ARDUINO EDUCATION

EXPLORE IoT KIT

FAQs

GENERAL

What is IoT?

The Internet of Things, IoT, is a giant network of connected devices that collect and share data from all over the world. Billions of devices that are connected to the internet share information with each other and are used by us in our everyday lives, such as controlling lights at home from your phone, monitoring surveillance cameras remotely, and using a smart water metering device to save the environment and monthly costs.

What are the benefits of learning about IoT?

The IoT is changing the way we live, work and study. Some jobs are disappearing and becoming automated, but at the same time new career opportunities are arising. Learning IoT requires students to use different tools, technologies and programming languages. However, IoT tools can be very user-friendly. The Arduino IoT Cloud and its low-code approach makes it easy for anyone to get started, get their device connected and have their first fully-functional project working in no time.

By going through the activities in the Arduino Explore IoT Kit, students learn how data can be collected and presented, making them more aware how technology is used in our everyday lives. They learn how to use connected devices and services safely and securely, and they will have the tools they need to design and make their own projects or tweak existing ones. They will also have better career opportunities and better scope for the future as data scientists.

How can I apply the kit to my curriculum?

IoT can be used in multiple different subjects. Whether you're teaching technology, biology, business or gardening, your students can benefit from making aspects of IoT part of their projects. In the accompanying teacher guide, you'll find information about different activities, learning objectives, materials needed and extra tips, collected into one place to support educators.

What's included in the box?

The physical box includes an Arduino board: MKR WiFi 1010, MKR IoT Carrier, plug and play sensors: motion and moisture, enclosure for the carrier and board, Micro USB cable, plug and play wires for the external sensors, cable for power to board with a battery, and a registration code to the online learning platform with registration instructions.

What is the MKR IoT Carrier?

The MKR IoT Carrier is an extension of the MKR WiFi 1010 board and it was developed for the Explore IoT Kit. The carrier does not come equipped with a microcontroller, meaning it needs to be used together with an Arduino board. Using a carrier we unlock many useful and interesting features, such as having a display, RGB LEDs, a gyroscope and different sensors.

What sensors are included on the kit?

The kit includes two types of sensors: embedded on the carrier and plug and play sensors.

The carrier has the following sensors embedded: Light, Pressure, Humidity, Temperature, gyroscope, accelerometer and 5 tactile buttons. Besides those, the kit includes PIR and Moisture plug and play sensors. It is possible to connect more sensors to the carrier since it is equipped with 3 Grove connectors (2 I2C compatible + 1 Analog compatible)

How is the Explore IoT Kit structured?

The Explore IoT Kit is divided into an introduction to the Internet of Things and ten step-by-step, hands-on activities. Each activity includes learning objectives, an introduction to new components and programming concepts, as well step-by-step instructions for configuring the IoT Cloud and gradually building code. In each activity students make a functional project that they can conduct different experiments with, and at the end of each activity students will be able to take their knowledge to the next level and try to solve an open-ended challenge by modifying the program.

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

Yes, each lesson builds off the previous one and gives students the opportunity to apply skills and concepts that have been covered. Therefore, we recommend that you follow the order of the lessons.

Who can use the kit?

This kit is designed for students aged 16+ who are taking their first steps into the world of the Internet of Things. Students should already have some knowledge of programming and electronics as basic concepts are not explained in the content of this kit. However, students don't need any prior knowledge of the IoT or how to use, for example, cloud services, APIs, and different sensors for data collection.

What are the minimum knowledge requirements for using the kit?

Students are expected to know basic programming. This kit only includes plug and play components and doesn't require students to build complex circuits. Activities include step-by-step instructions for assembly and programming, however some of the basic programming concepts and code structures are not explained.

How many students can use the kit?

The Explore IoT Kit is designed for one or two students. The kit includes all the components required to assemble and experiment with one project at a time. It comes with one unique code for registering the kit and activating the Arduino Create subscription. Note that if students are working in pairs, they are required to use the same Arduino account to access the online platform and for the Arduino Create subscription.

What languages does the online platform support?

At the moment, the Explore IoT Kit is available in English, Spanish and Italian. More languages will be available.

What is the recommended age for this kit?

This kit is intended for ages 16+.

What topics does the Explore IoT Kit cover?

After looking into current academic and industrial standards, we have identified the following important concepts and fundamentals of IoT that this kit should touch upon:

- Hardware
- Algorithms and programming
- Networking
- Security
- Data handling

Where is the registration code?

The registration code can be found inside the physical kit. Each kit includes a unique code that is used to access the online platform as well as to activate the subscription to the Arduino Create.

What operating system is required?
Windows 7 or higher, Linux, or Mac OS.

