks in the My Workbooks or Store tabs filtered by category/language (if selected). The below image shows all of the workbooks in the global store by category:

## ***Creating & Uploading a Workbook***

### *Preparing the Activity Files to Create a New Workbook*

To create a workbook, you need to start by preparing the activity files it will contain. These are content files in the supported formats: PDF, mp4, and JPEG.

Build your activity files on your computer or device of choice. Draft the text required for your work either in an MS Word doc or any other word processor that allows you to save in PDF format. It is important that your workbook include all of the instructions and step-by-step guidelines to executing the experiment outlined in it. The PDF can include text and images. The final PDF must be uploaded to the device you're using with the MiLABEx™ app.

In order to upload your activity into a workbook, you'll need to add at least two images and can add videos as well. Make sure the files you want to add are saved on the device with the MiLABEx™ app. Images should be in JPEG format. Video files should be in mp4 format. It is best to save all files to the downloads folder on your device for quick and easy access from the MiLABEx™ app.

**Note:** The entire activity (including all files) must not exceed 25 MB.

### *Creating Your Workbook*

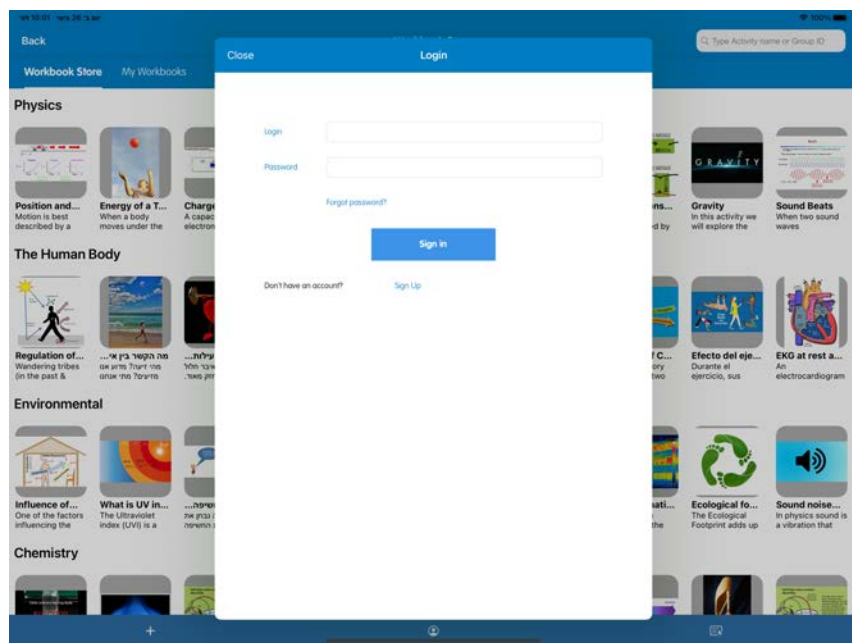
Below is a step-by-step guide to creating your new workbook.

Step 1:


Tap the **Login** button on the main home screen.

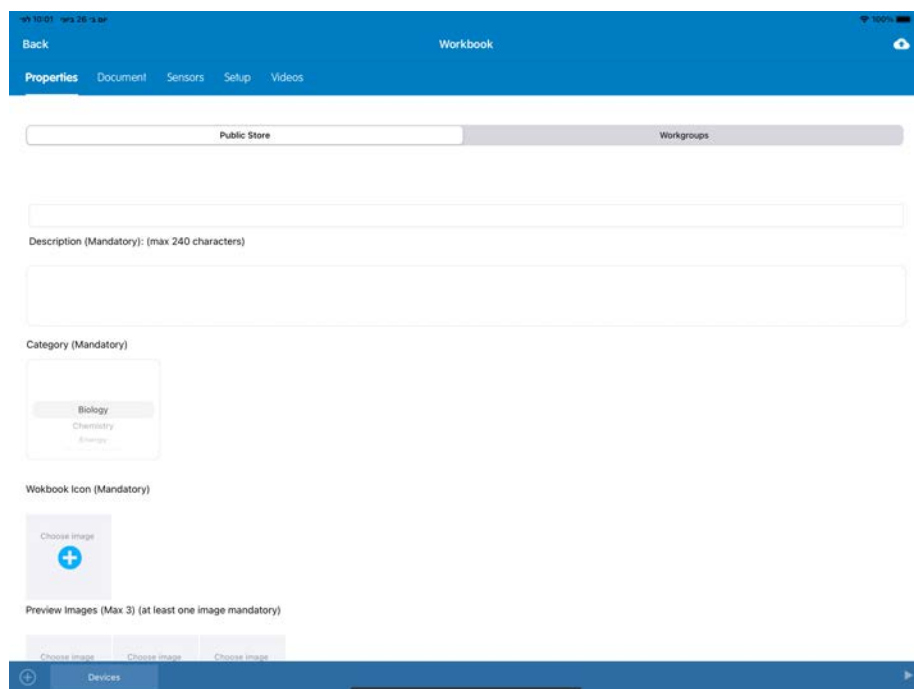


If you are not logged in, the 'Login Dialog' box will open.



