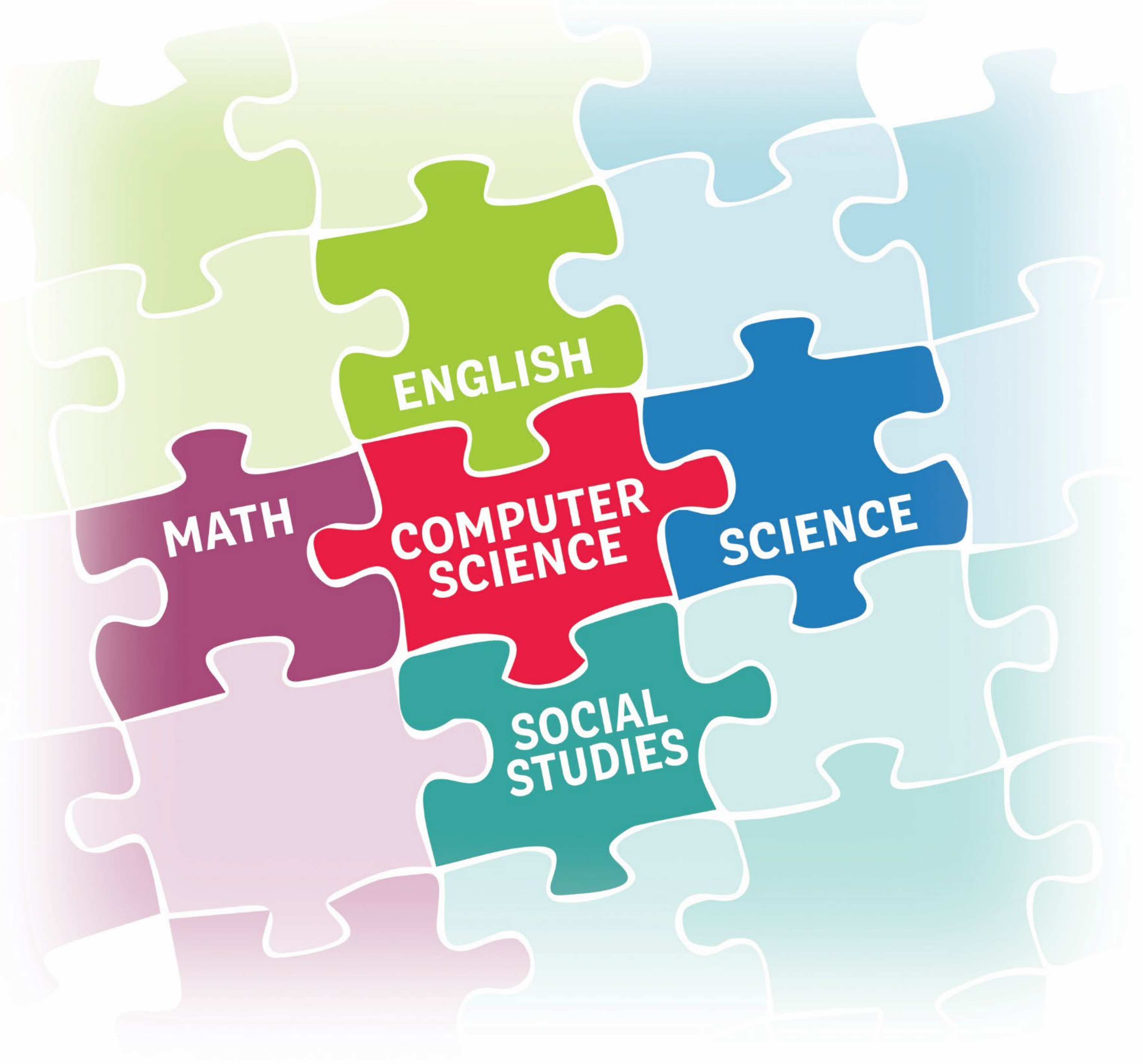

2022

Elementary Integration Guide

KINDERGARTEN

MISSISSIPPI STATE UNIVERSITY™
CENTER FOR CYBER EDUCATION

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Introduction

In March 2021, The Mississippi Computer Science and Cyber Education Equality Act (House Bill 633) was passed requiring all districts to offer computer science content and courses by the 2024-2025 school year. The bill allows for a phased-in approach as listed below:

2022-2023: All middle schools offer at least one (1) course in computer science, and 50% of elementary schools offer a minimum of one (1) hour of instruction in computer science each week at each grade level.

2023-2024: All elementary schools offer a minimum of one (1) hour of instruction in computer science each week at each grade level, and 50% of high schools offer at least one (1) course in computer science.

2024-2025: All schools will offer instruction in computer science.

To make the integration of computer science content as seamless as possible for elementary teachers, a task force of elementary teachers, principals, the Mississippi Department of Education, and the Mississippi State University Center for Cyber Education was formed to write an integration guide for each grade level, kindergarten through fifth grade. These guides provide plans for a minimum of 40, 60-minute lessons covering six computer science topics: coding, robotics, digital literacy, digital citizenship, keyboarding, and unplugged activities.

Each guide contains a breakdown of content by integrated subjects, content by computer science topics, and a calendar/pacing guide. Teachers may choose to start at the beginning and teach each lesson once a week in chronological order or teach the lesson that integrates with another core subject topic at a more relevant time. In addition to a lesson overview and links to required resources, each lesson plan maps to a Mississippi Computer Science Standard and a core subject area standard. A suggestion on how to break the lesson into smaller segments to be covered throughout the week is also provided in the "Time needed" section.

There are several resources available in each integration guide. Some may require the creation of accounts, but all resources referenced are free. The pacing guide notes lessons requiring account creation so teachers can plan ahead. A list of sites used is provided for technology departments to whitelist or unblock. All resources may be used on any internet-capable device, including Chromebooks and tablets.

Resources	
Computing resources	● Code.org CS Fundamentals ○ Kindergarten: Course A ● Common Sense Digital Media ● Kodable
CS4MS website materials	● 2018 Mississippi Computer Science Standards ● CS4MS Website
Mouse practice	Online: ● Alphabetical Order: https://www.abcya.com/games/alphabet ● Mouse Practice: https://mouse-practice.com/ ○ Apple Catch ○ Coyote Concentration (card-matching game) ○ Desert Dive ○ Frost Bite ○ Helipopper ○ Penguin Drop ○ Pickle Pop ○ Pig Pile ○ Simon Sees
Keyboard practice	Online: ● Astro Bubbles Keyboard Practice Unplugged: ● Keyboard Callout ○ **Paper keyboard**: Using a paper keyboard, the teacher will call out letters, numbers, symbols, and/or words for students to "type" on their keyboard. ○ **Computer with no internet:** The teacher will call out letters, numbers, symbols, and/or words. Students will use their keyboard to type into a blank document on their computer/tablet. ● Keyboard Bingo ○ Preparation: The teacher will print squares with letters, numbers, and symbols (4-5 of each letter, 1-2 of each number/symbol). The teacher will cut out and laminate each square, then use a piece of tape or glue to adhere a magnet to each square. ○ The teacher will project a keyboard onto a smartboard. ○ The teacher will call out letters, numbers, symbols, or words for students to find using their preprinted squares. ○ Students will raise their hands if they have the key that the teacher calls out. The teacher will choose a student to place their key on the board.
Teacher/student accounts	● Code.org ● Common Sense Digital Media ● Kodable
For help with this guide	● Contact Mississippi State University's Center for Cyber Education: www.tinyurl.com/ccehelpdesk

Contents by Integrated Subjects

ELA

- Week 1: L.K.1a—Print many upper- and lowercase letters
- Week 2: L.K.5a—Sort common objects into categories (e.g., shapes, foods)
- Week 3: RF.K.1d—Recognize and name all upper- and lowercase letters of the alphabet
- Week 4: RF.K.1d—Recognize and name all upper- and lowercase letters of the alphabet
- Week 6: RI.K.7—Describe the relationship between illustrations and the text
- Week 7: RF.K.2a, RF.K.2d—Demonstrate understanding of spoken words, syllables, and sounds
- Week 8: W.K.2—Compose information/explanatory texts in which they discuss a topic
- Week 9: W.K.2, RL.K.3—Identify characters, settings, and major events in a story
- Week 11: RI.K.2—Identify the main topic and retell key details of a text
- Week 13: RF.K.1—Demonstrate understanding of the organization/basic features of print
- Week 14: RF.K.1d, RF.K.3a—Produce the primary sound or many sounds of each consonant
- Week 15: RF.K.3a—Produce the primary sound or many sounds of each consonant
- Week 20: L.K.1a—Print many upper- and lowercase letters
- Week 21: RF.K.1—Demonstrate understanding of the organization/basic features of print
- Week 22: RF.K.1, RF.K.1A—Demonstrate understanding of the organization/features of print
- Week 27: RF.K.2, RF.K.2a—Demonstrate understanding of spoken words, syllables, and sounds
- Week 29: L.K.2—English capitalization, punctuation, and spelling when writing
- Week 32: SL.K.2, SL.K.3, SL.K.6—Confirm understanding of a information presented orally
- Week 33: RL.K.7—Describe the relationship between illustrations and the text
- Week 34: RL.K.7—Describe the relationship between illustrations and the text
- Week 35: RL.K.7—Describe the relationship between illustrations and the text
- Week 36: W.K.3—Narrate a single/series of events, in order, and provide a reaction
- Week 37: W.K.2—Compose information/explanatory texts in which they discuss a topic
- Week 38: W.K.3—Narrate a single/series of events, in order, and provide a reaction
- Week 40: W.K.3—Narrate a single/series of events, in order, and provide a reaction

Math

- Week 6: K.CC.1—Count to 100 by ones and by tens
- Week 7: K.CC.5—Count to answer "how many?"/Given a number from 1-20, county out that many
- Week 11: K.CC.3, K.CC.5, K.CC.6—Identify number of objects in one group as greater/less than or equal
- Week 12: K.CC.4A—Say number names in standard order, pairing each object
- Week 17: K.CC.1—Count to 100 by ones and by tens
- Week 18: K.CC.1, K.CC.2—Count forward beginning from a given number within the known sequence
- Week 19: K.CC.1, K.CC.2, K.CC.4—Understand the relationship between numbers and quantities
- Week 23: K.MD.3—Classify objects into given categories
- Week 24: K.G.5—Model objects in the world by drawing 2-D shapes and building 3-D shapes
- Week 28: K.OA.1, K.OA.2—Represent and Solve addition and subtraction within 10
- Week 20: K.OA.5—Fluently add and subtract within 5

