

Coding@Home

If you are a parent taking the EU Code Week Deep Dive MOOC, you can check this guide where you will find easy, fun, and educational activities you can organize with your children and/or students from the comfort of your own home. We provide you with a variety of activities for students of different ages and levels, from beginners to more advanced. But most importantly you have access to everything you need to organize these activities yourself, from step-by-step lesson plans to tutorials and even links to easy to use and free tools. So, what are you waiting for? Choose an activity, organize it with your children or students, and share your creations on twitter using #EUCodeWeekMOOC @EUCodeWeek. Let's get coding!

Coding Unplugged (without using digital technology)

These simple and fun activities called “unplugged” activities will get your children learning basic coding concepts by creating their own algorithms, executing them, and then debugging their code if they make mistakes, all without even using a computer. Take a look at 3 examples of unplugged activities you can easily do at home.

1. Egg carton-unplugged



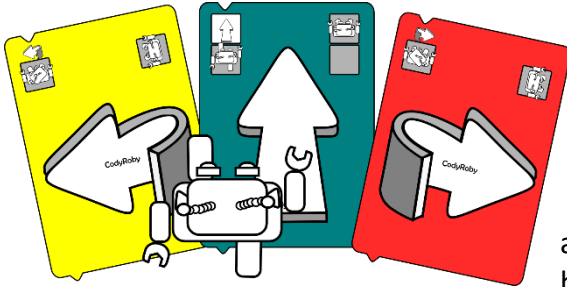
In this activity, students will work together to create an obstacle course/gameboard, and then design different algorithms for a “robot” to accomplish a specific task, in this case, to get to the prize egg. The objective of the game is for students to create their own algorithm and execute it to collect as many egg prizes as they can, while avoiding obstacles like lava, mountains, rocks, etc.

All you need to organize this activity in a few simple items you can easily find around your house like an egg carton, a small toy, Lego pieces, construction paper, and paint. Once you

have designed and created the obstacle course you and your child can work together to create an algorithm or algorithms using different directions pieces (up/down/left/right) to guide their robot to the egg prizes.

[Click here](#) for a step by step lesson plan on how to organize the Egg carton unplugged activity at home, along with printable templates.

2. Cody Roby



Another great activity you could do with both younger and older students is the Cody Roby. This fun activity focuses on teaching the main principles of coding.

All you need to organize this activity at home are Cody Roby cards, which you can download [here](#) and print at home, some paper, and

markers. Two or more people can play this game, with one playing the role of the robot, Cody, and the other the coder who provides the instructions. Each card presents a programming command, by which students can write an algorithm for their robot to follow. Find the step by step lesson plans for younger and older students by clicking [here](#).

[Click here](#) for a step by step lesson plan on how to organize activity at home, along with printable Cody Roby cards and the entire [CodyRoby DIY kit](#).

3. Bake a cake- Algorithm



Create an algorithm and teach your children a basic concept of coding while preparing a simple and delicious snack. In this activity, a student/child will create an algorithm (set of instructions) to bake a cake. At least two people are needed for this activity, with one acting as the “programmer” and the other as the “robot”, which will execute the set of instructions. Alternatively, one student or child can perform both roles, by first creating an algorithm and then themselves following those

instructions to see if they are correct. You can easily adapt the activity to make a sandwich or any other snack.

All you need for this activity are a few items you can find in your kitchen and a recipe

- Butter
- Flour
- Sugar
- Eggs
- Milk
- Baking powder
- Cocoa powder
- Pencil and paper

With your student create a list of steps needed to bake a cake from start to finish, draw it on paper and then execute it while baking the cake. You can easily adapt this activity for younger children by prewriting the steps and having the child place the steps in the correct order to create an algorithm. Take a look [here](#), for an example of an algorithm for baking a cake.

These are just a few examples of unplugged activities you can easily organize with your children or students at home. For more ideas and examples, along with short tutorials and instructions of unplugged activities, check out [Coding@home](#) University of Urbino, and expert in coding and computational thinking.

Online (Plugged activities)

If you are looking for activities you can do online with your students or your children while learning about programming and computational thinking, why not try one of the following plugged activities. These activities introduce you to programming languages and show you how to create algorithms using code. But don't worry, you have access to lesson plans and tutorials to guide you through.

All you need to get started is:

- A computer
- Internet connection
- No download needed, just use the following [link](#) to get started.

4. Creating an Educational game with Scratch



Ready to start coding using a programming language, why not try Scratch, the most popular visual programming language. Visual programming uses illustrations or graphics to introduce algorithms to children or older students. You don't need any coding experience to get started with Scratch and you can use it to create simple educational games at home with your children or students. Scratch is easy to use, free, and very engaging for children and students.

You can find various training videos and ready to use lesson plans on the code week website to get started. We have lesson plans for students of different ages from younger children, to teenagers. [Here](#) is an example of an educational game you can create at home. You can find even more ideas and lesson plans [here](#). Get coding!

5. App Lab



If you are working with older students or children (13+) you can introduce them to App lab, a programming environment where they can try making simple apps using blocks or text. All you and your students need is a computer with internet access to get started.

In this lesson, students will build and share their own apps with various features like buttons, images, and screens. The lesson includes various tutorials for you and your students to easily complete the challenges and create a simple app. The activity consists of 14 puzzles and tutorials of increasing levels, to teach students about various features of an app, and how to create them. Try this lesson with your students. Here are a few simple steps to get you started:

1. Check out this [lesson plan](#), for ideas and detailed instructions
2. Start with a short warm-up and ask your students about their favourite apps to get them excited about the activity.
3. Enter the [App lab activity](#), there's no need to create an account or sign up. Your students simply need to provide their age to get started. The activity is designed for students ages 13+.
4. Watch the short introduction video and discuss it with your students.
5. Follow the instructions provided by each challenge.
6. Once students have completed the 14 challenges, they get a certificate
7. After students have finished learning about coding various app features, why not ask them to come up with an idea for their own app, create a design, and make a pitch to sell their creation.

If your students want to continue learning about app development, try one of the other activities available on the App lab.

6. The Hour of Code



The Hour of Code is a global movement that has reached tens of millions of students in 180+ countries. Everybody everywhere can try the one-hour tutorial designed for learners of all ages in over 45 languages. One hour would be enough to understand the basic principles of coding and discover how easy and intuitive coding can be.

The Hour of Code gives learners a fun first introduction to computer science and has become a global learning event, celebration, and awareness event. It offers hundreds of one-hour activities in over 45 languages for kindergarten and up. The activities require no experience and can be run on browsers, tablets, and smartphones. You do not need to create an account – just visit the website and take **the Hour of Code**.

Take Hour of Code. Browse the website, find an activity you like, and get started!

1. Visit the [tutorial page of Hour of Code](#).
2. Navigate to the sidebar and consider the recommended age the activity is targeting.
3. Consider the programming language the activity will help you to develop.
4. Choose a tutorial.
5. Follow the link in the activity; it will either lead to either a video with instructions or a different platform (i.e. Scratch).
6. Try out the activity yourself and don't wait to try it out in class for the first time.
7. While the subject is also important, educators around the world promote interdisciplinary learning; you can consider it, but it shouldn't prevent you from experimenting.
8. Be creative and daring by using new features.

We hope you and your students and children will enjoy these fun and educational activities. Don't forget to share your creations and inspire others to get coding. Post your creations on Twitter, using #EUCodeWeekMOOC @EUCodeWeek.

We can't wait to see what you've created together with your children and students!