LOUISIANA DEPARTMENT OF EDUCATION

Computer Science Education Week 2024: December 9-15

Computer Science Education Week

The Computer Science Education Week theme this year is **Impacts of Computing**, highlighting computer science's impact on our students' world. This document contains resources that could be utilized during Computer Science Education Week. The resources are assembled by grade bands K-2, 3-5, 6-8, and 9-12. The resources listed are designed to be reviewed by teachers before selecting a 30-45 minute activity or full-length lesson to share with students. Before using these resources, teachers must ensure that local school system networks permit access to the resources and create website-required teacher accounts. Please contact **STEM@la.gov** with questions.

In addition to computer science resources, the Louisiana Department of Education has created a Student Guide to Cybersecurity to help increase digital literacy and learning for students. This resource can be shared with students and utilized to explore and discuss many aspects of cyber safety and cybersecurity.

Please use the following social media tags to help us celebrate your event: @LABelieves, @LACSEdWeek, @CSLA, and @LASTEM.

K-2 Suggested Resources

Resource Description	Suggested Level of Teacher CS Experience
CS Unplugged is a collection of free teaching materials that engage students with hands-on games, puzzles, and activities that involve computing such as the data-bit game Mind-reading Magic. Teachers can select from activities that use cards, string, crayons, and moving around to experience CS without a computer. Teachers should review activities and ensure all necessary supplies are available in advance.	No CS teaching experience needed
Cyber.org offers full-length lessons highlighting many aspects of cybersecurity including K-2 lessons on passwords, layered security, and secure networks. Teachers should preview and select the lesson they wish to utilize before using the resource. Before accessing resources, teachers will need to create a free account with cyber.org.	It is suggested that teachers be familiar with CS skills and teaching

Resource Description	Suggested Level of Teacher CS Experience
Exploring Computer Science Careers with Younger Students from Code.org highlights CS careers. This resource allows you to access educational videos, schedule virtual field trips, and access recorded video chats with experts for CS career exploration. Teachers should review resources and secure materials such as display screens and speakers before using this resource.	No CS teaching experience needed
NASA's Space Place offers a game that combines coding with Exploring Mars. The game is designed for grades K-4 and contains images, facts, and technology tools used by NASA scientists.	No CS teaching experience needed
The Hour of Code is a global movement reaching tens of millions of students in 180+ countries. Through Code.org's resources, anyone can organize an Hour of Code event or try over 500+ one-hour tutorials in over 45 languages. Many activities are available including game design with Code Monkey. Teachers can sort activities by grade level, including pre-readers and grades 2-5. Teachers should review the how-to guide and select from the available coding activities before using the resource.	No CS teaching experience needed
Scratch Jr. allows students ages 5-7 to explore block-based coding through activities such as programming animations. Students will need a device with the free app installed to use this resource. Teachers should review the free library of activities and lessons to select an activity before using the resource.	Familiarity with coding is recommended to facilitate this resource
Tynker is an online learning platform that introduces children to coding through puzzles and games, including the beginner block-based coding game Space Quest. Activities can be sorted by grade levels elementary, middle, and high school. Teachers can access Hour of Code activities and resources or use the planning guide to create a free account, add students to the class, and begin guided coding activities.	Some CS teaching experience needed

3-5 Suggested Resources

Resource Description	Suggested Level of Teacher CS Experience
Amazon Future Engineer offers a free set of virtual field trips for grades 3 - 8 to inspire and show students career possibilities related to computer science such as data science. These can be used with Kahoot, but they are not required. Teachers can get started planning a full careers lesson by signing up for the Teacher Toolkit.	No CS teaching experience needed
Google offers interactive games for students to explore various aspects of cybersecurity, cyber safety, cyberbullying prevention, and digital citizenship. Be Internet Awesome includes traditional lesson plans for grades 2-6 and games to engage students. Interland game options include: A. Reality River: Don't fall for fake (evaluating Internet information/ preventing phishing), B. Mindful Mountain: Share with care (stopping the spread of malware), C. Tower of Treasure: Secure your secrets (passwords and data security) and D. Kind Kingdom: It's cool to be kind (Digital Citizenship)	No CS teaching experience needed
Common Sense Education has two resources to help engage grade 3-5 students with creating secure passwords and choosing what information is private versus shareable online. Both resources are free and do not require a download. These can be done individually on student devices or as a class discussion.	No CS teaching experience needed
CS Unplugged is a collection of free teaching materials that engage students with hands-on games, puzzles, and activities that involve computing such as the data-bit game Mind-reading Magic. Teachers can select from activities that use cards, string, crayons, and moving around to experience CS without a computer. Teachers should review activities and ensure all necessary supplies are available in advance.	No CS teaching experience needed
Cyber.org offers full-length lessons highlighting many aspects of cybersecurity including 3-5 lessons on authentication measures, layered security, and network security. Teachers should preview and select the lesson they wish to utilize before using the resource. Before accessing resources, teachers will need to create a free account with cyber.org.	Familiarity with CS skills and teaching is suggested

Resource Description	Suggested Level of Teacher CS Experience
PBS NOVA Labs in conjunction with cybersecurity experts offer the Cybersecurity Lab, a game in which players will discover how to keep their digital lives safe and develop an understanding of cyber threats and defenses. Players will advance using computer coding, logical reasoning, critical thinking, and vulnerability detection to solve various problems. Students will not need any prior cybersecurity or coding expertise to succeed. Teachers can get started planning a full Cybersecurity Lab lesson with the provided educator guide.	No CS teaching experience needed
Exploring Computer Science Careers with Younger Students, available from Code.org, highlights CS careers. This resource includes educational videos, virtual field trips, and recorded video chats with experts for CS career exploration. Teachers should review resources and secure materials such as display screens and speakers before using this resource.	No CS teaching experience needed
NASA's Space Place offers a game that combines coding with Exploring Mars. The game is designed for grades K-4 and contains images, facts, and technology tools used by NASA scientists. NASA also offers a project that allows you to explore a real Moon or Martian landscape from scratch. This project has all the images, instructions, and free resources to make exploration happen. This can occur on a 1:1 device setup (each student has their own device) or as a class with a projector or SMARTBoard setup. The teacher needs to plan and download the appropriate images to 1:1 devices.	No CS teaching experience needed
The Hour of Code is a global movement reaching tens of millions of students in 180+ countries. Through Code.org's resources, anyone can organize an Hour of Code event or try over 500+ one-hour tutorials in over 45 languages. Many activities are available including game design. Teachers can sort activities by grade level, including pre-readers and grades 2-5. Teachers should review the how-to guide and select from the available coding activities before using the resource.	No CS teaching experience needed
Scratch is a block-based coding program designed for ages 8 to 16. Students can create a story, make animations, or even practice math skills such as positive and negative integers in the Make A Chase Game. Step-by-step tutorials are freely available, as are activities and ideas for using Scratch. Teachers need to plan to familiarize themselves with controls in Scratch to support students.	No CS teaching experience needed

Resource Description	Suggested Level of Teacher CS Experience
Tynker is an online learning platform that introduces children to coding through puzzles and games, including the beginner block-based coding game Space Quest. Activities can be sorted by grade levels elementary, middle, and high school. Teachers can access Hour of Code activities and resources or use the planning guide to create a free account, add students to the class, and begin guided coding activities.	Some CS teaching experience suggested

6-8 Suggested Resources

Resource Description	Suggested Level of Teacher CS Experience
Amazon Future Engineer has created a free set of virtual field trips for grades 3 - 8 to inspire and show students career possibilities related to computer science such as data science. These can be used with Kahoot, but they are not required. Teachers can get started planning a full careers lesson by signing up for the Teacher Toolkit.	No CS teaching experience needed
Google has created interactive games for students to explore various aspects of cybersecurity, cyber safety, cyberbullying prevention, and digital citizenship. Be Internet Awesome has traditional lesson plans for grades 2-6 and games to engage students. *Interland* game options include: E. Reality River: Don't fall for fake (evaluating Internet information/ preventing phishing), F. Mindful Mountain: Share with care (stopping the spread of malware), G. Tower of Treasure: Secure your secrets (passwords and data security) and H. Kind Kingdom: It's cool to be kind (Digital Citizenship)	No CS teaching experience needed
Code.org has created Careers with Computer Science. This resource allows students to see and hear from professionals in Computer Science and Tech in pre-recorded videos. A suggested viewing guide with a student reflection sheet is also provided.	No CS teaching experience needed
Geeky Ventures offers Code Monster. Students can follow instructions and see Javascript commands and visual changes in real-time. This free service requires no downloads or user accounts. There are 50 total lessons that students may progress through.	No CS teaching experience needed
CS Unplugged is a collection of free teaching materials that engage students with hands-on games, puzzles, and activities that involve computing, such as learning how computers store information with the Binary Challenge. Teachers can select from activities that use cards, string, crayons, and moving around to experience CS without a computer. Teachers should review activities and ensure all necessary supplies are available in advance.	No CS teaching experience needed

