



CHANGING SCIENCE EDUCATION STARTS BY  
**CHANGING ONE SCIENCE CLASS!**

# Welcome Hero!

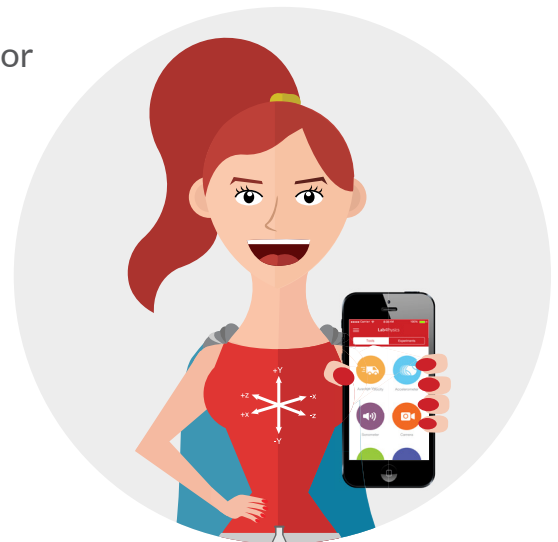
**W**e know you are passionate about teaching and as concerned about the hidden value of education as we are, so, Welcome!

**Lab4Physics** is an educational APP especially created for heroes like you, which uses built-in sensors on smartphones and tablets as a Physics Lab. This way, your students will be able to experience real-time physics activities in a didactic and entertaining way.

Our mission is to improve science education by changing the way science is taught and how scientific experiments are performed by delivering low-cost and engaging solutions for science education around the world.

## *Let's begin!*

- 1** Download **Lab4Physics** on your smartphone or tablet!
- 2** Invite your students to **Lab4Physics** (each student will have its own Access Code).
- 3** ¡Start experimenting!



## **Heros Resources**

*Here you will find the following resources:*

- **Lab4Physics** Overview
- **Lab4Physics** in a Nutshell
- How does it work?
- How to use **Lab4Physics**?
- Top Tips from Heros to Heros
- Frequently Asked Questions
- How to Download **Lab4Physics**

# HAVE A MEMORABLE.... ADVENTURE!



# Lab4Physics Overview

The main objective of **Lab4Physics** is to develop memorable physics lessons that leave their mark in the minds of your students and help them to develop critical thinking abilities. We believe that this can be developed by combining practical experiments with investigation, developing your students' own sense of exploration. Encouraging and fostering a curiosity for the world around us is our obsession. We believe that science should go back to being an incredible adventure and it is to that end that we designed **Lab4Physics**.

**Lab4Physics** consists of two main parts: sensors (or tools) and experiments (learning activities). Built in sensors allow students to capture, collect and analyze data in real time...Yes, you understood correctly – just using their cell phone or tablet and in real time. The built in sensors include the accelerometer, the microphone, the stopwatch, the camera and two additional tools made especially for you and your students: a 3D vector calculator and a unit convertor that uses standard notation and scientific notation

In order to support you as much as possible in the classroom, we have designed learning activities to help your students make the most of these sensors. Teachers like you have designed these experiments and they are in line with the National Curriculum.



# How **Lab4Physics** works, in a Nutshell

1



Students Download **Lab4Physics** in their Mobile Devices.

2



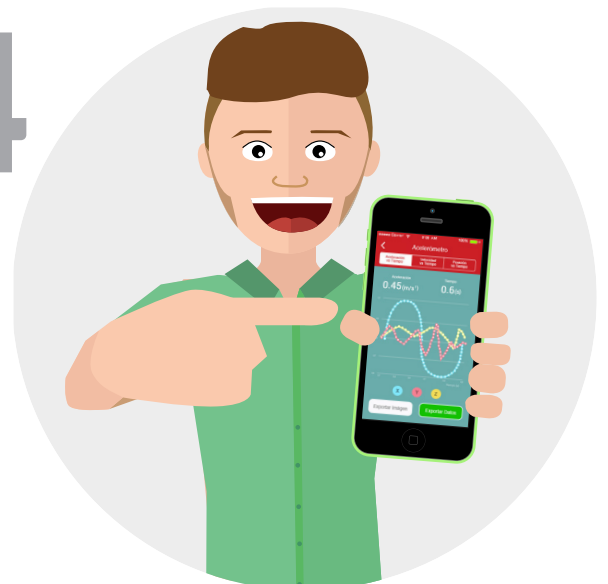
Physics Teacher (*our hero!*) invites students to experiment

3



Students group themselves, measure, analyze and test their hypothesis with **Lab4Physics**

4



Then they compare results, analyze and share future improvements.