Science

- Week 11: E.K.8B.3—Develop a device which would reduce heat from the sun
- Week 21: E.K.10.2—Develop questions to investigate ways to conserve Earth's resources
- Week 26: P.K.5A—Demonstrate an understanding of the solid and liquid states of matter
- Week 39: E.K.8A—Demonstrate an understanding of the pattern of seasonal changes on the Earth

Social Studies

- Week 5: CI.K.1, CI.K.2—Examine different roles and knowledge of how to be a good citizen
- Week 8: G.K.3.2—Identify cardinal and intermediate directions
- Week 10: G.K.1, G.K.3—Identify a sense of place, and recognize maps/graphs/representations of Earth
- Week 13: G.K.1.2, G.K.3.2—Demonstrate terms related to location, direction, size, and distance
- Week 16: CI.K.1, CI.K.3—Describe the role and responsibilities of authority figures
- Week 31: G.K3.2—Identify cardinal and intermediate directions
- Week 32: G.K3.2—Identify cardinal and intermediate directions

Contents by Topics

Coding

Digital Citizenship

Digital Literacy

Keyboarding

Robotics

Unplugged

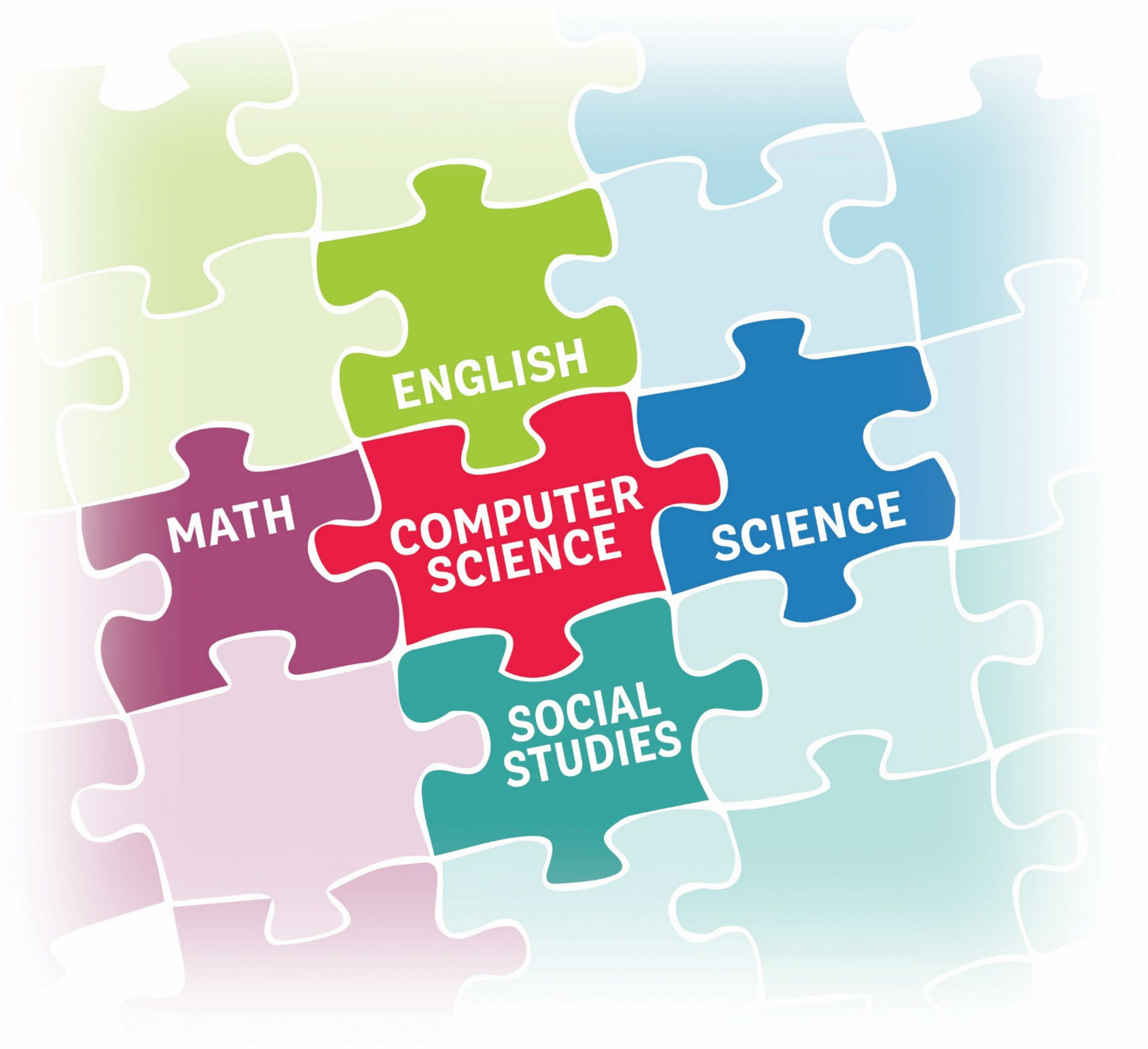
Calendar/ Pacing per week:

→Teachers will need to create a FREE **teacher and/or student account** (see notes section of lesson.)

Week	Title	Topics	CS Standard	Integrated Standard	Subject Integrated
1	Identifying Parts of a Computer	Digital Literacy	CS.1A.2	L.K.1a	ELA
2	Mouse Learning	Digital Literacy	CS.1A.1	L.K.5a	ELA
3	Introduction to Keyboarding	Keyboarding	CS.1B.1	RF.K.1d	ELA
4	Keyboarding Practice	Keyboarding	CS.1A.2 CS.1A.2a	RF.K.1d	ELA
5	Code.org: Safety in My Online Neighborhood → Account creation needed	Digital Citizenship	IC.1A.1	CI.K.1 CI.K.2	SS
6	Code.org: Learn to Drag	Digital Literacy	AP.1A.4 CS.1B.1 IC.1A.2 IC.1A.3	K.CC.1 RI.K.7	Math ELA
7	Code.org: Rhyme With That	Digital Literacy	AP.1A.4 CS.1B.1 IC.1A.2 IC.1A.3	RF.K.2.A RF.K.2.D K.CC.B.5	ELA Math
8	Code.org: Happy Maps	Digital Literacy	AP.1A.1 AP.1A.2 AP.1A.4 AP.1A.5	W.K.2 G.K.3.2	ELA SS
9	Code.org: Sequencing With Scrat	Coding	AP.1A.4	W.K.2 RL.K.3	ELA
10	Code.org: Programming With Scrat	Coding	AP.1A.2 AP.1A.4	G.K.1 G.K.3	SS
11	Code.org: Saving Scrat's Acorns	Unplugged	AP.1A.2 AP.1A.4	RI.K.2 K.CC.3 K.CC.6 K.CC.5 E.K.8B.3	ELA, Math, Science
12	Code.org: Programming With Rey and BB-8	Coding	AP.1A.2 AP.1A.4	K.CC.4A	Math
13	Graph Paper Programming	Robotics Unplugged	AP.1A.1 AP.1A.2	RF.K.1 K.CC.4A G.K.1.2 G.K.3.2	ELA, Math, SS
14	Letter Recognition Algorithm	Robotics	AP.1A.1	G.K.3.2 RF.K.1d RF.K.3a	ELA
15	Coding Beginning Sounds	Coding	AP.1A.1a	RF.K.3a	ELA
16	Digital Citizenship: Media Balance is	Digital	IC.1A.1	C.I.K.1	SS

	Important	Citizenship		C.I.K.3	
17	Code.org: Happy Loops	Coding	AP.1A.2 AP.1A.3 AP.1A.7	K.CC.1	Math
18	Number Recognition	Coding	AP.1A.1 DA.1A.3	K.CC.1 K.CC.2	Math
19	Counting Objects	Coding	AP.1A.1 AP.1A.2	K.CC.1 K.CC.2 K.CC.4	Math
20	Coding Living and Nonliving Things	Coding	AP.1A.1a AP.1A.1b	L.K.1A	ELA
21	Kodable: Beach Cleanup—GO GREEN! → Account creation needed	Coding	AP.1A.3 AP.1A.4 AP.1A.8	E.K.10.2 RF.K.1	Science ELA
22	Kodable: Hour of Code: ELA Integration	Unplugged	AP.1A.3a	RF.K.1 RF.K.1A	ELA
23	Drag and Drop Sorting	Keyboarding		K.MD.3	Math
24	Kodable: Maze Maker Challenge	Coding	AP.1A.3a	K.G.5	Math
25	Comparing Numbers With Alli-Gator	Coding	AP.1A.3 AP.1A.4 AP.1A.8a	K.CC.7	Math
26	Coding States of Matter	Coding	AP.1A.1 AP.1A.2	P.K.5A	Science
27	Coding Blending Sounds	Coding	AP.1A.1	RF.K.2 RF.K.2a	ELA
28	Kodable: Pizza Party	Coding	AP.1A.1 AP.1A.4 AP.1A.5	K.OA.1 K.OA.2	Math
29	Coding *The Very Hungry Caterpillar*	Coding	AP.1A.1 AP.1A.4	L.K.2	ELA
30	Coding With Magna Tiles	Coding Robotics	AP.1A.1	K.OA.5	Math
31	Code.org: Loops With Scrat	Coding	AP.1A.1 AP.1A.3	G.K3.2	Social Studies
32	Code.org: Loops With Laurel	Coding	AP.1A.2 AP.1A.3 AP.1A.4 AP.1A.7	G.K3.2	Social Studies
33	Code.org: Ocean Scene With Loops	Coding	AP.1A.2 AP.1A.3 AP.1A.4 AP.1A.7	SL.K.2 SL.K.3 SL.K.6	ELA
34	Code.org: The Big Event Jr.	Coding	AP.1A.2 AP.1A.4	RL.K.7	ELA
35	Code.org: Mini Project: On the Move	Coding	AP.1A.2	RL.K.7	ELA

	With Play Lab		AP.1A.4		
36	Code.org: End of Course Project	Unplugged Coding	AP.1A.3	W.K.3	ELA
37	Kodable: Magic Machine	Unplugged	AP.1A.1	W.K.2	ELA
38	Kodable: Show What You Know	Coding	AP.1A.1 AP.1A.2	W.K.3	ELA
39	Kodable: If Flash, the Clap!	Unplugged	AP.1A.4	E.K.8A	Science
40	Kodable: Hour of Code: Advanced	Coding	AP.1A.3 AP.1A.5a AP.1A.8 AP.1A.8a	W.K.3	ELA



Lessons and Activities

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Week 1: Identifying Parts of a Computer

