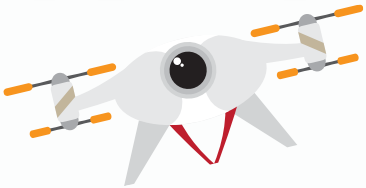
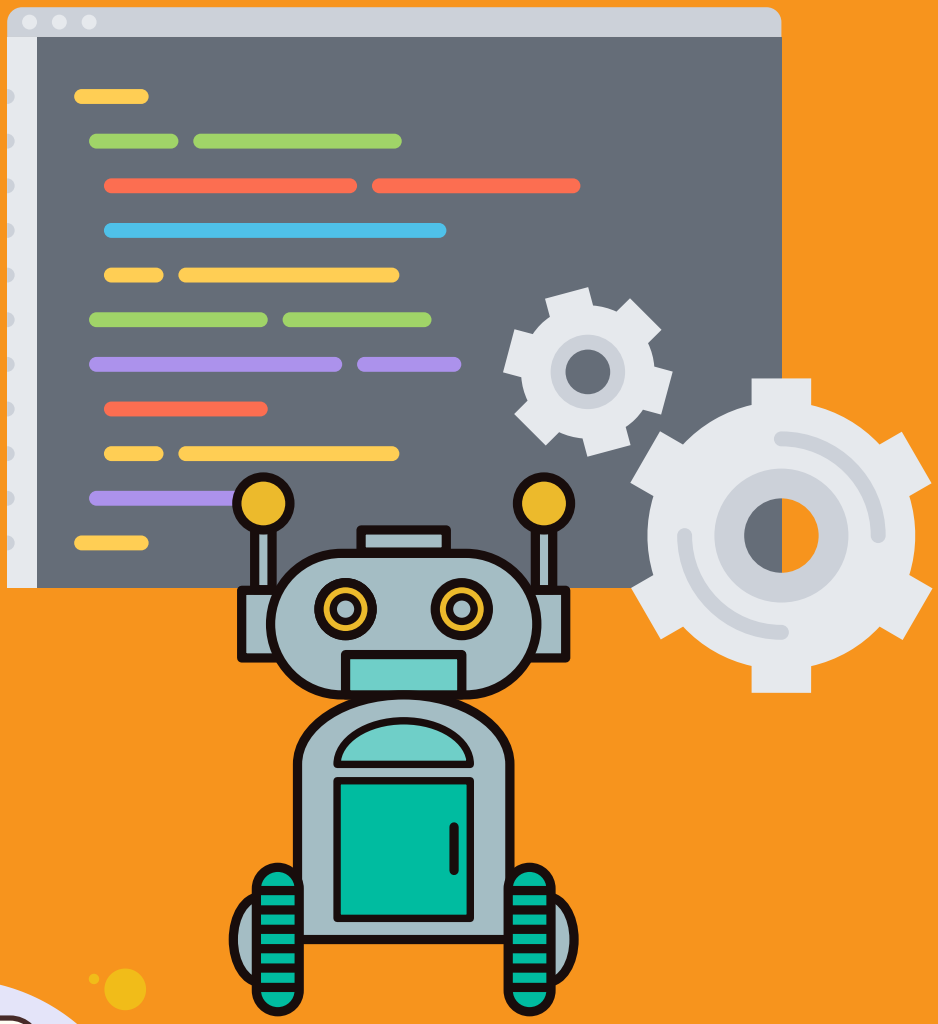
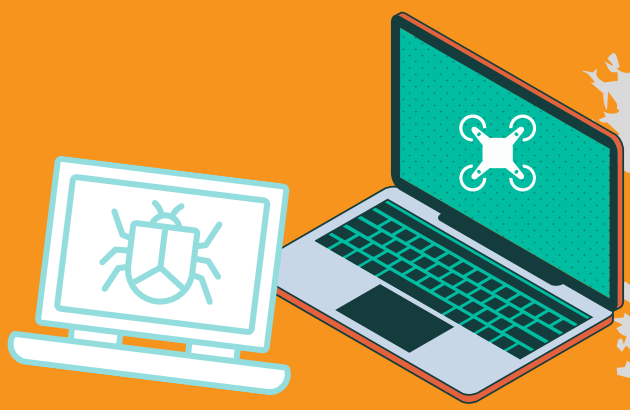
CODING & ROBOTICS



NATIONAL CITY
16 WEEKS OF
STEAM

16 WEEKS OF EXPLORATION & DISCOVERY
IMPACTING HOME, SCHOOL, & THE ENVIRONMENT





Parent Guide

How do I use these activities?

We have designed these activities to be used with the entire family. Our goal is for you to have fun and learn more about STEAM. Each activity will provide you with directions, materials you need, and resources.

Community Events/Activities

Each month there will be community activities (See Calendar HERE on the website) and events. By attending these and completing your project, your family can earn tickets to local area attractions. See the calendar for each month's community activities.

Parent Video

Be sure to check out our parent video series for overviews, tips, ideas, and more HERE.

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ROBOLINK

ROBOTHINK Build, Code and Play with Robots

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Important Links

Website: https://nc16weeksofsteam.org/
Activities: https://nc16weeksofsteam.org/curriculum-download/
Calendar: https://nc16weeksofsteam.org/events/

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Parent Activity Recommendations

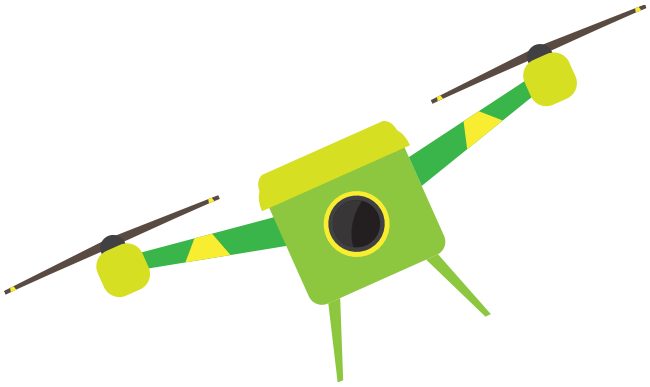
For this unit, your student will complete an activity each week. We have given grade-level recommendations, but feel free to work with your student on any or all of the activities. Younger students will need support.

Tips

- You will need access to the Internet for many of these activities and projects.
- You and your child will be learning about coding & robotics this month.
- Take pictures along the way to document your progress!

Family Project Sharing

- We will have a special day for you to share your projects. Please refer to the calendar for the dates.
- For families that attend we will be giving away tickets to local attractions (i.e. Fleet Space Theater, Midway Museum, Aerospace Museum).



Intro to Coding & Robotics
Recommended Grade Levels: PreK-8th

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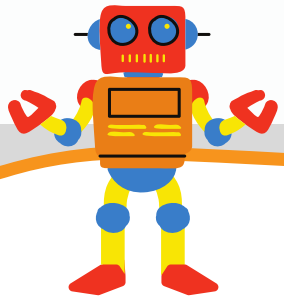
What is Coding & Robotics?

Coding

Coding is a process in which a person (programmer) tells a computer or machine how to perform tasks. There are "languages" that help the programmer communicate with the machine. People who know how to code can create games, apps, software, websites, and interactive content. Coding is a great learning opportunity for people of all ages!

Robotics

Robotics has students learning how to code/program, design, and create their own robots. Robots are often designed to perform tasks. Today robots are found in manufacturing (i.e. automobiles) and help with simple repetitive tasks.



Why is it Important?

Learning the essentials of coding and robotics at a young age can help students learn how to be better thinkers. When children learn how to code they are taught how to solve complex problems by breaking them down into smaller, manageable, chunks.

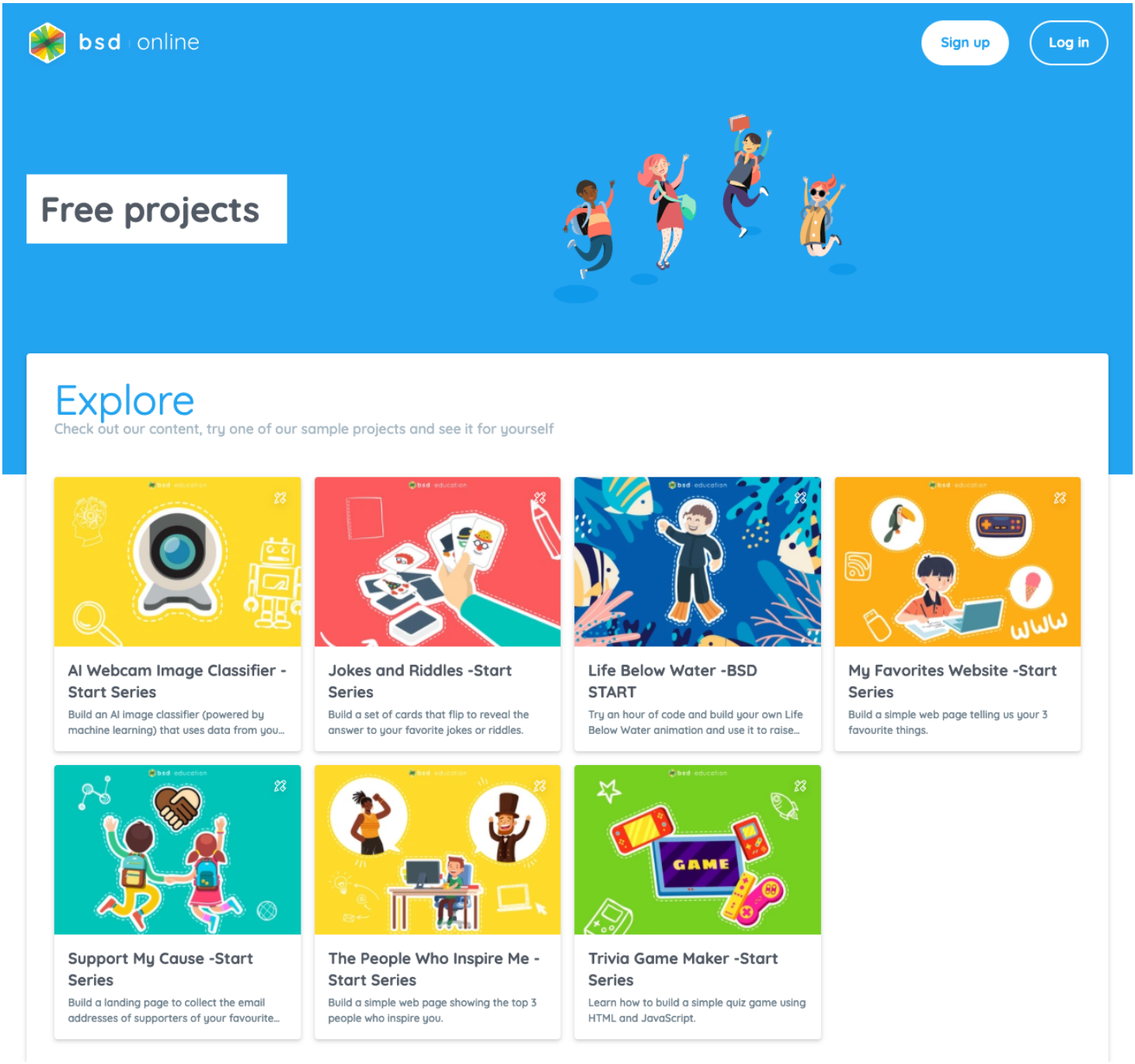
The followings skills are learned through coding and robotics:

- Skill #1 Problem-Solving - Students learn to tackle complex problems and solve them through trial and error.
- Skill #2 Creativity - Coding & robotics promote creativity as kids develop from their imagination.
- Skill #3 Confidence - As students learn how to solve problems, debug, re-write, and run their code they become more and more confident about succeeding even when things don't go right.

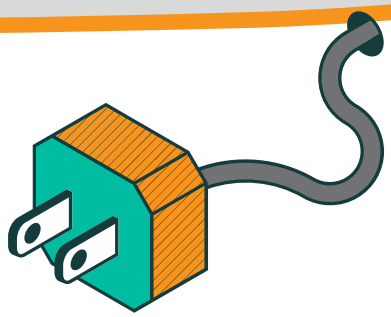
These are just a few skills that are promoted through coding and robotics. It is also important to note that students who have learned these skills have more access to higher-paying jobs.

Coding & Digital Skills Projects from Build Something Different

Go to https://app.bsd.education/free to select a free project.



Note: You may see different projects from what is shown here.

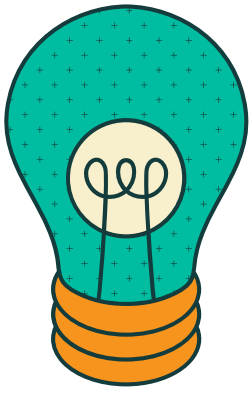


How to do the projects at Home:

- Log onto the internet and visit the website: https://app.bsd.education/free with your student(s).
- Look at the different projects and select one together that you would like to try.
- For younger students, it will be helpful to have an adult or older student work with them on the project.
- As you go through a project ask questions like:
  - What are you thinking?
  - Are you surprised by what you can do?
  - Is there anything that is confusing?
  - How do you think this might be used in the "real world."

Learn more with these resources:

- Coding for Kids: the Ultimate Guide for Parents- (Parents) This article is a useful overview guide to coding.
- Meet A 12-Year Old Developer | Thomas Suarez - TEDx (4th-8th grades) Thomas Suarez is a developer who has made apps and games. He loved playing video games and then decided he wanted to make his own.
- Coding for Kids | What is Coding for Kids?- (PreK-3rd grades) This video covers the basics of coding using animalization.



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Start Your Coding Project

1. Go to https://app.bsd.education/16weeks

1. Choose a National City 16 Weeks of STEAM coding project from BSD Education:

- AI Webcam Image Classifier - Build an AI image classifier (powered by machine learning) that uses data from your webcam to classify objects. Train it to recognize and classify new objects!
- Jokes & Riddles - Build a set of cards that flip to reveal the answer to your favorite jokes or riddles.
- Life Below Water - Try an hour of code and build your own Life Below Water animation and use it to raise awareness about protecting our seas and oceans!
- My Favorites Website - Build a simple web page telling us your 3 favorite things.
- Support My Cause - Build a landing page to collect the email addresses of supporters of your favorite cause.
- The People Who Inspire Me - Build a simple web page showing the top 3 people who inspire you
- Trivia Game Maker - Learn how to build a simple quiz game using HTML and JavaScript.

1. Click on the project you want to start, and then click the “Start Project” button.

1. Follow the videos and guided steps to create your digital artifact.

Save Your Work

1. It’s easy to save your work, you just need to create a BSD account. From any screen of the project click the “Sign up” button in the upper right.

1. On the next screen you’ll choose the type of account:
   - If you’re a student, that’ easy choose “a student.”
   - If you’re a parent working with your student, choose “a teacher.”

1. Enter an email address and password and then click the “Sign up” button.

1. You’ll receive an email from BSD Support with the subject “Confirm your email address with BSD Online.” Click the “Verify Email Address” button in the email.

1. You’ll be redirected to BSD Online where you can flip through the Welcome Slides and continue your work by clicking on the project tile:

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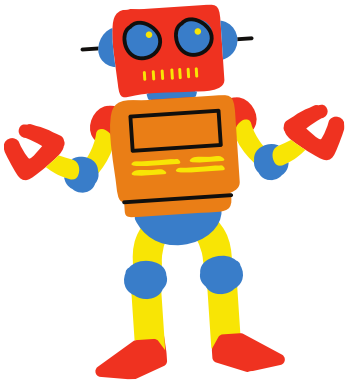
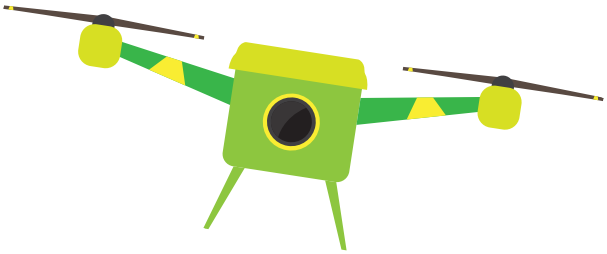
Create a Robot or Drone & Attend a Class on Robotics

Look for days that you can come to ARTS or the Library to create a Robot or Drone and have a special session with Javier Rosales. Please refer to the calendar for specific dates. You won't want to miss these interactive sessions!

Calendar Link: https://nc16weeksofsteam.org/events/





ROBOLINK

EDforTech STEM Specialists

ROBOTHINK
Build, Code and Play with Robots

Unit: Coding & Robotics
Recommended Grade Levels: PreK-8th
Week 1-4: Talk to a Pro

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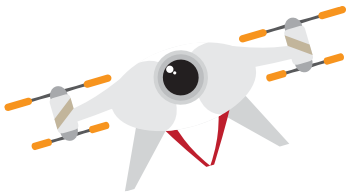
Parent Activity Recommendations

Look at the activity calendar on the website and attend one of the Nepris expert interviews. This is an opportunity for the entire family to learn more about this field. Use the sheet on the next page for students to organize their questions, ideas, and more, during the interview.

Tips

- Make a copy for each person.
- Write down questions and any thoughts before the interview.
- Students can work on this sheet before, during, and after the interview. It is designed to be a fun graphic organizer so don't worry if your student would like to do something else.
- Encourage your student to discuss ideas and thoughts on what the expert shared.



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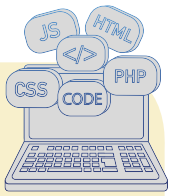
INTERVIEW WITH AN EXPERT

Draw a Picture of the Expert

Name & Title of Expert

Describe what this person does

3 Things You Learned:



Questions for the Expert

What would you like to know more about?