# How to use **LAB4PHYSICS?**

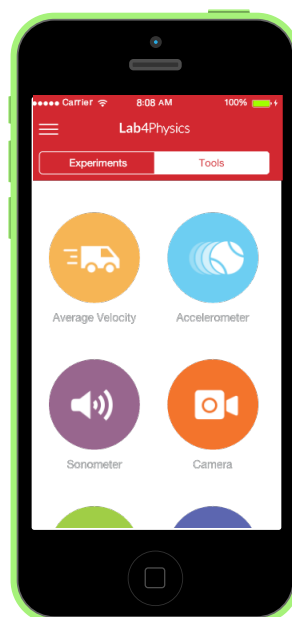
**L**ab4Physics will allow you to put scientific experimentation in your student's hands, creating endless possibilities for your students to engage with real data in and out of the classroom.

## Tools

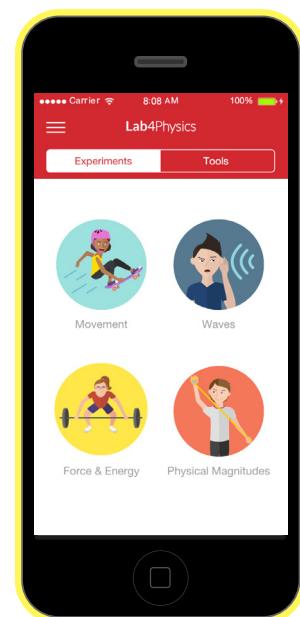
- *Speedometer*
- *Accelerometer*
- *Sonometer*
- *Camera*

## Categories

- *Movement*
- *Waves*
- *Force and Energy*
- *Physical Magnitudes*
- *Play Physics*



Tools



Categories

# Top Tips from Heros to Heros

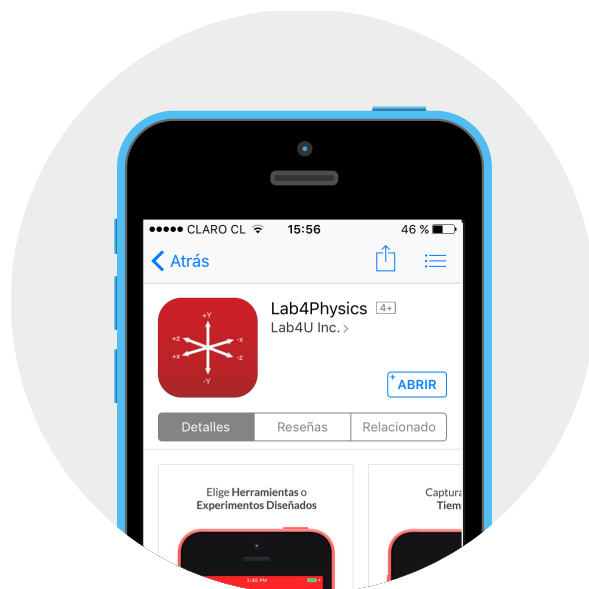
## **Memory**

If your students are having trouble downloading **Lab4Physics** due to a lack of memory in their mobile devices, suggest them to remove an APP or video. **Lab4Physics** weighs 58 MB, which is light (for reference, Facebook weighs 100 MB)



## **Download**

**Lab4Physics** works offline, however, it requires Internet Connection for the download. If the school network is unstable or inaccessible by students, we suggest sending them the access code so they can proceed with the download at home and come to class with the App already downloaded.



## **Materials**

The materials used in the experiments **Lab4Physics** are everyday, inexpensive and accessible. It is recommendable to review the material in advance to ensure they have all the time to the experimental activity.



*Uniform movement*



*Pendulum movement*



*Accelerated movement*

## **Experience at home!**

**Lab4Physics** activities can be done anywhere. From the schoolyard to the playground, football court, the science lab or their own kitchen. It is advisable to suggest students to experiment at home, to find alternative materials, imagine hypothesis. Results tables or graphs can be sent directly to the teacher by email. We recommend starting the next class with a comparison of some graphs obtained by the students, in this way, students can analyze, compare and evaluate measurements and results that they have obtained.



*Simple and inexpensive materials*



*Physical closer and more practical than ever*



*Data and graphics obtained in REAL TIME!*



# Frequently Asked Questions



## 1.- Do I need to buy additional sensors?

You Do Not! The whole point is that **Lab4Physics** has everything you need to experience Physics with your students.