Step 2:

Once logged in, tap the plus  button. This will open the workbook creation window.



This window contains five tabs:

- Properties

1. **Workgroup ID:** This field will only appear if you chose the Workgroup option in the previous step. Enter a new workgroup ID to create a new workgroup, or use an existing workgroup ID to add your workbook to an existing workgroup. Workgroup IDs can be any combination of characters and numbers. When sharing the workbook with students, they'll only need the ID to access it from the MiLABEx™ app by tapping the **Workgroups** button in the main screen.
2. **Name:** Write the file name for your workbook. The file name is limited to 45 characters.
3. **Description:** Provide a brief description of the workbook's activity and what it includes, such as files, experiment type, what students will learn, concrete takeaways, grade level, etc. The description is limited to 240 characters.
4. **Workbook Category:** Choose one from the available options.
5. **Workbook Icon:** Tap the box under **Workbook Icon** and the gallery icon (+) in the top right corner to select the icon image from your device's storage folders, gallery, or the camera.  
Once an image is selected, you'll be able to edit it by dragging the center square to determine what part of the image will be shown, and using the top right menu to flip counterclockwise, horizontally, vertically. Tap the white checkmark in the top right menu to confirm. Please note that adding an image is required.
6. **Preview Images:** Follow the same instructions as the previous step. Add up to three images for the workbook's preview. You must add at least one before continuing to the next step.

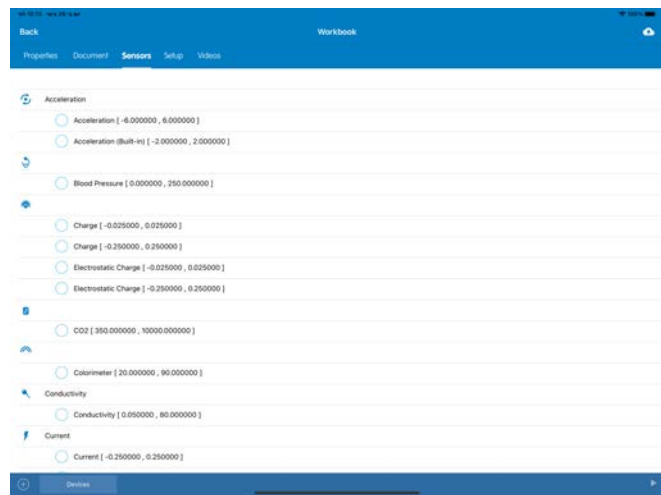
- Document





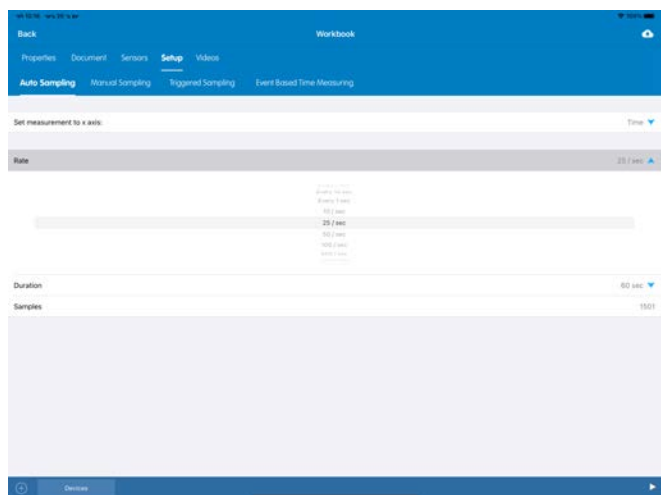
- Sensors

Select the sensors required for your workbook's experiment. If you wish to select multiple sensors for the same metric, tap the sensor to open a dropdown menu of additional sensors of the same type. For example, tap on **Temperature**, and select numerous types of temperature sensors that are available. Tap on the sensor(s) you want to use and select the number of sensors you'd like to add in the dropdown option with the down arrow.