Lesson overview:	**Purpose:** In this lesson, students will learn the basic parts of computers, including the computer, monitor, desktop tower, keyboard, mouse, laptop, and tablet. This is an introduction to technology that they will use throughout school. Students will become familiar with the terms and how to draw letters by tracing key vocabulary words. Students will practice matching by drawing a line from the object to its name. **Lesson:** ● Warm Up ○ "What is a computer?" Let students give you the answers to what they think a computer is. ○ Watch the "What is a Computer for Kids" video. ● Identifying Computer Parts Activity ○ Identifying Computer Parts worksheet and PowerPoint: As you are going through the PowerPoint, students will be finding and matching the pictures of the computer part on their worksheet. Once they find the picture, they will draw a line from the picture to the correct term. (Please do not rush through the slides because it allows students to see the picture and term on the board.) ○ Once the PowerPoint and matching on the worksheet have been completed, the students will practice their writing skills by tracing each term on the worksheet. ● Enrichment ○ Computer Coloring Page: Students will color the page to reinforce the parts of the computer that they have just learned. (For additional enrichment, the students can rewrite their terms for each part onto the coloring page.)
Lesson links/ resources:	● What is a Computer for Kids? ● Identifying Computer Parts PowerPoint ● Identifying Computer Parts Worksheet ● Computer Coloring Page
CS standards addressed:	Students will be able to: ● Identify parts of a computer Standards: ● **CS.1B.1—**Describe how internal and external parts of computing devices function to form a system.
Time needed:	**Total Time: 60 min** ● Warm Up: **5 min** ● Activity: **30 min** ● Enrichment: **25 min**
Materials needed:	Teacher: ● Projector/smartboard with sound ● Identifying Parts of a Computer PowerPoint Students: ● Identifying Parts of a Computer Worksheet ● Computer Coloring Page ● Pencil ● Crayons (or other coloring utensil)

Subject integrated:	ELA
Other standards addressed:	**L.K.1a—**Print many upper- and lowercase letters.
Vocabulary:	Computer: This is a machine that takes information, stores information, takes action on information, and gives information back. Desktop tower: This houses the "brain" of the computer called a central processing unit (CPU). Input: This is a piece of equipment used to put information into the computer. Keyboard: This is a piece of equipment that allows you to type letters, numbers, and symbols into the computer. Laptop: This is a computer that can move from place to place, and it has a keyboard, mouse, and screen built in. Monitor: This is a screen that allows you to see letters, numbers, symbols, pictures, and videos. Mouse: This is a piece of equipment that allows you to move the cursor on your computer screen to click on pictures (icons), links, and videos. Output: This is information given by the computer or piece of equipment connected to the computer. Tablet: This is a computer that can be moved from place to place, and it has a touch screen.
Notes:	As your students are completing the worksheet, make sure that you are going through the PowerPoint to show the various images/terms. This will help matching.

Week 2: Mouse Learning

Lesson overview: Digital Literacy	**Purpose:** The games help beginning computer users learn mouse skills through hand-eye coordination by dragging, dropping, clicking, double-clicking, and scrolling. Pick a different activity each day of the week to give students practice using a mouse. Lesson: ● Refresher ○ Review the parts of the computer with your students. Once you have gone back over the parts of the computer, show

	the video “How Do Computers Work?” ● Warm Up ○ Show the “Using Your Computer Mouse (for kids)” video. ● Mouse Practice ○ Online: Go to the mouse practice website. Let the students choose a game to play to practice using the mouse. (If your students are using a laptop or tablet, that’s okay! They can still use the practice to operate a trackpad or touchscreen.) ○ Unplugged: Provide students with coloring utensils and the Mouse Worksheet. Guide students through the completion of the worksheet. ● Student Voice ○ “How does a mouse help a computer?” ○ Give students the opportunity to explain, in their own words, how they think a mouse is helpful.
Lesson links/resources:	**Video Links** ● How Do Computers Work? ● Using Your Computer Mouse (for kids) **Mouse Practice** ● Mouse Practice (online) ○ Apple Catch ○ Coyote Concentration (card-matching game) ○ Desert Dive ○ Frostbite ○ Helipopper ○ Penguin Drop ○ Pickle Pop ○ Pig Pile ○ Simon Sees ● Alphabetical Order ● Mouse Practice (Unplugged) ● Alphabet Slider ● Alphabet Magnets
CS standards addressed:	Students will be able to: ● Operate a mouse/keypad ● Find/select letters on a keyboard Standards: ● **CS.1B.1—**Describe how internal and external parts of computing devices function to form a system.
Time needed:	**Total Time: 60 min** ● Refresher**: 15 min** ● Warm-Up: **5 min** ● Mouse Practice: **15 min** ○ Choose your first option from the links/resources ● Mouse Practice: **15 min** ○ Choose a different option from the links/ resources ● Student Voice: **5 min** ● Keyboarding Activity: **5 min**
Materials needed:	Teacher: ● Projector/smartboard with sound ● Identifying Parts of a Computer PowerPoint presentation Students:

	● Student devices with access to the internet ● Mouse Worksheet
Subject integrated:	ELA
Other standards addressed:	**L.K.5a—**Sort common objects into categories (e.g., shapes, foods) to gain a sense of the concepts the categories represent.
Vocabulary: (please see notes)	Computer: This is a machine that takes information, stores information, takes action on information, and gives information back. Data: This is any information put into the computer or given back by the computer. Desktop tower: This houses the "brain" of the computer called a central processing unit (CPU) Input: This is a piece of equipment used to put information into the computer. Keyboard: This is a piece of equipment that allows you to type letters, numbers, and symbols into the computer. Laptop: This is a computer that can move from place to place, and it has a keyboard, mouse, and screen built in. Monitor: This is a screen that allows you to see letters, numbers, symbols, pictures, and videos. Mouse: This is a piece of equipment that allows you to move the cursor on your computer screen to click on pictures (icons), links, and videos. Output: This is information given by the computer or piece of equipment connected to the computer. Tablet: This is a computer that can be moved from place to place, and it has a touch screen.
Notes:	● Even though this lesson is predominantly for practice using a mouse, your class can use a tablet. This will still allow students to practice using a touchscreen device. ● There are several resources to use mouse practice. These can be used in center rotations, 20 min a day, separate at the teacher's discretion. ● The vocabulary is for the teacher's understanding. Students are not expected to spell terms or memorize definitions.

Week 3: Introduction to Keyboarding

Lesson overview:	**Purpose:** Students will identify the left/right side of the keyboard, and they will learn which hands to use. **Lesson:** ● Keyboard L-R Coloring Sheet ○ Students will identify the left/right side of the keyboard. Students will color the left side of the keyboard to coordinate with the left hand. They will color the right side of the keyboard to coordinate with the right hand. ○ The teacher will call out various letters/numbers to help students practice finding the letters/numbers on a keyboard.

	● Keyboarding Practice ○ Online Option: Students can spend 15 min playing Astro Bubbles keyboarding game. ○ Unplugged Option: Using the keyboard coloring page, call out random letters and numbers and have your students find them and place their finger on them.
Lesson links/resources:	Online: ● Astro Bubbles Keyboard Practice ● Big Brown Bear ● Read Today Unplugged: ● Keyboard Callout ○ **Paper keyboard**: Using a paper keyboard, the teacher will call out letters, numbers, symbols, and/or words for students to “type” on their keyboard. ○ **Computer with no internet:** The teacher will call out letters, numbers, symbols, and/or words. Students will use their keyboard to type into a blank document on their computer/tablet. ● Keyboard Bingo ○ Preparation: The teacher will print squares with letters, numbers, and symbols (4-5 of each letter, 1-2 of each number/symbol). The teacher will cut out and laminate each square, then use a piece of tape or glue to adhere a magnet to each square. ○ The teacher will project a keyboard onto a smartboard. ○ The teacher will call out letters, numbers, symbols, or words for students to find using their preprinted squares. ○ Students will raise their hands if they have the key that the teacher calls out. The teacher will choose a student to place their key on the board. ● L / R Keyboard Coloring Sheet
CS standards addressed:	Students will be able to: ● Find/select letters on a keyboard Standards: ● **CS.1B.1—**Describe how internal and external parts of computing devices function to form a system.
Time needed:	**Total Time: 60 min** ● Coloring Sheet **15 min** ● Keyboard Practice #1 **15 min** ○ Using the L / R Coloring Sheet, choose an unplugged activity (under links/resources) to implement with your students. ● Keyboard Practice #2 **15 min** ○ Choose a different keyboarding activity (under links/resources) for your students to complete. ● Keyboard Practice #3 **15 min** ○ Choose a different keyboarding activity (under links/resources) for your students to complete.
Materials needed:	Teacher: ● Smartboard/projector with sound ● Identifying Parts of a Computer PowerPoint presentation Students: ● Student devices with access to the internet

	● L / R Keyboard Coloring Sheet ● Coloring utensils
Subject integrated:	ELA
Other standards addressed:	**RF.K.1d—**Recognize and name all upper- and lowercase letters of the alphabet
Vocabulary:	Keyboard: This is a piece of equipment that allows you to type letters, numbers, and symbols into the computer. Mouse: This is a piece of equipment that allows you to move the cursor on your computer screen to click on pictures (icons), links, and videos.
Notes:	

Week 4: Keyboarding Practice

Lesson overview: 	**Purpose:** These games will help students learn where letters are located on the keyboard. The "hunt and peck" method is great at this age. **Lesson:** ● Introduce a keyboard to students and introduce them to finding letters on the keyboard. ● Ideas ○ Teachers can divide the class into appropriate groups. ○ Group 1 works on Astro Bubble, Group 2 works on Brain Game, Group 3 works on Keyboard Zoo. ○ Switch after 15 min until all groups have played each game. ○ Separate the games into days and allow all students to work on one game per day. Ex: Monday: Astro Bubble (15 min), Wednesday: Brain Game (15 min), Friday: Keyboard Zoo (15 min)

Lesson links/resources:	• Astro Bubble • Key Memory Brain Game • Keyboard Zoo
CS standards addressed:	Students will be able to: • Find/select letters on a keyboard. Standards: • **CS.1A.2—**Use appropriate terminology in identifying and describing the function of common physical components of computing systems (hardware). • **CS.1A.2a—**Students should be able to identify and describe the function of external hardware, such as desktop computers, laptop computers, tablet devices, monitors, keyboards, mouses, and printers.
Time needed:	**Total Time: 65 min** • Review L-R Coloring Sheet from previous lesson: **5 min** • Keyboard Practice #1 **15 min** ○ Choose a keyboarding activity (under links/resources) for your students to complete. • Keyboard Practice #2 **15 min** ○ Choose a different keyboarding activity (under links/resources) for your students to complete. • Keyboard Practice #3 **15 min** ○ Choose a different keyboarding activity (under links/resources) for your students to complete. • Keyboard Practice #4 **15 min** ○ Choose a different keyboarding activity (under links/resources) for your students to complete.
Materials needed:	Teacher: • Smartboard/projector with sound Students: • Student devices with access to the internet • If your students are using a touchscreen device, they will use the keyboard that is on the game window.
Subject integrated:	ELA
Other standards addressed:	**RF.K.1d—**Recognize and name all upper- and lowercase letters of the alphabet.
Vocabulary:	Keyboard: This is a piece of equipment that allows you to type letters, numbers, and symbols into the computer.

