

Codeverse Teacher Training

September 7th, 2019

What is Codeverse:

Codeverse is the world's first fully interactive coding studio for kids aged 6 to 13 that was founded on the mission to teach one billion children to code. Codeverse operates three tech-enabled, programmable studios in Lincoln Park, Naperville, and Wilmette.

What is Coding & Why is it Important:

Coding is the process of creating steps or instructions to tell a computer what to do. You can find code in many things: our phones and video games - even concert lights, TVs and 3D printers use code! **Learning to code is learning the language of computers.**

Coding teaches not only STEM skills but also many life skills:

- **Teamwork** - Kids work together to solve complex problems, just like computer programmers
- **Confidence** - Coding is a great way to build math and reasoning skills in a low-pressure way. Kids also gain public speaking skills when they share what they learned with friends!
- **Brainstorming & Planning** - Kids gain the ability to take what is in their minds and bring it to life on their computer screens
- **Persistence** - Learning to code involves a lot of problem solving. Making mistakes and then debugging is a very important skill for kids in school and for their future careers
- **Logic & Reasoning** - Coding exposes kids to the process of following specific, logical steps to attain a desired outcome. Sometimes a coder will have to rework their code to attain their desired effect, and must think critically and creatively to achieve their goal

To be a coder, you don't have to be an expert! Here are a few traits of a successful coder: persistent, creative, enjoys solving puzzles, likes a challenge, and loves to learn!

You don't have to be an introvert to be a coder.

Some people associate coding with being alone in a room typing away into the night, but that's far from the truth! Coding jobs often involve working on a team to complete projects and goals. Computer science requires lots of teamwork to make sure all of the pieces come together.

It's ok to not be "STEM-minded" or great at math or science!

If a child dreads STEM classes but loves art, writing, or music, coding is the perfect place to start. Coding integrates creativity with logic, and incorporates math in a way that's low-pressure. Mistakes are common and nothing to be afraid of- just more opportunities to learn and explore!

You don't have to end up as a software programmer. The skills that coding teaches are helpful in any career! You can draw a connection to any career by showing how that career uses logic, instruction-following, problem solving skills, teamwork, or technology

KidScript Coding Lesson Plan (60 min)

Standards	ISTE Standard 5d: Students understand how automation works and use algorithmic thinking to develop a sequence of steps to create and test automated solutions.
Learning Outcomes	<ol style="list-style-type: none"> 1. Students will be able to explain what coding is. 2. Students will be able to give an example of a coding method in KidScript. 3. Students will be able to code a game in KidScript.
Assessments	<ol style="list-style-type: none"> 1. Ask, "What is coding?" 2. Observe students using movement methods in the activity and give an example of one. 3. Students have a mostly completed game.
Materials	<ol style="list-style-type: none"> 1. iPads or computers with internet 2. Login information 3. Mission Cards & Space Dog Cards 4. Post-it notes 5. Offline activity materials
Procedures	<p>Opening (5 min) Who knows what coding is? Share your ideas with a partner. Who would like to share?...Great ideas! Yes, coding is creating instructions for a computer to complete. You can find code in many things: our phones, video games, and computer applications. Even concert lights, tvs and 3D printers use code! The skills that coding teaches can be helpful in any career! For example, teachers, musicians, concert engineers, and detectives can all use coding. Learning to code is learning the language of computers. Today, we are going to learn more about how to write and use code first, through an offline activity, and then by coding your own games!</p> <p>Offline Activity (15 min) Follow the instructions for the Character Obstacle Course activity on pages 3-4. Make sure to follow up with asking kids examples of KidScript methods.</p> <p>Online Activity (35 min)</p> <ol style="list-style-type: none"> 1. Kids log in to school.codeverse.com using the steps on page 4. 2. Have students choose "New Project" and introduce them to the KidScript platform. 3. Lead kids through the Jumping on the Moon mission card to code their own game. 4. Use tips and tricks along the way. 5. Pass out the SpaceDog trading card as an incentive once kids create their SpaceDog character using code. 6. Have students share their games with family and friends! <p>Closing (5 min) Alright, it's time to recap and share what you've learned today. On a post-it note, please write down 1) what coding is; 2) a KidScript method; and 3) what you'd like to add to your game next. Have a few kids share and have them all put up their post-its on the board. "Remember, you are all coders now, and the possibilities for where it can take you are endless!"</p>
Differentiation	<ul style="list-style-type: none"> • Have students use the object toolbox. Learn more about the toolbox on page 5. • Offer kids the option of doing the Level 1 Mission in their take home pack • Challenge students to make their games unique with the Customization Zone