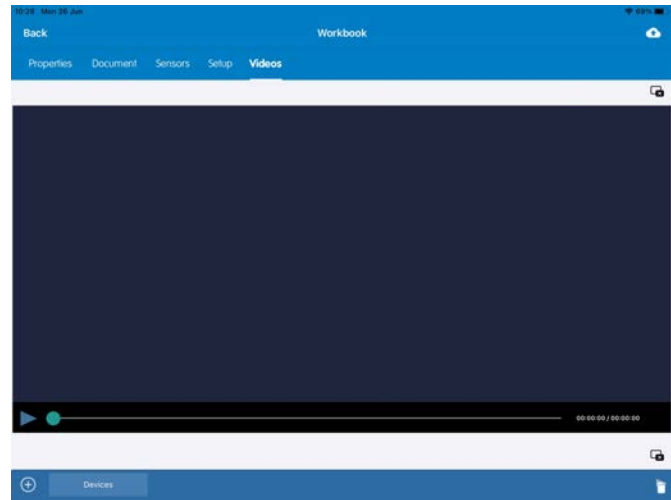


Tap the sensor you'd like to add and select by tapping the empty circle. Selected sensors will appear on the right with a white checkmark in the circle beside the sensor name.

- Setup



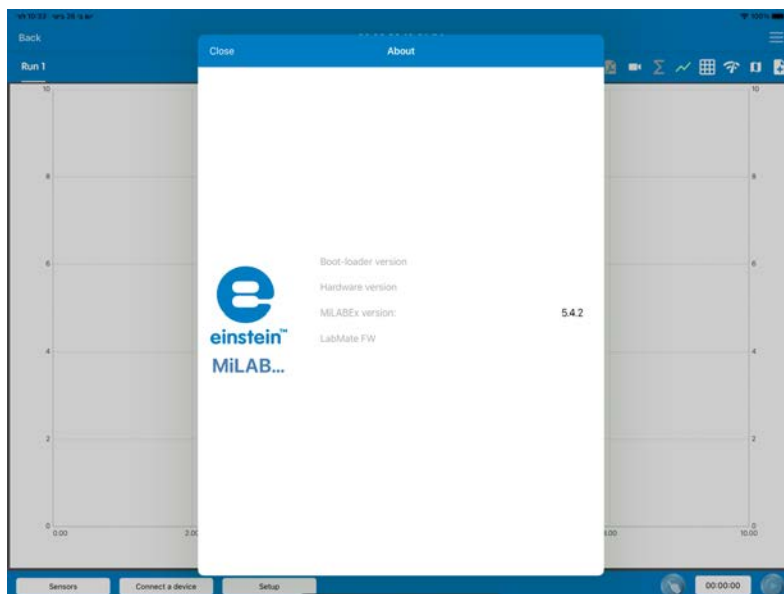
- Videos



Public store: Upload your workbook to the public store where it can be accessed by any einstein™ user. All store workbooks must be reviewed and approved by the einstein™ team before they appear in the store.

Workgroups: Workgroups are a great option for teachers who want to share their workbooks only with a specific group of students or peers. When adding workbooks to workgroups, they are not reviewed by einstein™ and will not appear in the public store.