Notes:	Introduce the keyboard by using the keyboard coloring sheet.

Week 5: Code.org, Course A, Lesson 1—Safety in My Online Neighborhood	
Lesson overview:	**Purpose:** This lesson focuses on privacy and security. Students learn how to protect personal information and gain a deeper understanding of their data privacy rights so they can advocate for themselves and others. **Lesson:** ● Watch: My Online Neighborhood

Digital Citizenship	• Read: Safety, It Rules! • Explore: Internet Field Trip • Pause & Think Moment • Extended Learning (optional)
Lesson links/resources:	Lesson 1: Safety in My Online Neighborhood
CS standards addressed:	Students will be able to: • Compare how staying safe online is like staying safe in the real world • Discover that the internet can be used to visit faraway places and learn new things • Explain rules for traveling safely on the internet. Standards: • **IC.1A.1—**Compare how people live and work before and after the implementation or adoption of new computing technology.
Time needed:	**Total Time: 60 min** • Keyboard Practice #1 **20 min** ○ Choose a different keyboarding activity (under links/resources) for your students to complete. • Watch: My Online Neighborhood **5 min** • Read: Safety, It Rules! **5 min** • Explore: Internet Field Trip **15 min** • Pause & Think Moment **15 min** • Extended Learning (optional)
Materials needed:	For the teachers: • Smartboard/projector with sound • Safety in My Online Neighborhood: Lesson Slides - Slide Deck • Safety in My Online Neighborhood: My Online Neighborhood - Lesson Video (Download) Students: • Student devices with access to the internet • Safety in My Online Neighborhood: Pause and Think Moment - Student Handout • Safety in My Online Neighborhood: Safety: It Rules! - Poem Poster
Subject integrated:	Social Studies
Other standards addressed:	• **CI.K.1—**Examine how individuals play different roles and exercise good citizenship. • **CI.K.2—**Demonstrate knowledge of how to be a good citizen.
Vocabulary:	Online: Using a computer, phone, or tablet to visit a website or app Website or App: A place you can visit on the internet.

Notes:

Week 6: Code.org, Course A, Lesson 2—Learn to Drag

Lesson overview: Digital Literacy	**Purpose:** This skill-building lesson will give students an idea of what to expect when they head to the computer lab. This begins with a brief discussion introducing them to computer lab manners, then they will progress into using a computer to complete online puzzles. **Lesson:** The main goal of this lesson is to build students' experience with computers. By covering the most basic computer functions such as clicking, dragging, and dropping, we are creating a more equal playing field in the class for future puzzles. ● Warm Up ○ Introduction ● Main Activity ○ Learn to Drag and Drop ● Wrap Up ○ Reflection ● Extended Learning ○ Give students time to come up with their own puzzles.
Lesson links/resources:	Lesson 2: Learn to Drag and Drop
CS standards addressed:	Students will be able to: ● Recognize what is expected when students transition into the computer lab ● Use appropriate terminology when referring to a computer mouse, trackpad, or touchscreen Standards: ● **AP.1A.4**—Decompose (break down) the steps needed to solve a problem into a precise sequence of instructions. ● **CS.1B.1**—Describe how internal and external parts of computing devices function to form a system. ● **IC.1A.2**—Work respectfully and responsibly with others online. ● **IC.1A.3**—Keep login information private and log off of devices appropriately.
Time needed:	**Total Time: 60 min** ● Keyboarding Practice **15 min** ● Warm Up **10 min** ● Main Activity **20 min** ● Wrap Up **5 min** ● Extended Learning **10 min**
Materials needed:	Teacher: ● Smartboard/projector with sounds ● 20/20/20 Rule - Resource ● Getting Started - Creating a Class Section - Video ● Wiggles-Go Noodle - Video Students: ● Student devices with access to the internet ● Pair Programming - Student Video
Subject integrated:	ELA Math

Other standards addressed:	ELA - **RI.K.7—**With prompting and support, describe the relationship between illustrations and the text in which they appear (e.g., what person, place, thing, or idea in the text an illustration depicts). Math - **K.CC.1—**Count to 100 by ones and by tens.
Vocabulary:	Click: Press the mouse button. Drag: Click your mouse button and hold as you move the mouse pointer to a new location. Drop: Release your mouse button to "let go" of an item that you are dragging. Mouse/Trackpad: Flat controller used to move the cursor and perform other functions on the computer.
Notes:	

Week 7: Rhyme With That

Lesson overview:	**Purpose:** Students will use the computer mouse to drag and drop a letter to form

Digital Literacy	Consonant-Vowel-Consonant (CVC) words. They will further identify how many rhyming words are located on each slide. **Lesson:** ● Students will practice using the mouse to drag and drop letters to form CVC words using slides 1-5. ○ Note: Teachers may want to complete slides 1-5 as a whole class instruction so students have whole group practice practicing the initial, medial, and ending sounds of each CVC word.
Lesson links/resources:	Rhyme with That
CS standards addressed:	Students will be able to: ● Use a mouse to drag and drop items Standards: ● **AP.1A.4—**Decompose (break down) the steps needed to solve a problem into a precise sequence of instructions. ● **CS.1B.1—**Describe how internal and external parts of computing devices function to form a system. ● **IC.1A.2—**Work respectfully and responsibly with others online. ● **IC.1A.3—**Keep login information private and log off of devices appropriately.
Time needed:	**Total Time: 60 min** ● Keyboard practice #1 **15 min** ● Keyboard practice #2 **15 min** ● Rhyme with That **30 min**
Materials needed:	Teacher: ● Smartboard/projector with sound Students: ● Student devices with access to the internet ● Rhyme With That Student Slides
Subject integrated:	ELA Math
Other standards addressed:	ELA ● **RF.K.2.A—**Recognize and produce rhyming words. ● **RF.K.2.D—**Isolate and pronounce the initial, medial vowel, and final sounds (phonemes) in three-phoneme (consonant-vowel-consonant, or CVC) words. (This does not include CVCs ending with /l/, /r/, or /x/.) Math ● **K.CC.B.5—**Count to answer "how many?" questions about as many as 20 things arranged in a line, a rectangular array, or a circle, or as many as 10 things in a scattered configuration; given a number from 1-20, count out that many objects.
Vocabulary:	Click: Press the mouse button. Drag: Click your mouse button and hold as you move the mouse pointer to a new location. Drop: Release your mouse button to "let go" of an item that you are dragging.

	Mouse/Trackpad: Flat controller used to move the cursor and perform other functions on the computer.
Notes:	

Week 8: Code.org, Course A, Lesson 3—Happy Maps

Lesson overview:	**Purpose:** This context-setting lesson brings together teams with a simple task: Get the "flurb" to the fruit. Students will practice writing precise instructions as they work to translate instructions into the symbols provided.

Unplugged	**<u>Lesson</u>:** ● Warm Up ○ Help the students process how to take a big problem and break it down into smaller steps. ● Main Activity ○ In this exercise, the class will get map cards that have a predefined start space (flurb) and end space (fruit). Students will need to get the flurbs to the fruit on each card using the arrows provided. ● Wrap Up ○ Discuss vocabulary learned. Have students record their "Feelings Face" in their reflection journal and draw their own map for the "flurb" to get to the fruit.
Lesson links/resources:	Lesson 3: Happy Maps
CS standards addressed:	Students will be able to: ● Decode and run a program created by someone created by someone else ● Identify and address bugs or errors in sequenced instructions ● Translate an algorithm into a program Standards: ● **AP.1A.1—**Model daily processes by creating and following algorithms (sets of step-by-step instructions) to complete tasks. ● **AP.1A.2—**Model the way programs store and manipulate data by using numbers or other symbols to represent information. ● **AP.1A.4—**Decompose (break down) the steps needed to solve a problem into a precise sequence of instructions. ● **AP.1A.5—**Develop plans that describe a program's sequence of events, goals, and expected outcomes.
Time needed:	**<u>Total Time:</u> 65 min** ● Warm Up **5 min** ● Main Activity **40 min** ● Wrap Up **10 min** ● Keyboarding Activity **10 min**
Materials needed:	For the Teachers: ● Smartboard/projector with sound ● Happy Map Cards - Worksheet Answer Key For the Students: ● Student devices with access to the internet ● Feeling Faces - Emotion Image - Resource ● Happy Map Cards - Worksheet ● Happy Map Game Pieces - Manipulatives ● Happy Maps - Unplugged Video (Download)
Subject integrated:	ELA Social Studies
Other standards addressed:	ELA ● **W.K.2—**Use a combination of drawing, dictation, and writing to compose informative/explanatory texts in which they name what they are writing about and supply some information about the topic. Social Studies ● **G.K.3.2—**Identify cardinal and intermediate directions.

Vocabulary:	Algorithm: A list of steps to finish a task Debugging: Finding and fixing problems in an algorithm or program Program: An algorithm that has been coded into something that can be run by a machine
Notes:	

Week 9: Code.org, Course A, Lesson 4—Sequencing With Scrat

Lesson overview:	Purpose: In this skill-building lesson, students will develop sequential algorithms to move a squirrel character from one side of a maze to the acorn at the other side. To do this, they will stack code blocks together in a linear sequence. Lesson: ● Warm Up ○ Review expectations/norms and procedures for being in the

	computer lab/working with computers. ○ Bridging Activity (choose one) ■ **Dragging and dropping algorithms:** Project one of the maps from the "Happy Maps" activity and display it for the students to see. On a projector or in front of the class, put some direction blocks from the manipulatives in random order and practice dragging and dropping by pressing your finger on one of the paper pieces and moving it across the screen. Explain that you can "click to select this block by tapping your finger on it, or by tapping your finger on it and moving it. To drop the block, release your finger. ■ **Previewing online puzzles as a class:** Project a puzzle from the lesson. Show the class how to click on a block and place it in the correct spot by dragging and dropping. Purposely make mistakes such as clicking the background or dropping the image before it's at the right spot. Ask for help from volunteers in the class when you run into these problems and help them use the skills they developed in the last unplugged lesson to make things right. ● Main Activity ○ This will teach students how to use Code.org to complete online puzzles. ○ Watch the Pair Programming video with your students, then assign them to pairs. This should help students start off in the right direction. ● Show Video ○ **Programming with Blocks:** Lead the students as a whole group through the first few skills-building lessons. Allow students to work independently as understanding is achieved. ● Wrap Up ○ Ask students to draw a sequence for getting ready to go to the area of choice (e.g., computer lab, special class, playground, etc.). Make a do or don't list. ○ Have them draw a "Feelings Face" that shows how they felt about today's lesson. ● Keyboarding/Mouse Practice ○ If time remains, have students use resources from above to practice using the keyboard/mouse.
Lesson links/resources:	Lesson 4: Sequencing with Scratch
CS standards addressed:	Students will be able to: ● Experiment with standard block-based programming actions such as clicking, dragging, dropping, etc. ● Model proper computer lab behaviors Standards: ● **AP.1A.4—**Decompose (break down) the steps needed to solve a problem into a precise sequence of instructions.
Time needed:	**Total Time: 60 min** ● Warm Up **10 min** ● Bridging Activity **10 min**