How to Teaching Coding

Offline Activity: Character Obstacle Course

Since computer coding can seem overwhelming, it helps to start teaching the concepts without technology. This activity introduces kids to the concept of using methods with real-world examples, to help kids understand the concepts in the technology activity that comes next.

Setup

- Split up into small groups of up to 6, each with a notebook and pencil
- Have a whiteboard and markers ready for the introduction
- Have space to move around, with objects or obstacles to interact with. Examples: chairs, desks, books, sports equipment, white boards, or other classroom objects.

Introduction

- “Today we are going to learn how to write out code instructions to make characters move! This is how video game designers control the characters in their games.”
- “Each team is going to design an obstacle course for their character, and then is going to write out the code for their characters in their notebooks. The code will be all of the instructions of how to get through the obstacle course!”
- “The way you write movement code instructions is like this, OBJECT-DOT-METHOD.”
(Write on the board *OBJECT.METHOD* to demonstrate this)
- “For example, if I said TEACHER-DOT-JUMP, what do you think would happen? (The teacher should jump!)
- “Let’s look around the room and see what we might want to use in our obstacle courses!”
(Call on kids with examples, like: Joe.sitOnChair, Katy.crawlUnderDesk, Aiden.pickUpBook, Sarah.highFiveJulie). “Now let’s get started!”

Activity

1. Assign each group to a different part of the space so that they do not crowd each other.
2. Each group designs their obstacle course using objects in their area: chairs, tables, books, balls, or papers.
3. As a group, decide on a starting point and an ending point. Then choose a path to get there utilizing the space to create obstacles along the way.
4. Each group writes out the exact code, in order, that needs to be followed in order to complete the obstacle course. Follow the examples in the next section.
5. When a group is ready, choose a kid to act as a character and stand at the start while the group reads out their code one line at a time. See how far the kid can make it through the obstacle course only using the instructions! Then, have the teacher try it!
6. At the end of the activity, have each group watch as someone completes all of the obstacle courses, with the instructions for each being read out loud.

Example code

- | | | |
|--------------------|-------------------|----------------------|
| 1. audra.walk | 4. audra.dance | 7. audra.pickUpBook |
| 2. audra.stop | 5. audra.moveLeft | 8. audra.openBook |
| 3. audra.moveRight | 6. audra.jump | 9. audra.readOutLoud |

Tips & Alterations for the Character Obstacle Course

- If the kids forget a line of code (example: turn right!) then pretend that you don't know how to get past the obstacle! They should fix their code and then try again
- For younger kids, actually walk with the kids through the obstacle course and decide on the methods as you walk through it (remember that a character will continue on its walking path until it is told to stop or do something different)
- For older kids, challenge them to complete a specific task with their obstacle course, like stacking a pile of scattered books, drawing a picture, collecting pencils into a jar or other easy task using the supplies that you have available.

Online Activity: Coding with KidScript

You can watch a step by step video of a kid doing this activity at codeverse.com/learn/!

In the online activity kids will be able to type real code by following step by step instructions on the Mission Card provided. At the end, they will have a real video game! Kids will type their code on Codeverse's online platform using KidScript. KidScript is a coding language, built by Codeverse, that uses an easy to read, easy to write syntax. It's a real programming language which draws inspiration from other languages like JavaScript, Ruby, Python and Visual Basic.

Mission Cards

Mission Cards are step-by-step instructions about how to build a game using KidScript! Each one walks kids through the code, while providing tips, hints, recap activities and extensions. Mission Cards are meant to be self-led, and kids can also work together in groups to complete each challenge.

