



# FAQ

## GENERAL

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### **How is the Education Starter Kit structured?**

The Arduino Education Starter Kit is divided into nine step-by-step lessons and two open-ended group projects. The kit contains boards, a collection of sensors and actuators, access to an online platform, extra resources, and teacher notes.

Each lesson is designed to be completed by a pair of students working with one Arduino board and one computer.

### **How many students can use the kit?**

The Arduino Education Starter Kit is meant for up to 8 students. The kit includes all the components required to assemble one lesson at a time.

### **What is the recommended age for this kit?**

This kit is intended for ages 11 to 14.

### **What grade level are your materials appropriate for?**

The Arduino Education Starter Kit is meant for middle school classes.

### **Is previous electronics and programming knowledge required?**

We start from the basics so previous knowledge is not necessary.

### **What languages are currently available?**

Arduino Education Starter Kit is available in English, Chinese, Croatian, French, German, Italian, Portuguese, Spanish, and Thai, with more languages coming soon.

### What operating system is required?

Windows 7 or higher, Chromebook Linux, and Mac OS (including Catalina)

### Is this the best kit for a beginner to get started with Arduino in schools?

Yes, this is the beginner level kit that will help you get started with Arduino in a classroom.


### What topics do the Education Starter Kit covers?

The Education Starter Kit covers nine main categories:

- **Electricity** Understanding concepts such as resistance, voltage, power and capacitance, being able to measure and calculate them.
- **Reading circuits and schematics** Understanding how electronics are represented visually, and the ability to read and analyze electronic circuits.
- **Arduino IDE** Understanding the functionality of the Arduino development environment, serial communication, libraries, and errors.
- **Arduino boards** Understanding the constitution and capabilities of an Arduino board and the functions of its different parts.
- **Frequency and duty cycle** Understanding the concepts of Pulse Width Modulation (PWM) and frequency, being able to calculate duty cycle.
- **Electronic components** Understanding how various electronic components such as LEDs, sensors, buttons and motors work, and how to use them in a circuit.
- **Programming syntax and semantics** Understanding the building blocks of Arduino programming language such as functions, arguments, variables and loops.
- **Programming logic** Ability to program various electronic components, read, analyze, and troubleshoot Arduino code.

### What is included in the box?

4 Arduino UNO rev 3  
4 Starter Kit mounting pieces - an easy-to-assemble plastic base  
4 Battery Snap 9v  
8 Batteries 9v  
4 Breadboard 400 points  
4 Capacitor – 100uF  
4 Female-male Jumper Wires (red)  
4 Female-male Jumper Wires (black)  
20 LEDs (red)  
20 LEDs (green)  
20 LEDs (yellow)  
20 LEDs (blue)  
4 Multimeters



4 Piezo Buzzer [PKM17EPP-4001-B0]  
4 Phototransistors  
8 Potentiometer 10kOhms  
20 Push Button  
4 Resistors - 1 kOhms  
20 Resistors - 10 kOhms  
20 Resistors - 220 Ohms  
20 Resistors - 560 Ohms  
4 Stranded jumper wires (black)  
4 Stranded jumper wires (red)  
4 Servo Motor  
4 Temperature sensor [TMP36]  
4 USB Cable

- Access to an online platform which helps students take their first steps into the world of electronics and invention
- Specific online content for teachers
- 9 step-by-step lessons with up to 25 hours of class time, covering:
  - Basic concepts of electricity
  - Safety in class
  - Schematics
  - Writing code
  - Controlling a circuit
  - Coding concepts
  - Controlling a servo motor
  - Producing sounds, tones, and music
  - Measuring the intensity of light
- Two open-ended group projects: design, build and program a climate-control system for greenhouse; build a holiday light circuit
- A Logbook for students to annotate their observations and experiments
- A version of the Logbook with teacher solutions

### **Do I need any prior experience with coding?**

No prior experience in coding is needed for the Arduino Education Starter Kit. The kit takes you step-by-step to learn the basics of electronics and programming using practical, hands-on exercises, and projects.

### **What are the minimum requirements?**

USB port and Arduino IDE must be installed. Check [here](#) to make sure you have installed the most recent version: <https://www.arduino.cc/en/main/software>.