	● Main Activity **20 min** ● Wrap Up **5 min** ● Keyboard/Mouse Practice **15 min**
Materials needed:	For the Teachers (links) ● Smartboard/projector with sound ● 20/20/20 Rule - Resource ● Wiggles - GoNoodle - Video For the Students (links) ● Student devices with access to the internet ● Pair Programming - Student Video ● Unplugged Blockly Blocks (Grades K-1) - Manipulatives
Subject integrated:	Math Social Studies
Other standards addressed:	Math ● **K.CC.2—**Count forward beginning from a given number within a known sequence (instead of having to begin at 1). Social Studies ● **G.K.1.2—**Demonstrate terms related to location, direction, size, and distance. ● **G.K.3.2—**Identify cardinal and intermediate directions.
Vocabulary:	Click: Press the mouse button. Double-Click: Press the mouse button very quickly. Drag: Click your mouse button and hold as you move the mouse pointer to a new location. Drop: Release your mouse button to "let go" of an item that you are dragging.
Notes:	

Week 10: Code.org, Course A, Lesson 5—Programming With Scrat

Lesson overview:	Purpose: In this skill-building lesson, students will continue to develop sequential algorithms. Students will develop programming and debugging skills on a computer platform. The block-based format of these puzzles helps students learn about sequences and concepts without having to worry about perfecting syntax. Lesson: ● Warm Up ○ **Review/Teach cardinal directions:** Make the connection that "up" and "down" are the same as "north" and "south."

	Code.org provides a worksheet to quickly teach this if it is new to the students. ● Main Activity ○ Use a "prediction" puzzle (provided) to walk through existing code with your students to predict what Scrat will do. ○ Show Video: Pair programming: ○ Pair your students to complete the skills-building lessons. ○ Show video: Debugging with the Step Button: ○ Allow partners to complete the remaining two skills-building lessons. (Challenges are available for pairs that progress quickly) ● Wrap Up ○ Have students record their "Feelings Face" for today's activity. If time permits, have them draw their own puzzle to get Scrat to the acorn. ● Keyboarding/Mouse Practice ○ If time remains, have students use resources from above to practice using the keyboard/mouse.
Lesson links/resources:	Lesson 5: Programming with Scrat Cardinal Directions Activity: https://code.org/curriculum/course1/2/Teacher#Activity1
CS standards addressed:	Students will be able to: ● Build a computer program from a set of written instructions ● Choose appropriate debugging practices when solving problems ● Construct a program by reorganizing sequential movements Standards: ● **AP.1A.2—**Model the way programs store and manipulate data by using numbers or other symbols to represent information. ● **AP.1A.4—**Decompose (break down) the steps needed to solve a problem into a precise sequence of instructions.
Time needed:	**Total Time: 60 min** ● Warm Up **3 min** ● Main Activity **30 min** ● Wrap Up **5 min** ● Keyboarding/Mouse Practice **22 min** (Throughout the week)
Materials needed:	Teacher: ● Smartboard/projector with sound For the Students: ● Student devices with access to the internet ● Debugging With the Step Button - Video (Download) ● Feeling Faces Emotion Image - Resource ● Pair Programming - Student Video
Subject integrated:	Social Studies
Other standards addressed:	● **G.K.1.2—**Demonstrate terms related to location, direction, size, and distance. ● **G.K.3.2—**Identify cardinal and intermediate directions

Vocabulary:	Algorithm: A list of steps to finish a task Bug: Part of a program that does not work correctly Debugging: Finding and fixing problems in an algorithm or program Program: An algorithm that has been coded into something that can be run by a machine Programming: The art of creating a program
Notes:	

Week 11: Saving Scrat's Acorns

Lesson overview: Unplugged	Purpose: Help Scrat retrieve his acorns before the sun melts the ice. Lesson Scrat loves acorns! But, beware, the sun is quickly melting and cracking the ice. Help Scrat count, compare, identify, design, and build a tent as he makes his way across the ice to gather his acorns. ○ Note: Teachers may find this activity is too long for kindergarteners to complete in one day. The different academic areas can be spread out over several instructional

	days if the teacher wishes to do so.
Lesson links/resources:	Saving Scrat's Acorns Saving Scrat’s Acorns Student Handout
CS standards addressed:	Students will be able to: ● Build a computer program from a set of written instructions ● Choose appropriate debugging practices when solving problems ● Construct a program by reorganizing sequential movements Standards: ● **AP.1A.2—**Model the way programs store and manipulate data by using numbers or other symbols to represent information. ● **AP.1A.4—**Decompose (break down) the steps needed to solve a problem into a precise sequence of instructions.
Time needed:	**Total Time: 60 min** ● Math connection activities **15 min** ● ELA connection activity **15 min** ● Science connection activity **30 min**
Materials needed:	Teacher: ● Smartboard/projector with sound For the Students: ● Student handout ● Crayons, colored pencils, or markers ● Saving Scrat’s Acorns Student Handout ● Legos (optional)
Subject integrated:	ELA Math Science
Other standards addressed:	ELA ● **RI.K.2—**With prompting and support, identify the main topic and retell key details of a text. Math ● **K.CC.3—**Write numbers from 0 to 20. Represent a number of objects with a written numeral 0-20 (with 0 representing a count of no objects). ● **K.CC..6—**Identify whether the number of objects in one group is greater than, less than, or equal to the number of objects in another group, e.g., by using matching and counting strategies. ● **K.CC.5—**Count to answer "how many?" questions about as many as 20 things arranged in a line, a rectangular array, or a circle, or as many as 10 things in a scattered configuration; given a number from 1-20, count out that many objects. Social Studies ● **E.K8B.3—**Develop a device (i.e., umbrella, shade structure, or hat) which would reduce heat from the sun (temperature) using an engineering design process to define the problem, design, construct, evaluate, and improve the device.
Vocabulary:	Algorithm: A list of steps to finish a task Bug: Part of a program that does not work correctly Debugging: Finding and fixing problems in an algorithm or program Program: An algorithm that has been coded into something that can be run by a machine Programming: The art of creating a program

Notes:

Week 12: Code.org, Course A, Lesson 6—Programming With Rey and BB-8

Lesson overview:

Purpose:
In this skill-building lesson, students will use their newfound programming skills in more complicated ways to navigate a tricky course with BB-8.

Lesson:

- Warm Up
  - Ask the students how they felt about the last lesson. Using the questions listed under "Warm Up," form a brief review of programming and debugging. Review vocabulary learned. Introduce the lovable robot BB-8 from Star Wars to students.
- Main Activity
  - **Show video:** Programming with Rey and BB-8. Pair students to complete skills-building activities. (Challenges are available for pairs that progress quickly.)
- Wrap Up

	○ Students answer "What was today's lesson about?" Have students record their "Feelings Face" for today's activity. If time permits, have them draw the commands used to guide BB-8 through the puzzle.
Lesson links/resources:	Lesson 6: Programming with Rey and BB-8
CS standards addressed:	Students will be able to: ● Recognize problems or "bugs" in a program and develop a plan to resolve the issues ● Sequence commands in a logical order Standards: ● **AP.1A.2—**Model the way programs store and manipulate data by using numbers or other symbols to represent information. ● **AP.1A.4—**Decompose (break down) the steps needed to solve a problem into a precise sequence of instructions.
Time needed:	**Total Time: 60 min** ● Warm Up **15 min** ● Main Activity **30 min** ● Wrap Up **15 min**
Materials needed:	Teacher: ● Smartboard/projector with sound Students: ● Student devices with access to the internet ● Feeling Faces - Emotion Image - Resource ● Pair Programming - Student Video
Subject integrated:	Math Social Studies
Other standards addressed:	Math ● **K.CC.4A—**When counting objects, say the number names in the standard order, pairing each object with one and only one number name and each number name with one and only one object. Social Studies ● **G.K.1.2—**Demonstrate terms related to location, direction, size, and distance. ● **G.K.3.2—**Identify cardinal and intermediate directions.
Vocabulary:	Algorithm: A list of steps to finish a task Bug: Part of a program that does not work correctly Debugging: Finding and fixing problems in an algorithm or program Program: An algorithm that has been coded into something that can be run by a machine Programming: The art of creating a program

Notes:	

Week 13: Graph Paper Programming

Lesson overview: Unplugged	Purpose: Help students understand that writing an algorithm is just like reading a book: You follow from left to right and top to bottom. Lesson: ● Warm Up ○ Choose a book to read. ○ Suggestions: ■ Talk about the direction we read in (left to right) and

	the order (first page to last). ■ What happens if we read in the wrong direction or out of order? ■ Robots and computers must be giving instructions in the right order for them to do what you want. These directions are called these algorithms. ● Main Activity ○ Talk about the graphing sheets and arrow cards. ○ We follow writing an algorithm the same way we read a book (left to right). ● Wrap Up ○ Have the teacher choose an object in the classroom that the students are to guide the teacher to. ○ They will work on building an algorithm as a group to guide the teacher to the object. ○ They will have to record the algorithm from left to right.
Lesson links/resources:	Graph Paper Programming
CS standards addressed:	Students will be able to: ● Write an algorithm left to right Standards: **AP.1A.1—**Model daily processes by creating and following algorithms (sets of step-by-step instructions) to complete tasks. **AP.1A.2—**Model the way programs store and manipulate data by using numbers or other symbols to represent information.
Time needed:	**Total Time: 60 min** ● Warm Up activity **15 min** ● Main Activity **30 min** ● Wrap Up **15 min**
Materials needed:	Teacher: ● Smartboard/projector with sound ● Storybook Students: ● Graph Paper for Programming Worksheet
Subject integrated:	ELA Social Studies Math
Other standards addressed:	● **RF.K.1—**Demonstrate understanding of the organization and basic features of print. ● **K.CC.4A—**When counting objects, say the number names in the standard order, pairing each object with one and only one number name and each number name with one and only one object. ● **G.K.1.2—**Demonstrate terms related to location, direction, size, and distance. ● **G.K.3.2—**Identify cardinal and intermediate directions
Vocabulary:	Algorithm: A list of steps to finish a task Bug: Part of a program that does not work correctly

Debugging: Finding and fixing problems in an algorithm or program
Program: An algorithm that has been coded into something that can be run by a machine
Programming: The art of creating a program

Notes:

Week 14: Letter Recognition Algorithm

Lesson overview:

Unplugged

Purpose:
The students will learn how to program an algorithm to form the letters that have been learned thus far.