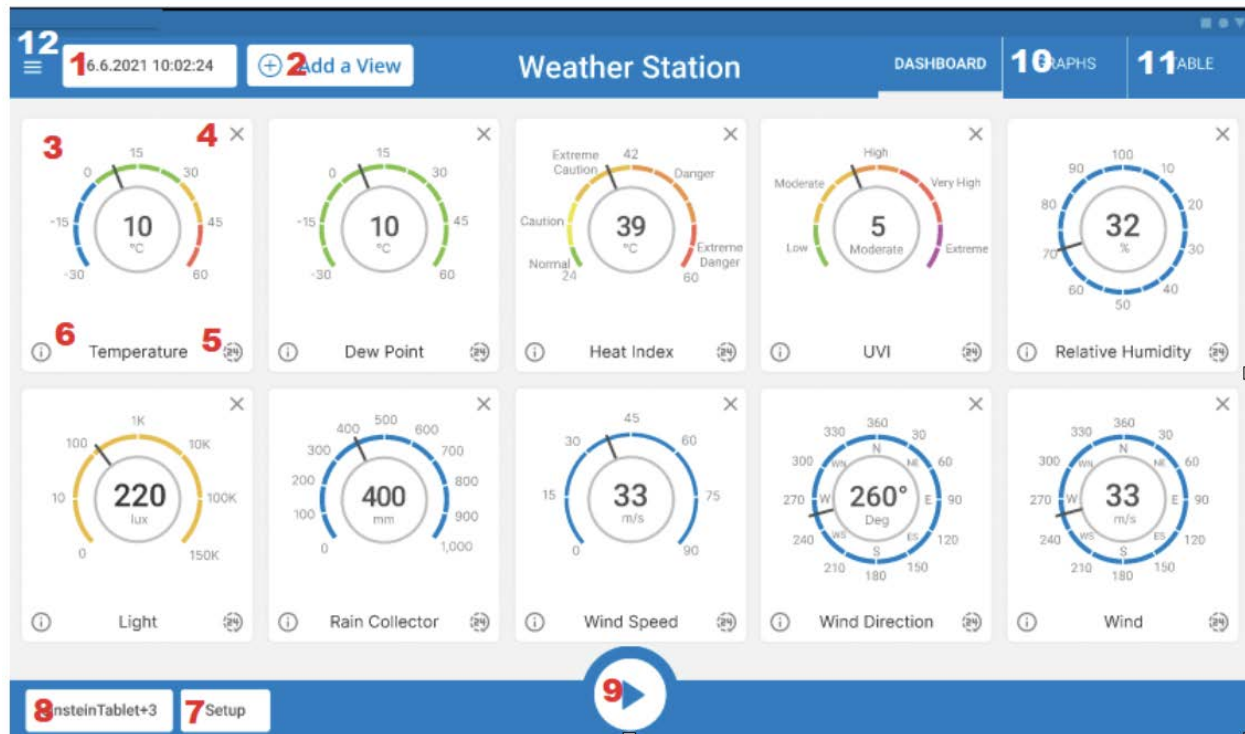
When you're done, a popup will inform you that the workbook has been uploaded. Tap OK to close the notification.



# Weather Station

## Navigate the Weather Station

The “Weather Station” is a dashboard that shows weather-related sensors. Its main purpose is to enable students to visualize the current weather status with chosen parameters or monitor the behavior of the weather parameters for a long period of time.



The “DASHBOARD” is the page displayed when you open the “Weather Station” and is composed of tiles that display the “current” state of the different sensors.

Each tile (3) displays the default view - a clock-style gauge that shows its current sensor value. The sample rate of the gauges is “1 sample per second”.

When you open the “Weather Station,” it will show all the default sensors.

You can add a tile (click “Add View” button - 2) or delete a tile (click the X icon on the tile’s upper-right corner - 4) to customize your dashboard layout.

Click the bottom-right icon (5) to show the last 24 hours icon. Setup (7), Connection (8), and Menu (12) are the same buttons as in the MiLABEx window.

### *Start/Stop Button*

IMPORTANT: There is no reason to “Stop” the “Weather Station.” If you stop it and then click Run, it will reset the station’s history

### *The “Graph” Tab*

Click “GRAPHS” (10) to show the history in a graph format (since the last “Run” command).

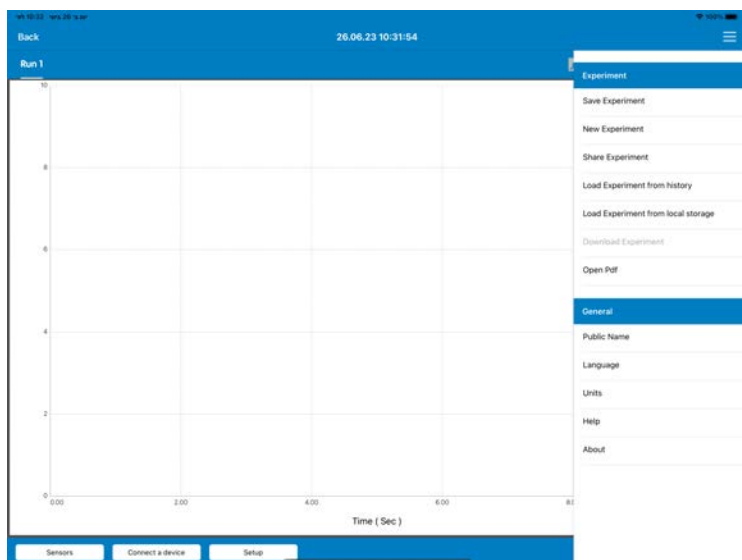
### *The “Table” Tab*

Click “TABLE” (11) to show the history in a table format.

# Support

## ***Access MiLABEx™ User Guide***

Access the user guide by tapping Help on the main MiLABEx™ right-side menu:



## ***App Version Information***

App version information may be required when contacting technical support. To view your app version information, tap About in the main MiLABEx™ right-side menu: