



einstein™



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www.einsteinworld.com

Welcome to
einstein™ LabMate+™



Congratulations on receiving your **einstein™Labmate+**™, designed to turn any tablet or PC into a tool for advanced science investigation.

In this booklet you'll find quick experiments you can run using your **einstein™LabMate+** right away. These are fun science investigations you can enjoy with just your **einstein™LabMate**, a tablet or PC and some stuff you have lying around the house.

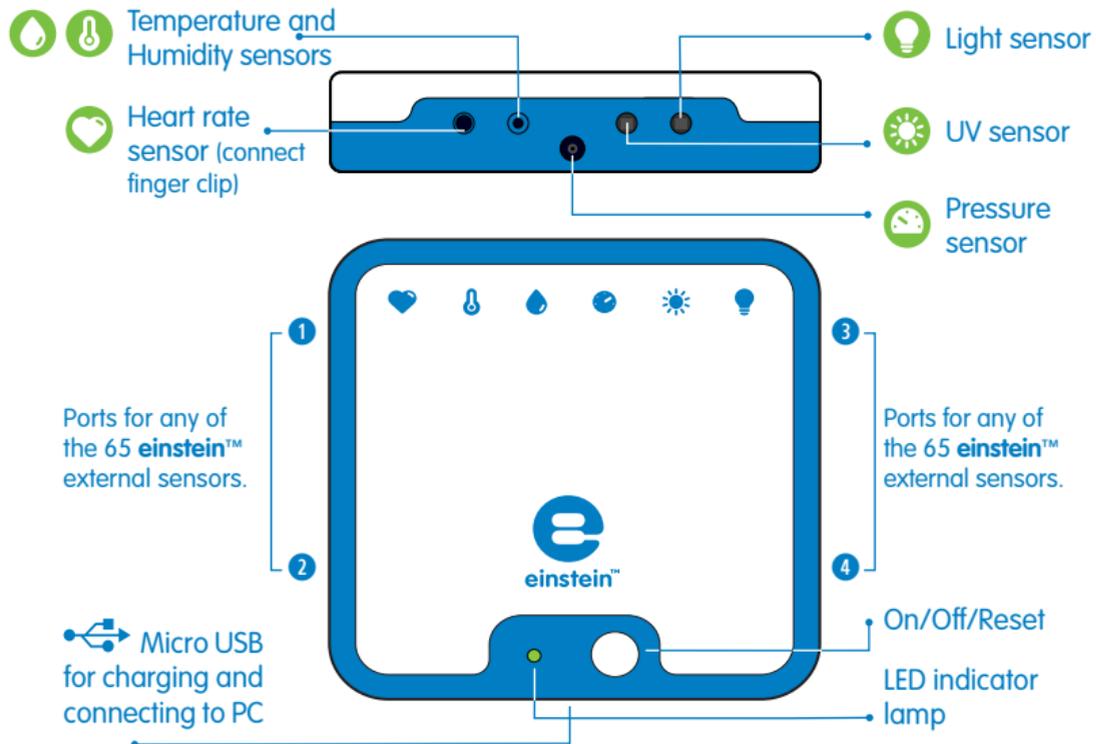
Also included is a guide to the **einstein™LabMate+**'s features and technical specifications so you can get to know the **einstein™Labmate+** better.

This, of course, is just a start; soon you'll be setting up bigger, better challenges and expanding your universe.

So pick up your **einstein™Labmate+** and start exploring!

Have fun,
einstein™team

einstein™ LabMate+ ports and sensors



How to read the LED indicator lamp:

- Steady green- charging
- Blinking green- on, but not paired
- Rapidly blinking green- collecting data, but not paired with a device
- Blinking blue- on and paired with a device
- Rapidly blinking blue- collecting data
- Red interspersed with the green/blue- needs to be charged

Get more info at einsteinworld.com

General operation

- **Charge the battery:**

- There are two ways to charge the **einstein™LabMate+**:
 - 1 Connect the **einstein™LabMate+** to a PC using the USB cable
 - 2 Connect the **einstein™LabMate+** to a wall socket with a USB power cable
- **einstein™LabMate+** battery may not be fully charged upon first use.
- The **einstein™LabMate+** may become warm when charging.

- **Power on einstein™LabMate+:**

Press and hold the Power button for several seconds. The LED next to the Power button will begin flashing green.

- **Pairing the einstein™LabMate+ For Tablets:**

- Make sure the **einstein™LabMate+** is turned on (the LED should be flashing green)
- Go to Settings and make sure Bluetooth is turned on.
- Tap the **einstein™LabMate+** to pair it with the Tablet.

- **Pairing the einstein™LabMate+ For PCs:**

- Make sure the **einstein™LabMate+** is turned on (the LED should be flashing green)
- Consult your computer manual for details on pairing with Bluetooth devices

- **Resetting the einstein™LabMate+:**

Turn the **einstein™LabMate+** off by pressing the power button. Then reset by holding the power button down for 10 seconds.