Lesson:
Letter Recognition with Robot

- Warm Up
    - Talk about letters and letter sounds.
    - What letters have we learned thus far?
- Main Activity
    - We are going to learn how to program an algorithm to form these letters. (The teacher will use letters that have already been learned.)

	○ Use the 6x6 letter cards and have students write/build the algorithm that follows the formation of the letters. ○ Students can be paired off to write the algorithm. ○ Students will switch with their partner to test their algorithm. ● Wrap Up ○ What words begin with the letter sound? ● Keyboarding/Mouse Practice ○ If time remains, have students use resources from above to practice using the keyboard/mouse. *** Explain how to write the algorithm and switch with partner to test.
Lesson links/resources:	Letter Maps
CS standards addressed:	Students will be able to: ● Write an algorithm Standards: ● **AP.1A.1—**Model daily processes by creating and following algorithms (sets of step-by-step instructions) to complete tasks.
Time needed:	**Total Time: 60 min** ● Letter 1: **15 min** ● Letter 2: **15 min** ● Letter 3: **15 min** ● Keyboard Practice **15 min**
Materials needed:	Teacher: ● Smartboard/projector with sounds Students: ● 6x6 grids ● Letter maps ● Robot (optional)
Subject integrated:	ELA Social Studies
Other standards addressed:	ELA ● **RF.K.1d—**Recognize and name all upper- and lowercase letters of the alphabet. ● **RF.K.3a—**Demonstrate basic knowledge of one-to-one letter-sound correspondences by producing the primary sound of many of the most frequent sounds for each consonant. Social Studies ● **G.K.3.2—**Identify cardinal and intermediate directions (north, northeast, northwest, southeast, southwest, east, and west).
Vocabulary:	Algorithm: A list of steps to finish a task

Notes:

Week 15: Coding Beginning Sounds

Lesson overview:	Purpose: The purpose of this activity is to identify beginning sounds and create algorithms. Lesson: ● Warm Up: ○ Review letters and sounds (with flashcards or other resources of your choosing). ● Main Activity: ○ Using a copy of the beginning sound map, students will color the pictures that have the same sound as the letter in the corner. ○ Once students have colored in the appropriate squares, they will write an algorithm to move from the starting square (top left-hand square) to all pictures that start with the beginning sound for that puzzle. ● Wrap Up: ○ The teacher will give the student a word and the student will produce the beginning sound. ● Keyboarding/Mouse Practice ○ If time remains, have students use resources from above to practice using the keyboard/mouse. Note: Teachers may choose to only use the letters that have been covered.
Lesson links/resources:	Beginning Sounds Map
CS standards addressed:	Students will be able to: ● Create an algorithm using beginning sounds Standards: ● **AP.1A.1a—**Students should be able to create and follow algorithms.
Time needed:	**Total Time: 60 min** ● Warm Up **5 min** ● Main Activity **30 min** ● Wrap Up **10 min** ● Keyboarding Practice or Letter Recognition Activity **15 min**
Materials needed:	Teacher: ● Smartboard/projector with sound Students: ● 6x6 sound cards ● Color pencil/pencil/crayon
Subject integrated:	ELA
Other standards addressed:	**RF.K.3a—**Demonstrate basic knowledge of one-to-one letter-sound correspondences by producing the primary sound or many of the most frequent sounds for each consonant.
Vocabulary:	Code: Giving instructions to a computer or robot Algorithm: A list of steps to finish a task
Notes:	
Week 16: Digital Citizenship: Media Balance is Important	
Lesson overview:	Purpose:

Digital Citizenship	Students consider the feelings of themselves and others when making decisions about when, where, and how to use technology. Lesson: ● Warm Up: ○ Before the lesson, introduce the Digital Citizens characters by having students complete the coloring book. Each character represents one of the six digital citizenship topics. ○ Play the "Media Balance is Important" video. ● Main Activity: ○ The Digital Citizens showed us the ways they keep their technology use in balance. Now we are going to take a closer look at a few of the scenes from the song. ● Wrap Up: ○ Today we watched the Digital Citizens show us how they keep their online and offline activities in balance. Now I'd like you to think about what media balance means for you. ● Keyboarding/Mouse Practice ○ If time remains, have students use resources from above to practice using the keyboard/mouse.
Lesson links/resources:	Media Balance is Important
CS standards addressed:	Students will be able to ● Know when and why to take breaks from device time ● Consider the feelings of people around them, even when engaged in fun online activities Standards: ● **IC.1A.1—**Compare how people live and work before and after the implementation or adoption of new computing technology.
Time needed:	**Total Time: 60 min** ● Warm Up **10 min** ● Main Activity **10 min** ● Wrap Up **5 min** ● Keyboarding Activity **20 min** (Throughout the week) ● Letter Recognition Practice **15 min** (See Week 14) (Throughout the week)
Materials needed:	Teacher: ● Smartboard/projector with sound ● Lesson Slides ● Media Balance is Important Students: ● Pause and Think Handout ● Coloring Book
Subject integrated:	Social Studies
Other standards addressed:	**C.I.K.1—**Examine how individuals play different roles and exercise good citizenship. **C.I.K.3—**Describe the role and responsibilities of authority figures.
Vocabulary:	Balance: Having equal weight or importance of something Device: An electric piece of equipment like a phone, tablet, or laptop

Notes:	

Week 17: Code.org, Course A, Lesson 7—Happy Loops

Lesson overview:	Purpose: This context-setting lesson revisits Happy Maps. This time, students will use loops to solve bigger, longer puzzles with their code. Loops allow for students to simplify their code by grouping commands that need to be repeated. Lesson: ● Warm Up ○ This lesson builds off the Happy Maps activity from earlier in the year. Students might benefit from a quick refresher before you hop into the difficult stuff. ● Main Activity ○ This portion of the lesson should help students see there is an easier way to handle repetitive code than to brute force a solution with dozens of the same symbols. ● Wrap Up ○ Draw a face that shows how you felt about today's lesson in the corner of your journal page. ○ Have the students write or draw something in their journal that will remind them later what loops are. Prompts include: ■ What does repeat mean to you? ■ Draw a picture of you repeating something. ● Keyboarding/Mouse Practice ○ If time remains, have students use resources from above to practice using the keyboard/mouse.
Lesson links/resources:	Lesson 7: Happy Loops
CS standards addressed:	Students will be able to: ● Identify repeating code and shorten multiple actions into a single loop ● Interpret a program with loops as a series of multiple actions Standards: ● **AP.1A.2—**Model the way programs store and manipulate data by using numbers or other symbols to represent information. ● **AP.1A.3—**Develop programs with sequences and simple loops to express ideas or address a problem. ● **AP.1A.7—**Debug (identify and fix) errors in an algorithm or program that includes sequences and simple loops.
Time needed:	**Total Time: 58 min** ● Warm Up **5 min** ● Main Activity **20 min** ● Wrap Up **8 min** ● Letter Recognition **15 min** ● Keyboarding **10 min**
Materials needed:	Teacher: ● Smartboard/projector with sound Students: ● Student devices with access to the internet ● Feeling Faces Emotion Image - Resource ● Happy Map Cards - Worksheet ● Happy Map Cards XL - Worksheet ● Happy Map Game Pieces - Manipulatives ● Happy Map Game Pieces Bonus Pack - Manipulatives
Subject integrated:	Math

	Social Studies
Other standards addressed:	Math ● **K.CC.1—**Count to 100 by ones and by tens. Social Studies ● **G.K.3.2—**Identify cardinal and intermediate directions (e.g., north, northeast, northwest, southeast, southwest, east, and west).
Vocabulary:	Loop: The action of doing something over and over Repeat: To do something again
Notes:	

Week 18: Number Recognition

Lesson overview:	Purpose: This lesson allows students to practice number recognition for numbers 1-10. Lesson:

	● Warm Up ○ Review counting to 10 and coding using a grid. ● Main Activity ○ Using the grid below, the students will write an algorithm using the number listed in the corner of the grid. This activity will help students with number identification. (Students will start at top left corner.) ● Wrap Up ○ Pick students to demonstrate their code in front of the class. ● Keyboarding/Mouse Practice ○ If time remains, have students use resources from above to practice using the keyboard/mouse. Note: Teachers may spread the lesson out over several days, using 2-3 numbers a day, or teachers may divide students into groups and have each member code a number and swap to solve their partner's algorithm.
Lesson links/resources:	Number Recognition
CS standards addressed:	Students will be able to: ● Use a grid and code the algorithm using a given number Standards ● **AP.1A.1—**Model daily processes by creating and following algorithms (sets of step-by-step instructions) to complete tasks. ● **DA.1A.3—**Identify and describe patterns in data visualizations, such as charts or graphs.
Time needed:	**Total Time: 60 min** ● Warm Up **10 min** ● Main Activity **30 min** ● Wrap Up **5 min** ● Keyboarding Activity **15 min**
Materials needed:	Teacher: ● Smartboard/projector with sound ● Number cards 1-10 for review Students: ● Number grids
Subject integrated:	Math
Other standards addressed:	● **K.CC.1—**Count to 100 by ones and by tens. ● **K.CC.2—**Count forward beginning from a given number within the known sequence (instead of having to begin at 1).
Vocabulary:	Code: Giving instructions to a computer or robot
Notes:	

Week 19: Counting Objects

Lesson overview:	Purpose: This lesson students will learn to identify various ways/objects to make numbers 1-10. Lesson: ● Warm Up ○ Review counting numbers 1-10, showing students pictures of objects and identifying the number of objects in each picture. ● Main Activity ○ Given a number, the student will write a program by using the grid with the correct number of objects in each square. Think of the lesson from last week but look for objects instead of numbers. ● Wrap Up ○ Did you enjoy this lesson? What did you like? What did you not like? ● Keyboarding/Mouse Practice ○ If time remains, have students use resources from above to practice using the keyboard/mouse.
Lesson links/resources:	Number Grids
CS standards addressed:	Students will be able to: ● Use the grid to create an algorithm using the number of objects in each square Standards: ● **AP.1A.1—**Model daily processes by creating and following algorithms (sets of step-by-step instructions) to complete tasks. ● **AP.1A.2—**Model the way programs store and manipulate data by using numbers or other symbols to represent information.
Time needed:	**Total Time: 60 min** ● Warm Up **10 min** ● Main Activity **30 min** ● Wrap Up **5 min** ● Keyboarding Activity **15 min**
Materials needed:	Teacher: ● Smartboard/projector with sound Students: ● Number grids
Subject integrated:	Math
Other standards addressed:	● **K.CC.1—**Count to 100 by ones and by tens ● **K.CC.2—**Count forward beginning from a given number within the known sequence (instead of having to begin at 1) ● **K.CC.4—**Understand the relationship between numbers and quantities; connect counting to cardinality.
Vocabulary:	Sequence: A set of related events, movements, or things that follow each other in a particular order