Resource Description	Suggested Level of Teacher CS Experience
Cyber.org offers full-length lessons highlighting many aspects of cybersecurity including 3-5 lessons on multi-factor authentication, layered security, and malware attacks. Teachers should preview and select the lesson they wish to utilize before using the resource. Before accessing resources, teachers will need to create a free account with cyber.org.	Teachers are suggested to be familiar with CS skills and teaching
PBS NOVA Labs in conjunction with cybersecurity experts offer the Cybersecurity Lab, a game in which players will discover how to keep their digital lives safe and develop an understanding of cyber threats and defenses. Players will advance using computer coding, logical reasoning, critical thinking, and vulnerability detection to solve various problems. Students will not need any prior cybersecurity or coding expertise to succeed. Teachers can get started planning a full Cybersecurity Lab lesson with the provided educator guide.	No CS teaching experience needed
Google CS First has a lesson series students can complete using Scratch to create music or video game designs. Text-based, video-based, and unplugged lessons are available. Additionally, there are activities in video walkthroughs in Spanish. This is a free service, but students must create accounts. Teachers need to examine the resources and plan appropriate times for the lessons. This is intended to be something other than a novice resource.	Teachers must know coding and be familiar with computer science
Grok Academy has a cybersecurity minicourse that helps students stay safe online. Students learn to secure passwords, avoid phishing, maintain security settings, and practice responsible social media usage. This free activity comes with a teacher lesson plan.	No CS teaching experience needed
The Hour of Code is a global movement reaching tens of millions of students in 180+ countries. Through Code.org's resources, anyone can organize an Hour of Code event or try over 500+ one-hour tutorials in over 45 languages. Activities for grades 6-8 include learning about cyber security in Cyber Live. Teachers should review the how-to guide and select from the available coding activities before using the resource.	No CS teaching experience needed
Microsoft MakeCode for micro:bit allows students to learn coding concepts using a virtual version of the micro:bit. Micro:bit is a small, programmable computer designed to help learn how to code and create physical coding projects such as a randomized rock paper scissors game using Block, Python, or Javascript coding. Many activities can be completed without a physical micro:bit, and include helpful videos and step-by-step instructions. Teachers should preview and select the tutorials and activities they wish to use in advance.	No CS teaching experience needed

Resource Description	Suggested Level of Teacher CS Experience
Scratch is a block-based coding program designed for ages 8 to 16. Students can create a story, make animations, or even practice math skills such as positive and negative integers in the Make A Chase Game. Step-by-step tutorials are freely available, as are activities and ideas for using Scratch. Teachers need to plan to familiarize themselves with controls in Scratch to support students.	No CS teaching experience needed
Tinkercad is a free, online 3D modeling program for 3D design, electronics, and coding. This resource allows students to create models, experience various technologies, and utilize block-based programming to create 3D models such as personalized name tags. Teachers must preview and select the activities in advance and can filter by grade level and subject area. Before accessing resources, teachers must create free accounts for themselves and students.	Teachers are advised to be familiar with basic coding terminology and block-based coding
Tynker is an online learning platform that introduces children to coding through puzzles and games including the beginner block-based coding game Space Quest and the more advanced Python coding game Life on Land. Activities can be sorted by the grade levels elementary, middle, and high school. Teachers can access Hour of Code activities and resources or use the planning guide to create a free account, add students to the class, and begin guided coding activities.	Some CS teaching experience suggested
Students use VEX Robotics to code a virtual robot through various challenges. Teachers who are comfortable using code should allow students to choose a playground. Otherwise, teachers should choose a class playground challenge. No logins or user profile accounts are required.	Some CS teaching experience suggested