Download data collection and analysis software:

- **MultiLab™**
- **MiLAB™**
- **einstein™World**

Download Free: www.einsteinworld.com



- **Upgrading the einstein™LabMate+ Firmware:** As new technologies come out, we may upgrade the **einstein™LabMate+** firmware to enhance its performance. For further details and instructions go to www.einstein.com/product/labmate



Quick Experiment: Measuring UV

Ultraviolet (UV) radiation is the section of the electromagnetic spectrum between x-rays and visible light. Biology students need to study the effects of this phenomenon as it has significant impact on our health. While we need UV radiation to synthesize vitamin D it can also cause health problems including damage to eyesight.

Using the **einstein™LabMate+** children can learn about UV radiation and test their own sunglasses to see if they got their money's worth.

- 1 Pair your **einstein™LabMate+** with your tablet or PC and open either **MiLAB™** or **MultiLab™4**.
- 2 Make sure only the UV sensor is selected.
- 3 Leave the Rate and Duration at their default settings.
- 4 Click the **Run** button (🟢) while aiming the sensor toward the sun for ten seconds, Then click Stop.
- 5 Now place your sunglasses over the sensor and click the **Run** button again while aiming the sensor towards the sun. After ten seconds select **Stop** (🟢).

Note the difference between the two measurements. Significant changes are an opportunity to discuss the damage UV radiation can do to eyesight and why. Insignificant changes can show children how science can help them be better consumers.

Quick Experiment: Transparency

Transparency is a measure of how much light can penetrate a material.

Materials can be divided into 3 types:

- **Transparent:** Light penetrates easily through the material
- **Translucent:** Light has difficulty penetrating the material
- **Opaque:** Light cannot penetrate the material.

Prepare one piece of aluminum foil, one piece of wax paper and one piece of plastic wrap.

- 1 Pair your **einstein™**LabMate+ with your tablet or PC and open either **MiLAB** or **MultiLab4**.
- 2 Make sure only the light sensor is selected.

- 3 Leave the Rate and Duration at their default settings.
- 4 Aim the light sensor toward a light source.
- 5 Click **Run** ().
- 6 Hold the piece of aluminum foil over the sensor for ten seconds and remove.
- 7 Hold the piece of wax paper over the light sensor for ten seconds and remove.
- 8 Hold the piece of plastic wrap over the light sensor for ten seconds and remove.
- 9 Select **Stop** ().

Note the difference in the measurements. The more light a material lets through the more transparent or see-through it is.

Quick Experiment: Measuring Heart Rate

Understanding how the heart works is basic to all biology studies and is one of the first experiments any science student should learn to perform. **einstein™LabMate+** makes these first steps fun and easy. This simple experiment shows the effect of exertion on our hearts.

- 1 Connect the heart rate sensor to your **einstein™LabMate+**.
- 2 Pair your **einstein™LabMate+** with your tablet or PC and open either **MiLAB™** or **MultiLab4™**.
- 3 Make sure only the heart rate sensor is selected.
- 4 Leave the Rate and Duration at their default settings.
- 5 Connect the heart rate sensor to your finger.

- 6 Click the **Run** button (🟢);
at about 8 seconds the heart rate BPM will display.
- 7 Remove the heart rate sensor from your finger, run in place for 30 seconds and reattach the heart rate sensor.
- 8 Click the **Run** button (🟢);
at about 8 seconds the heart rate BPM will display.



Note the difference between the two readings and how activity ramps up our heart rate.

Connecting external sensors

- External sensors can be added by connecting a sensor cable to **einstein™LabMate+**. Insert the sensor cable into one of **einstein™LabMate+**'s 4 sensor ports, then, connect the other end of the sensor cable to the sensor. Up to 8 external sensors can be added by adding a splitter to each port. Please note the position of the sensor's USB connector. When properly positioned, the sensor should glide in smoothly.



- einstein™LabMate+** supports all 65 of Fourier Education's sensors, though some sensors may require an additional cable or adapter. For a complete list of sensors, please visit our website. www.einsteinworld.com

Specifications:

Data Logging

Sampling Rate	Up to 100 ksps
Internal memory capacity	Up to 250k samples

Power Source

Battery (Lithium polymer; 1000mAh)	Rechargeable via USB
Run mode	up to 24 hours
Standby mode	up to 450 hours
Charge time	3 hours

Standards Compliance

CE & FCC

Internal sensors

- Light:** 0-600 lux, 0-6000 lux, 0-150 klux
- Heart Rate:** 0-200 bpm
- Relative Humidity:** Range: 0-100%
- Temperature:** -30°C to 50°C
- UV:** 10 W/m², 200 W/m², UV wave length 290-390 nm
- Pressure:** 20 to 400 kPa, 0.2 to 3.9 atm, 200 to 4000 mbar



Get more Information



Please visit our website,
for updates about the **einstein™**
Science Learning Platform.

www.einsteinworld.com

Technical support

Fourier help desk: support@einsteinworld.com

Contact information: **1-866-771-6682**

(toll-free from within USA only) **1-708-478-5333**

Hours of operation: **Monday - Friday,**

9AM to 5PM (UTC -06:00)

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