	Data: Any information put into the computer or given back by the computer.
Notes:	

Week 20: Coding Living and Nonliving Things

Lesson overview:	Purpose: This lesson is an unplugged activity that will be primarily pencil and paper. Students will learn about living and nonliving things while also creating an algorithm. Lesson:

	● Warm Up ○ Show the students the video “Living and Nonliving.” Discuss with the students what makes something living or nonliving and create an anchor chart displaying examples of both. ● Main Activity ○ Students will create an algorithm connecting the living and nonliving things. ● Wrap Up ○ Review the characteristics of living and nonliving things. ● Keyboarding/Mouse Practice ○ If time remains, have students use resources from above to practice using the keyboard/mouse.
Lesson links/resources:	● Living and Nonliving Things Grid ● Video: Living and Nonliving Things
CS standards addressed:	Students will be able to: ● Create an algorithm connecting the living and nonliving things Standards: ● **AP.1A.1a—**Students should be able to create and follow algorithms. ● **AP.1A.2a—**Students should be able to model data storage and manipulation by using representative symbols.
Time needed:	**Total Time: 60 min** ● Warm Up **10 min** ● Main Activity **30 min** ● Wrap Up **5 min** ● Keyboarding/Letter Recognition Activity (Week 14) **15 min**
Materials needed:	Teacher: ● Smartboard/projector with sound Students: ● Living Things and Nonliving Things Grid
Subject integrated:	Science
Other standards addressed:	**L.K.1A—**Students will demonstrate an understanding of living and nonliving things.
Vocabulary:	Algorithm: A list of steps to finish a task Data: This is any information put into the computer or given back by the computer.
Notes:	

Week 21: Kodable: Beach Cleanup—GO GREEN!

Lesson overview:	Purpose: For this lesson, we will think about ways to help the earth and oceans. We will do a short activity off-screen to learn a bit more about why ocean and beach pollution matters and brainstorm how technology can be used as part of the solution. Then, we will jump on-screen to practice programming our own beach cleanup solutions. Lesson:

	● Warm Up ○ Ask students what they already know about the impact of trash/plastics on underwater life. Show the video "Tommy the SudBudz Turtle." ● Main Activity ○ Introduce Kodable and explain how the activity will work by showing the video "Introduction to Kodable Hour of Code: Beach Cleanup." ○ The fuzz will only move in the directions you tell it. This means you must give the fuzz directions in the correct sequence (order). You will give the fuzz instructions by dragging and dropping commands into the command bar. ● Wrap Up ○ At the end of the lesson, lead a quick debrief of the Beach Cleanup with Kodable activity. ● Keyboarding/Mouse Practice ○ If time remains, have students use resources from above to practice using the keyboard/mouse.
Lesson links/resources:	● Beach Cleanup with Kodable ● Beach Cleanup Resources
CS standards addressed:	Students will be able to: ● Design and create mazes based on preexisting obstacles ● Write simple programs to solve mazes using basic coding concepts ● Examine ways technology can be used to solve real-world problems ● Collaborate and communicate effectively with peers Standards: ● **AP.1A.3—**Develop programs with sequences and simple loops to express ideas or address a problem. ● **AP.1A.4—**Decompose (break down) the steps needed to solve a problem into a precise sequence of instructions. ● **AP.1A.8—**Using correct terminology, describe steps taken and choices made during the interactive process of program development.
Time needed:	**Total Time: 60 min** ● Warm Up **10 min** ● Main Activity **30 min** ● Wrap Up **10 min** ● Keyboarding Practice **10 min**
Materials needed:	Teacher: ● Smartboard/projector with sound Students: ● Student devices with access to the internet
Subject integrated:	Science ELA
Other standards addressed:	Science ● **E.K.10.2—**With teacher guidance, develop questions to conduct a structured investigation to determine ways to conserve Earth's resources (i.e., reduce, resume, and recycle) and communicate results. ELA ● **RF.K.1—**Demonstrate understanding of the organization and basic

	features of print.
Vocabulary:	Program: An algorithm that has been coded into something that can be run by a machine Sequence: A set of related events, movements, or things that follow each other in a particular order Loop: The action of doing something over and over Debugging: Finding and fixing problems in an algorithm or program
Notes:	

Week 22: Kodable: Hour of Code: ELA Integration

Lesson overview: Unplugged	Purpose: We follow sequences all the time. We are going to use the sentence puzzle pieces to put words in the correct order to build a sentence that makes sense. Lesson: ● Warm Up ○ Read “The Kodable World.” Model the skills students are working on: following words from left to right, page to page. Show them what readers do in their head as they read. ● Main Activity

	○ You will practice sentence organization together as a class. Provide words and have students put them together in the correct order. ○ Provide students with a sentence puzzle and have them follow on their own graphic organizers. Hand each student a copy of the Kodable sentence puzzle graphic organizer maze to fill out. Call students up to put the words in sequence and share their completed sentences at the end. ● Wrap Up ○ Students will apply what they learned from the lesson to compete Kodable's sequence sector lessons 1.1-1.5.
Lesson links/resources:	● The Kodable World ● The Kodable Word Resources
CS standards addressed:	Students will be able to: ● Apply sequencing in literacy to programming ● Run a program by correctly sequencing sentences Standards: ● **AP.1A.3a—**Students should be able to express ideas or address problems by developing programs with sequences and simple loops.
Time needed:	**Total Time 60 min** ● Warm Up **10 min** ● Main Activity **40 min** ● Wrap Up **10 min**
Materials needed:	Teacher: ● Smartboard/projector with sound Students: ● Student devices with access to the internet
Subject integrated:	ELA
Other standards addressed:	● **RF.K.1—**Demonstrate understanding of the organization and basic features of print. ● **RF.K.1a—**Follow words from left to right, top to bottom, and page by page.
Vocabulary:	Sequence: A set of related events, movements, or things that follow each other in a particular order Programming: Finding and fixing problems in an algorithm or program

Notes:

Week 23: Drag and Drop Sorting

Lesson overview:	Purpose: In this lesson, students will use drag and drop to sort real-life objects that are shaped like the 2D and 3D shapes. Lesson: ● Warm Up ○ Review 2D and 3D shapes. ○ Have students help create an anchor chart to list the shapes that are 2D and those that are 3D. ● Main Activity ○ Have students drag and drop the object on the correct column, 2D or 3D. ● Wrap Up ○ Have students give examples of 2D and 3D shapes they see at home or at school. ● Keyboarding/Mouse Practice ○ If time remains, have students use resources from above to practice using the keyboard/mouse.
Lesson links/resources:	Sort 2D and 3D Shapes
CS standards addressed:	Students will be able to ● Use drag and drop to sort 2D and 3D shapes Standards: ● **CS.1A.2**—Use appropriate terminology in identifying and describing the function of common physical components of computing systems (hardware). ● **CS.1A.3**—Describe basic hardware and software problems using accurate terminology.
Time needed:	**Total Time 60 min** ● Warm Up **10 min** ● Main Activity **15 min** ● Wrap Up **10 min** ● Keyboarding Activity **15 min** ● Letter Recognition (See Week 14) **10 min**
Materials needed:	Teacher: ● Smartboard/projector with sound Students: ● Student devices with access to the internet
Subject integrated:	Math
Other standards addressed:	**K.MD.3**—Classify objects into given categories; count the numbers of objects in each category and sort the categories by count.
Vocabulary:	
Notes:	

Week 24: Kodable: Maze Maker Challenge

Lesson overview:	Purpose:

Coding	Can you build a symmetrical maze? A maze with right angles? Get creative and complete maze-building challenges with basic coding concepts. Lesson: ● Warm Up ○ For this activity, we will be creating a maze using our math and coding skills. ○ Show the students how to access the Maze Maker activity (See the link below for those instructions.). ○ Once the students are set up, start them on the guided practice levels. ○ Model for the students how to create a maze or show the video in the link below. ● Main Activity ○ Students will complete their grade-level challenge. ○ Ask the students what shape they see. ○ Tell the students they will draw the shape using the blue tiles and make it part of their maze. ● Wrap Up ○ Ask the students to describe the shapes they used in their maze, describing the attributes. ● Keyboarding/Mouse Practice ○ If time remains, have students use resources from above to practice using the keyboard/mouse.
Lesson links/resources:	● Maze Maker Challenge ● Maze Maker Challenge Resources
CS standards addressed:	Students will be able to: ● Create solvable mazes while applying grade-level geometry concepts Standards: ● **AP.1A.3a—**Students should be able to express ideas or address problems by developing programs with sequences and simple loops.
Time needed:	**Total Time: 60 min** ● Warm Up **10 min** ● Main Activity **30 min** ● Wrap Up **10 min** ● Keyboarding Activity/Letter Recognition Activity (Week 14) **10 min**
Materials needed:	Teacher: ● Smartboard/projector with sound Students: ● Student devices with access to the internet
Subject integrated:	Math
Other standards addressed:	**K.G.5—**Model shapes in the world by building shapes from components (e.g., sticks and clay balls) and drawing shapes.
Vocabulary:	Program: An algorithm that has been coded into something that can be run by a machine Sequence: Set of steps carried out in order

Notes:	

Week 25: Comparing Numbers With Alli-Gator

Lesson overview:	Purpose: Students will use arrows to program Alli-Gator while identifying numbers between 1 and 20.