## 2.- Do I need Internet connection to experience with **Lab4physics**?

**Lab4Physics** uses a hybrid system. You WON'T need Internet connection to perform experiments or access to your results. However, you will need internet connection to download the APP, to register or login and to download the learning activities. We recommend to open **Lab4Physics** when you have Internet Access so you make sure you have all the experiments downloaded and ready. From then onwards, you won't need to be connected to the Internet.

## 3.- Is any phone enabled to run **Lab4physics**?

**Lab4Physics** is enabled to run on smartphones and tablet devices with iOS or Android operating systems. The minimum requirements are:

### ANDROID

- Minimal version Android: Ice Cream Sandwich 4.0, API level 14 onwards.
- Processor: Minimum of 2 cores and 1.2 GHz onwards. RAM: Minimum 1GB
- RAM. Minimum Sensors requirements: accelerometer, magnetometer, compass, camera, light sensor.

### IOS

- Minimum Device: iPhone 4S, iPad Mini, iPad v.2
- Chip: Apple A5
- Minimum RAM: 512 MB.
- Screen: 3,5" (89 mm).
- Screen Resolution: 960x640 (Retina Screen)
- Back Camera: 8 megapíxeles with LED flash and Full HD Recording
- Front Camera: VGA for Photos/Videos
- Gyroscope, acelerometer, Proximity Sensor and Ambient Light, Digital Camera.

## 4.- How much memory do I need to have available to download **Lab4physics**?

**Lab4Physics** weighs 58 MB.

### **5.- Where does **Lab4physics** store my samples?**

Samples are stored in an internal database belonging to each device. This database is persistent over time, unless the app is uninstalled or the data is eliminated through the Android application manager.

### **6.- How can I export my graphs?**

Graphs can be exported directly from **Lab4Physics**, using the menu at the top right of every graph, selecting “Export Chart”.

### **7.- How many tools does **Lab4physics** have?**

**Lab4Physics** has 4 principal tools: Speedometer, Accelerometer, Sonometer and Camera. In addition, some versions have our Vector (addition, subtraction, weighing and module) and Unit Conversion.

### **8.- What happens if the APP is not working?**

The APP may work in an unstable way, specially if the minimum Android or iOS requirements are not fulfilled. Please contact us upon any question or support.

Email: [support@gmail.com](mailto:support@gmail.com)

Website: <http://lab4u.co/>

In-App: Lateral Menu, Contact Us.

### **9.- In which format are graphs exported?**

Graphs are exported in “png” format and data is exported in “csv” format.

### **10.- Can I use the tool with all my students at the same time?**

Of course!!

### **11.- Do teachers receive on-site implementation, instruction or professional development?**

Of course! Contact us at: [quiero@lab4u.co](mailto:quiero@lab4u.co) and learn more about our services.

### **12.- Can I use **Lab4physics** at home?**

Of course! You can use **Lab4Physics** at home, in the patio, in the playground, wherever you wish to learn more about the world around us.

### **13.- How long is the subscription?**

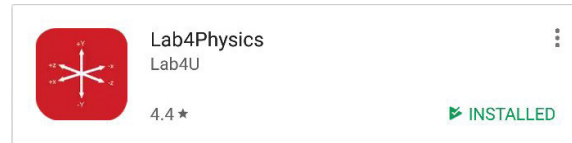
*The free version of **Lab4Physics** lasts 45 days. For annual subscriptions, contact us!*

# How to Download Lab4Physics?

How to get my Lab4Physics Premium Edition?

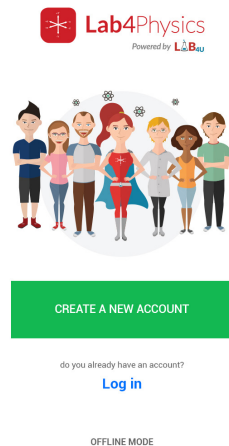


**1** Download Lab4Physics from App Store or Google Play (make sure to be connected to the internet at this point!)

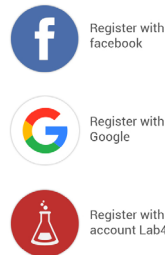


**2** Select Lab4Physics and Download.

**3** Immediately, a pop-up message will display for your authorization to Access your photos, camera and microphone. Accept and the APP will start downloading.



## CHOOSE A REGISTER



**4** Login or Register to start experimenting! You will have to choose between teacher or student and the way you would like to register (Facebook, Google or a Lab4U Account)