- **Checkpoints:** Make sure kids test out their game at this point.
- **Tips:** Provide troubleshooting hints and explain the game concepts
- **Customizations:** These are fun ways to challenge kids and add more to their game.
- **Mission Recap:** Activities to help kids remember key words from their mission.

Online Platform Login Info

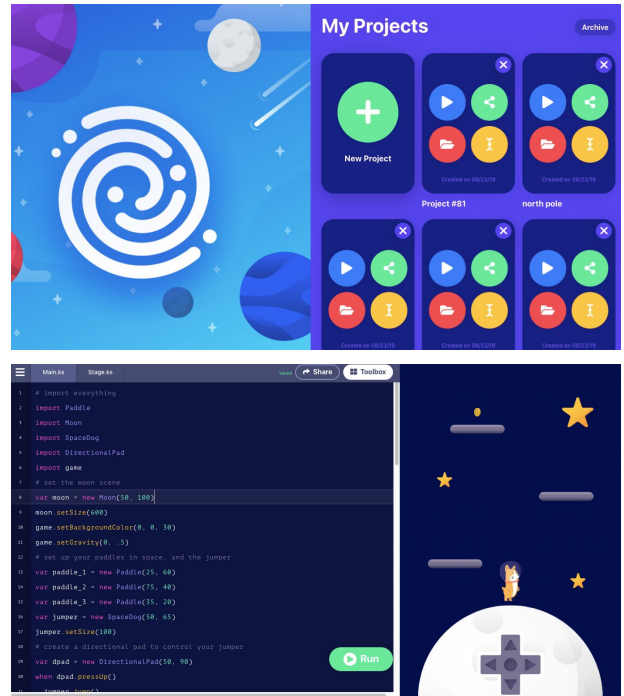
1. **Navigate to login:** Instruct kids to visit school.codverse.com to create their account.
2. **Select school:** Instruct kids to enter their School Name. You can find your School Name by typing a few letters. You can try it out when you create your account.
3. **Enter First and Last Name:** Instruct kids to enter their first + last name
4. **Create username:** Instruct kids to enter their first initial + lastname as their username (e.g. jsmith). Note: You can choose an alternative format such as school ID if you prefer
5. **If a kid gets logged out:** Instruct the kid to go back to school.codverse.com and input the username they entered, school name, and image they selected.



How to use the Codeverse Coding Platform

The Codeverse online platform offers unlimited possibilities for kids to exercise their imagination and creativity. It includes features like autocomplete and hints to make all kids successful!

1. **Project Page:** When kids login, they will see their project page. Select New Project to create a blank project.
2. **Code & Game Area:** Kids will then see our kid developer platform. On the left side is where they'll type the code from instructions on their Mission Card. On the right side they'll see a game preview.
3. **Run Button:** As kids are coding they should hit the run button in the bottom of the code area to see their code live and test it. Their mission has a checkpoint which is a great time to do this.
4. **Share:** After kids are done with their game they can tap/or click Share in the top bar
5. **Object Toolbox:** Kids can select the Toolbox and drag objects into the game area to save time writing the import and create lines of code.



Troubleshooting

If something isn't working...

1. Press the three lines button in the top left
2. Press refresh
3. Log the user out and back into their account

If there is a red line...your code has an error!

1. Tap on the red underline; a hint should pop up
2. Reread your code out loud, from top to bottom looking for errors
3. Make sure there is an "end" for every "when"
4. Reread the steps in the Mission Card and make sure your code matches exactly

Still having issues? Email us at support@codeverse.com

Continue the Fun!

Sign up for a field trip at one of our studio locations to learn more about coding and video game development! To learn more, email the Studio Managers below or call us at (844) 644-CODE

Lincoln Park Studio

819 W Eastman Street
Chicago, IL 60642

Studio Manager: Cindy Tholen
cindy.tholen@codeverse.com

Naperville Studio

55 S Main St, Suite 230
Naperville, IL 60540

Studio Manager: Colton Antos
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Wilmette Studio

517 Green Bay Road
Wilmette, IL 60091

Studio Manager: Tia Piraino
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