9-12 Suggested Resources

Resource Description	Suggested Level of Teacher CS Experience
Code.org has created Careers with Computer Science. This resource allows students to see and hear from professionals in Computer Science and Tech in pre-recorded videos. A suggested viewing guide with a student reflection sheet is also provided.	No CS teaching experience needed
Geeky Ventures offers Code Monster. Students can follow instructions and see Javascript commands and visual changes in real-time. This free service requires no downloads or user accounts. There are 50 total lessons that students may progress through.	No CS teaching experience needed
CS Unplugged is a collection of free teaching materials that engage students with hands-on games, puzzles, and activities that involve computing, such as Squeezing Pictures Into Codes to learn about run-length coding. Teachers can select from activities that use cards, string, crayons, and moving around to experience CS without a computer! Teachers should review activities and ensure all necessary supplies are available in advance.	No CS teaching experience needed
Cyber.org offers full length lessons highlighting many aspects of cybersecurity and cyber safety including cyberbullying prevention and digital citizenship. Teachers should preview and select the lesson they wish to utilize before using the resource. Before accessing resources, teachers will need to create a free account with cyber.org.	Teachers are suggested to be familiar with CS skills and teaching
Google CS First has a lesson series students can complete using Scratch to create music or video game designs. Text-based, video-based, and unplugged lessons are available. Additionally, there are activities in video walkthroughs in Spanish. This is a free service, but students must create accounts. Teachers need to examine the resources and plan appropriate times for the lessons. This is intended to be something other than a novice resource.	Teachers must know coding and be familiar with computer science
Grok Academy has a cybersecurity minicourse that helps students stay safe online. Students learn to secure passwords, avoid phishing, maintain security settings, and practice responsible social media usage. This free activity comes with a teacher lesson plan.	No CS teaching experience needed

Resource Description	Suggested Level of Teacher CS Experience
The Hour of Code is a global movement reaching tens of millions of students in 180+ countries. Through Code.org's resources, anyone can organize an Hour of Code event or try over 500+ one-hour tutorials in over 45 languages. Many activities are available including game design. Teachers can sort activities by grade level , including grades 9-12. Teachers should review the how-to guide and select from the available coding activities before using the resource.	No CS teaching experience needed
Microsoft MakeCode for micro:bit allows students to learn coding concepts using a virtual version of the micro:bit. Micro:bit is a small, programmable computer designed to help learn how to code and create physical coding projects such as a randomized rock paper scissors game using Block, Python, or Javascript coding. Many activities can be completed without a physical micro:bit, and include helpful videos and step-by-step instructions. Teachers should preview and select the tutorials and activities they wish to use in advance.	No CS teaching experience needed
Scratch is a block-based coding program designed for ages 8 to 16. Students can create a story, make animations, or even practice math skills such as positive and negative integers in the Make A Chase Game. Step-by-step tutorials are freely available, as are activities and ideas for using Scratch. Teachers need to plan to familiarize themselves with controls.	No CS teaching experience needed
Tinkercad is a free, online 3D modeling program for 3D design, electronics, and coding. This resource allows students to create models, experience various technologies, and utilize block-based programming to create 3D models such as personalized name tags. Teachers must preview and select the activities in advance and can filter by grade level and subject area. Before accessing resources, teachers must create free accounts for themselves and students.	Teachers are advised to be familiar with basic coding terminology and block-based coding
Tynker is an online learning platform that introduces children to coding through puzzles and games including the beginner block-based coding game Space Quest and the more advanced physics game Physics Cannon. Activities can be sorted by the grade levels elementary, middle, and high school. Teachers can access Hour of Code activities and resources or use the planning guide to create a free account, add students to the class, and begin guided coding activities.	Some CS teaching experience suggested

Resource Description	Suggested Level of Teacher CS Experience
Students use VEX Robotics to code a virtual robot through various challenges. Teachers who are comfortable using code should allow students to choose a playground. Otherwise, teachers should choose a class playground challenge. No logins or user profile accounts are required.	Some CS teaching experience suggested