## ACCESS TO ONLINE PLATFORM

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### **How many lessons are included in the kit?**

The Arduino Education Starter Kit includes content for nine online lessons and two open-ended group projects. Each lesson builds off the next and gives students the opportunity to apply skills and concepts that were covered previously.

Each lesson comes with exercises from a logbook that students complete as they work through the lessons.

### **How long does a lesson last?**

Each lesson is designed to last 90 minutes. The lessons are planned to make them possible to divide into two parts.

The basics of electronics in the entire content takes around 17 hours to cover. Extra material such as Resources, Inventions Spotlight and extension information are included in the online content. If the teacher decides to include these materials, the total time will be up to 25 hrs.

### **Do I need to follow the activities in the order provided?**

Yes, each lesson builds off the next and gives students the opportunity to apply skills and concepts that were covered previously - therefore, we recommend you to follow the order of the lessons.


### **Can I use this kit in my STEM after-school club?**

Yes, but we recommend doing it with a teacher.

### **How do I access the online content?**

Each box has a unique code under the lid, which the educator can redeem to activate the kit and unlock access to the online platform. Once the kit is activated, the educator can enrol students and other educators, granting them access as well. To activate your kit, go to [arduino.cc/education](https://arduino.cc/education), click on “register kit” and follow the instructions to redeem your code.

### **What are the open-ended projects?**



The Arduino Education Starter Kit comes with two open-ended projects. An open-ended project is a lesson where the students apply concepts learned in previous lessons in a free way, guided by the criteria, objectives, and consideration from the teacher to build a project. At the end the students can demonstrate their projects in the class.

### **What are the teacher notes?**

The Arduino Education Starter Kit is designed to provide a more in-depth step-by-step learning experience to both students and teachers, therefore, the kit provides guidance to the teachers while implementing the lessons. In the teacher notes, teachers will find extra information in relation to the lessons, activities, exercises as well as tips and ideas on how to enrich the learning experience for the students.

### **Are the teacher notes visible to students?**

The teacher notes are hidden from the students and only teachers have access to it. Teacher notes are accessed through the teacher account and can be made visible by clicking on the eye icon at the bottom of the screen.

### **What are the further notes?**

The further notes are meant to provide important and relevant extended information for the students to enrich their learning experience.

### **Where can I find the logbooks?**

The logbooks can be found in two different locations.

- For students: The logbook is located on the landing page right before the lessons
- For teachers: The logbook is located on the landing page right before the lessons inside the teacher notes. To access the teacher notes click on the eye icon at the bottom of the screen.

### **What is the resource tab?**

The resource tab is a section for students with extra hints such as after-class research, ideas to develop intercurricula studies, presentations, and short information that helps to provide the class with a more comprehensive experience.

The content inside the resource tab is not included in the basic electronic hours that lasts 17 hours, but teachers can use it for the extended version of the class that lasts 25 hours.

### **What is the difference between the open-ended projects and the exercises inside the lessons?**

The difference between the open-ended projects and the exercises inside the lessons is that the exercises are focused on making sure the concepts have been understood. They provide a hands-on way of learning.

The open-ended projects are lessons where the students apply and demonstrate the different concepts and skills learned previously in a practical way.

### **What are the Inventions Spotlights?**

In the Invention Spotlights, students learn more about the invention and facts behind the topics and lessons they are going through. The purpose is to provide a broader view and historical insight.

### **I have trouble registering a kit, what should I do?**

If you have trouble registering your kit, please contact us at <https://www.arduino.cc/education/contact-us>

### **I forgot my Arduino account passwords, how can I recover it?**

You can reset your password [here](#) by submitting your username or email address.

### **How do I share access to my online courses with other people?**

You can share access to your online courses with any number of people using the classroom system. After registering a kit, go to [classroom.arduino.cc](https://classroom.arduino.cc) and **set up a classroom**. Once your classroom is set up, you can invite other educators and students to join you. Everyone who joins your classroom will immediately get access to any online courses associated with it.

## **EDUCATOR ENROLLMENT**


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### **How do I give other educators access to the online platform?**

Go to [classroom.arduino.cc](https://classroom.arduino.cc) and set up a classroom. Once your classroom is set up, you can go to the *Educators* tab to enroll any number of educators. All the educators you invite will immediately get educator access to online courses associated with your classroom, with teacher tips, logbooks, etc.

### **What is the role of the admin vs. the teacher?**

When enrolling educators into the CTC GO online platform, you can select whether they should have the *Admin* or the *Teacher* role. Both roles will have the educator



version of the online content with teacher tips, workbooks, etc. Additionally, *Teachers* can invite and remove students, and invite other teachers to join the classroom. *Admins* can do everything a teacher can, plus invite other Admins, remove any educator, edit classroom settings, and disband the classroom. When you set up a new classroom, you automatically become its Admin.

### **How many educators can access the online platform?**

Any number of educators can be enrolled onto the online platform using the classroom system.

### **Can I remove educators from my classroom?**

If you are the admin of the classroom, you can add and remove educators.

### **I have invited an educator but they didn't receive the invitation. What should I do?**

Firstly, ask them to check their spam folder. If the invitation is not there, remove them from the classroom list and invite them again. If their invitation still doesn't arrive, ask them to go to [classroom.arduino.cc](https://classroom.arduino.cc), where they should be able to see your classroom and its associated courses.

## **STUDENT ENROLLMENT**

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### **How do I give my students access to the online platform?**

Go to [classroom.arduino.cc](https://classroom.arduino.cc) and set up a classroom. Once your classroom is set up, go to the *Students* tab to enroll any number of students. All students you invite will immediately get student access to online courses associated with your classroom.

### **Can I remove students?**

Any educator can remove students any time by navigating to the *Students* tab in your classroom. Click on the three dots next to the student's name and select Remove. When you remove a student, they will immediately lose access to online courses associated with your classroom.

### **My students can't access their email or don't have an email address. How do I invite them?**

If your students can't access their email, you can share a classroom code with them. Direct them to [classroom.arduino.cc](https://classroom.arduino.cc) and ask them to **join a classroom** using the code. You can find your classroom code by clicking on the **Invite** button in the *Students* tab.

If your students are under the age of 14 and don't have an email address, they should still be able to create an anonymous *Junior account*, using their parent's email address.



**How many students can access the online platform?**

Any number of students can be enrolled onto access the online platform using the classroom system.

**I have invited a student but they didn't receive the invitation. What should I do?**

Firstly, ask them to check their spam folder. If the invitation is not there, remove them from the classroom list and invite them again. If their invitation still doesn't arrive, ask them to go to [classroom.arduino.cc](https://classroom.arduino.cc), where they should be able to see your classroom and its associated courses.

**When can I enroll students to the platform?**

You can enroll students at any time.

## SUPPORT

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**A component is not working, what should I do?**

If a component is not working, please contact us through the contact form. You can find it by clicking the question mark on the lower right corner of the screen.

**My kit is missing a part and I cannot perform the experiments. What should I do?**

If you are missing a part in your kit, please contact us through the contact form. You can find it by clicking the question mark on the lower right corner of the screen.

**If I have a suggestion for a product or product improvement, who should I contact?**

We are always grateful for your feedback! Please send your ideas to please contact us through the contact form. You can find it by clicking the question mark on the lower right corner of the screen.

**The 220 Ohm resistors appear to be missing and cannot be found within the components of the kit.**



Look for 5 band-version of the 220 Ohm resistor in your kit. There are both 4 and 5 band resistors in the Arduino Education Starter kit, which means that the same resistor value of 220 Ohm can be found in two different looks. Below is the picture of 5 band 220 Ohm resistors.



**I can't locate the temperature sensor.**

The temperature sensor has three legs and looks similar to a transistor. If you look closely, you will see TMP written on the flat side.

**I have issues with the board.**

Make sure the board is being detected by the computer and the right board is selected under the tools section in the IDE, and that the driver for the board is properly installed.

**I cannot locate plastic holders.**

The plastic holders need to be removed from the base piece.

**I cannot find the screws.**

The screws are included in the electronics component box which comes along with the kit.