What are the minimum requirements for using the kit in the classroom?
To go through the activities and program the board, each group needs a computer and an internet connection. In many of the activities, students also need to have a WiFi connection with its credentials (SSID and password).

I'm having 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

ACCESS TO THE ONLINE PLATFORM

How do I access the online content? How can I access the activities for the Explore IoT Kit?
You can access the course content by registering the kit. Follow the instructions printed on the paper tray of the box. After signing in to Arduino, you will be asked for the activation code which you can also find in the box. Once you enter your code, you need to indicate if you're a student or a teacher. Your Arduino Create subscription is automatically unlocked once you register the kit, and it's tied to the Arduino account you used.

How many educators and students can be added to the platform?
The Explore IoT Kit allows access to one user to the online platform using their Arduino account.

What does teacher access look like?
Educators are provided with access to teacher content, including a description of the concepts covered and content included in the kit, the course syllabus, tips, suggested methodology, and a set of helpful resources.

I forgot my Arduino account password, how can I recover it?

You can reset your password here by submitting your username or email address.

EDUCATOR & STUDENT ENROLLMENT

How are students enrolled in the platform?

Each physical kit has a unique activation code to access the platform. If the kit is used for homeschooling, remote learning or self-learning, users simply have to follow the instruction inside the box. If the kit is used in a traditional school environment, teachers or administrators can either register all the kits themselves by creating an Arduino account for each kit and distributing the credentials amongst their students, or they can guide the students through the onboarding during the first lesson.

Can I register multiple kits with one Arduino account?

No, you need to have a different Arduino account for each kit. The Arduino account is connected to the access to the online platform and the Arduino Create subscription.

Can I register kits for my students when I use this kit in the classroom?

Yes. We recommend creating a unique Arduino account for each kit and then sharing the credentials manually with each student when you give them their kit. To have everything in one place for the students, add the credentials to the inside of each box. If you use the kits with another class, you can use the same accounts again.

Can I re-use this kit with another class?

Yes. You can use the same kits and Arduino accounts again with another class. We recommend changing the passwords for each Arduino account before sharing them with the new students.

ACCESS TO ARDUINO IoT CLOUD

What is the Arduino IoT Cloud?

The Arduino IoT Cloud is an easy to-use Internet of Things application platform. It makes the creation of connected objects quick, simple and secure. You can connect multiple devices to each other and allow them to exchange real-time data. You can also monitor them from anywhere using a simple user interface.

How do I access the Arduino IoT Cloud?

You can access the IoT Cloud from Arduino Create or from the Explore IoT Kit Platform. In the platform - as well as everywhere else on the Arduino web ecosystem - next to your profile avatar (top right corner) there is a menu connecting you with Arduino Create apps. With Explore IoT Kit you unlock a 12 month free trial of the Arduino Create Maker Plan - the premium subscription to our online coding platform.

What is Arduino Create?

Arduino Create is an online platform that enables anyone to write code, access content, configure boards, and share projects. You can choose from two Arduino Create plans:

- **Arduino Create Free Plan:** Allows you to use the Web Editor to program your board, connect multiple devices with the Arduino IoT Cloud, browse a collection of projects on Arduino Project Hub, and connect remotely to your boards with Arduino Device Manager.

- **Arduino Create Maker Plan:** You get access to additional features and increase the productivity of your tools. The Explore IoT Kit comes with a 12 months free trial to the Arduino Create Maker Plan. You'll be able to save more sketches, support for third parties boards and LoRa devices, increase the number of properties, and much more. See all the features here.

How do I activate the Arduino Create subscription?

Follow the instructions on the Explore IoT Kit box and register the kit. Once you register your kit, you automatically unlock 12 months of free Maker Plan time for the Arduino account used in the registration.

How do I renew my subscription for Arduino Create?

The kit comes with a 12 months free trial to the Arduino Create. After that, users can choose to extend their access by purchasing a monthly or yearly subscription to Arduino Create Maker Plan here.

Can I accumulate more than a 12 months of trial if I purchase more than one Explore IoT Kit?

You **cannot** accumulate more than 12 months of trial or extended trial when purchasing more than one Explore IoT. You can only use one trial at the time even if you activate the other kits.

What will happen to the Create account after 12 months?

You will be able to keep your dashboards and data by renewing the Maker Create Plan. See the pricing details. Note that renewal is not currently available in Brazil.

Can I use this kit or the IoT Cloud without the Arduino Create subscription?

In order to achieve the full learning experience, you need to have the Arduino Create Maker Plan - that's why 12 months are included with the purchase. Once you complete the kit activities, you can continue with the Arduino Create Maker Plan subscription or use Create with the free plan if you don't wish to renew your subscription. Compare the plan options and features here.

SUPPORT

A component is not working, what should I do?

If a component is not working, please contact the Arduino Explore IoT Kit support using the form on the online platform.