Coding	Lesson: Create algorithms using greater than, less than, or equal to. ● Warm Up ○ Practice identifying numbers from 1-20. ○ Give two numbers and identify which is greater than, less than, or equal to. ● Main Activity ○ Have students work either in groups or alone. Have them practice the different types of number grids. ○ Using the arrows as a guide, the students will help Alli-Gator find the number(s) that answer the math problem at the top of each grid. ● Wrap Up ○ Have each student or group describe the path they took. ● Keyboarding/Mouse Practice ○ If time remains, have students use resources from above to practice using the keyboard/mouse.
Lesson links/resources:	Comparing Numbers with Alli-Gator
CS standards addressed:	Students will be able to: ● Create algorithms while comparing numbers Standards: ● **AP.1A.3—**Develop programs with sequences and simple loops to express ideas or address a problem. ● **AP.1A.4—**Decompose (break down) the steps needed to solve a problem into a precise sequence of instructions. ● **AP.1A.8a—**Students should be able to talk or write about the goals and expected outcomes of the programs they create and the choices that they made when creating programs.
Time needed:	**Total Time: 60 min** ● Warm Up **10 min** ● Main Activity **30 min** ● Wrap Up **10 min** ● Keyboarding/Letter Recognition Activity (See Week 14) **10 min**
Materials needed:	Teacher: ● Smartboard/projector with sound Students: ● Student devices with access to the internet
Subject integrated:	Math
Other standards addressed:	**K.CC.7—**Compare two numbers between 1 and 20 presented as written numerals.
Vocabulary:	Sequence: Set of steps carried out in order Loops: The action of doing something over and over

Notes:

Week 26: Coding States of Matter

Lesson overview:	Purpose: During this lesson, students will make their way through the grid. They will run into solids, liquids, or gasses along the way. Lesson: ● Warm Up ○ Review what a solid, liquid, and gas is. Create an anchor chart with pictures if needed. ● Main Activity ○ Create an algorithm to code the solids, liquids, and gasses. ● Wrap Up ○ Have students show their algorithms to the class. ● Keyboarding/Mouse Practice ○ If time remains, have students use resources from above to practice using the keyboard/mouse. Teacher Note: This can be done over three days if needed. Each day can be devoted to coding solids, liquids, and gasses.
Lesson links/resources:	States of Matter
CS standards addressed:	Students will be able to: ● Create an algorithm to code solids, liquids, and gasses Standards: ● **AP.1A1—**Model daily processes by creating and following algorithms (set of step-by-step instructions) to complete tasks. ● **AP.1A2—**Model the way programs store and manipulate data by using numbers or other symbols to represent information.
Time needed:	**Total Time: 60 min** Warm Up **10 min** Main Activity **25 min** Wrap Up **10 min** Keyboarding Activity **15 min**
Materials needed:	Teacher: ● Smartboard/projector with sound Students: ● Coding grid ● Color pencil/pencil/crayon
Subject integrated:	Science
Other standards addressed:	**P.K.5A—**Students will demonstrate an understanding of the solid and liquid states of matter.
Vocabulary:	Algorithm: A list of steps to finish a task Program: An algorithm that has been coded into something that can be run by a machine Data: This is any information put into the computer or given back by the computer.
Notes:	

Week 27: Coding Blending Sounds

Lesson overview:	Purpose: In this lesson, students will use their programming and blending skills to create an algorithm. Lesson: ● Warm Up ○ Have students practice reading and blending CVC words. ● Main Activity ○ Using either option 1 or 2 provided in the link below, students will use arrows to create a code and blend the words as they reach them. ● Wrap Up ○ Have students create sentences aloud using the words from their algorithm. ● Keyboarding/Mouse Practice ○ If time remains, have students use resources from above to practice using the keyboard/mouse. Teacher Note: This activity contains two options. You may choose one or do both on two different days.
Lesson links/resources:	Blending Sounds
CS standards addressed:	Students will be able to: ● Blend CVC words while creating an algorithm Standards: ● **AP.1A.1**—Model daily processes by creating and following algorithms (sets of step-by-step instructions) to complete tasks.
Time needed:	**Total Time: 60 min** ● Warm Up **5 min** ● Main Activity **30 min** ● Wrap Up **10 min** ● Keyboarding **15 min**
Materials needed:	Teacher: ● Smartboard/projector with sound Students: ● Coding grid ● Color pencil/pencil/crayon
Subject integrated:	ELA
Other standards addressed:	● **RF.K.2**—Demonstrate understanding of spoken words, syllables, and sounds (phonemes). ● **RF.K.2a—**Recognize and produce rhyming words.
Vocabulary:	Algorithm: A list of steps to finish a task
Notes:	

Week 28: Kodable: Pizza Party

Lesson overview:	Purpose: For this lesson, we will learn about computer science and participate in creative problem-solving activities. We will learn about basic computer science concepts and practice problem-solving skills to solve a real-life problem. Lesson: ● Warm Up ○ Review vocabulary words with students. Explain who programmers are and what programming language is using the terms and definitions. ○ Begin by introducing the foundational concept, sequence. ○ Use chart paper to create a list of things we do in order (provide examples if needed). ● Main Activity ○ Help design a mobile app for a pizza restaurant. You will create and follow a sequence, making a simple algorithm to follow to make customized pizza orders. ● Wrap Up ○ Students will complete the What I Know, What I Wonder, What I Learned (KWL) exit ticket.
Lesson links/resources:	● Kodable Pizza Party ● Kodable Pizza Party Resources
CS standards addressed:	Students will be able to: ● Create a sequence ● Write simple numerical expressions and evaluate them in the proper sequence Standards: ● **AP.1A.1—**Model daily processes by creating and following algorithms (sets of step-by-step instructions) to complete tasks. ● **AP.1A.4—**Decompose (break down) the steps needed to solve a problem into a precise sequence of instructions. ● **AP.1A.5—**Develop plans that describe a program's sequence of events, goals, and expected outcomes.
Time needed:	**Total Time: 60 min** ● Warm Up **10 min** ● Main Activity **40 min** ● Wrap Up 1**0 min**
Materials needed:	Teacher: ● Smartboard/projector with sound Students: ● Pizza-making algorithm graphic organizer ● "Ready for School" algorithm exit ticket ● Student inquiry sheet
Subject integrated:	Math
Other standards addressed:	● **K.OA.1—**Represent addition and subtraction, in which all parts and whole of the problem are within 10, with objects, fingers, mental images, drawings, sounds (e.g., clasp), acting out situations, verbal explanations, expressions, or equations. ● **K.OA.2—**Solve addition and subtraction word problems, and add and subtract within 10, e.g., by using objects or drawings to represent the problem.

Vocabulary:	Programmer: Person who creates a program Program: An algorithm that has been coded into something that can be run by a machine Code: Giving instructions to a computer or robot Command: A specific order from a user to the computer's operating system or to an application to perform a service Sequence: A set of related events, movements, or things that follow each other in a particular order Algorithm: A list of steps to finish a task Bug: Part of a program that does not work correctly Debugging: Finding and fixing problems in an algorithm or program
Notes:	

Week 29: Coding *The Very Hungry Caterpillar*

Lesson overview:	Purpose: Review vocabulary and print concepts. Use left, right, up, and down directions to create an algorithm helping the caterpillar make its way through the grid.

	Lesson: ● Warm Up ○ Read *The Very Hungry Caterpillar* By Eric Carle. ○ Review the vocabulary word algorithm. ○ Review direction: left, right, up, down. ● Main Activity ○ Students will help the caterpillar make its way through the grid eating food and turning into a beautiful butterfly. ● Wrap Up: ○ Have students present their grid and the different ways it could be completed. ● Keyboarding/Mouse Practice ○ If time remains, have students use resources from above to practice using the keyboard/mouse.
Lesson links/resources:	*The Very Hungry Caterpillar*
CS standards addressed:	Students will be able to: ● Create an algorithm Standards: ● **AP.1A.1—**Model daily processes by creating and following algorithms (sets of step-by step instructions) to complete tasks. ● **AP.1A.4—**Decompose (break down) the steps needed to solve a problem into a precise sequence of instructions.
Time needed:	**Total Time: 60 min** ● Warm Up **10 min** ● Main Activity **30 min** ● Wrap Up **10 min** ● Keyboarding Activity **10 min**
Materials needed:	Teacher: ● *The Very Hungry Caterpillar* ● Smartboard/projector with sound Students: ● Google Slide grid
Subject integrated:	Science
Other standards addressed:	**L.K.2—**Students will demonstrate an understanding of how living things change in form as they go through the general stages of a life cycle.
Vocabulary:	
Notes:	

Week 30: Coding With Magna Tiles

Lesson overview:	Purpose: In this lesson, students will set up a grid using magna tiles or similar manipulatives. Lesson: ● Warm Up

Robotics	○ Review subtraction facts within 5. • Main Activity ○ Have students create a grid using the magna tiles. The grid can be the size of your choice but be sure to mark a start and finish square. ○ Using the subtraction flash cards, students will answer the problem and move that number of spaces in any direction using the arrows to create the algorithm. • Wrap Up ○ Have students demonstrate their algorithm to the class. • Keyboarding/Mouse Practice ○ If time remains, have students use resources from above to practice using the keyboard/mouse.
Lesson links/resources:	Coding Arrows
CS standards addressed:	Students will be able to: • Create a grid for a robot Standards: • **AP.1A.1—**Model daily processes by creating and following algorithms (sets of step-by step instructions) to complete tasks.
Time needed:	**Total Time: 60 min** • Warm Up **5 min** • Main Activity **30 min** • Wrap Up **10 min** • Keyboarding Activity **15 min**
Materials needed:	Teacher: • Subtraction flash cards Students: • Magna tiles • Arrow cards
Subject integrated:	Math
Other standards addressed:	**K.OA.5—**Fluently add and subtract within 5.
Vocabulary:	Algorithm: A list of steps to finish a task Program: An algorithm that has been coded into something that can be run by a machine Debugging: Finding and fixing problems in an algorithm or program
Notes:	

Week 31: Code.org, Course A, Lesson 8—Loops With Scrat

Lesson overview:	Purpose: In this lesson, students will learn more about loops and how to implement them in Blockly code. Using loops is an important skill in programming because manually repeating commands is tedious and inefficient. With these Code.org puzzles, students will learn to add instructions to existing

Coding	loops, gather repeated code into loops, and recognize patterns that need to be repeated. Lesson: ● Warm Up: The Unplugged Foundation ○ This lesson relies on the concept of repeat loops that students learned in the previous unplugged activity, Happy Loops. It is important to bring this idea from the real world into digital form so students understand how to use Blockly blocks to repeat a task multiple times. ● Bridging Activity (choose one): ○ Unplugged Activity Using Paper Blocks ■ Select an empty flurb map from the Happy Map Cards Worksheet and give students Unplugged Blockly Blocks (Grades K-1) prefilled with the collect command, a repeat loop, and the cardinal commands like E → (East) and W ← (West). Have students use the paper Blockly blocks from their desks to program the flurb to collect the fruit Make sure they understand that the blocks need to go from top to bottom and they all need to touch. ○ Previewing Online Puzzles as a Class ■ Pull a puzzle from the corresponding online puzzles. We recommend Puzzle 4. Using arrows, have students lay out a pattern they think will get Scrat to the acorn. Ask the students to share. See how many other students had the same answer. ● Main Activity: Preview Loops in Ice Age ○ To finish the connection, preview an online puzzle (or two) as a class. ○ Model: Reveal an entire online puzzle from the progression to come. We recommend Lesson 8, Puzzle 5. Point out the "Play Area" with Scrat and the acorn and the "Work Space" with the Blockly code. Explain that this Blockly code is now the language the class will be using to help Scrat get to the acorn. Do students see any similarities to the exercise they just did? What are the big differences? ○ Work with your class to drag code into the workspace in such a way that Scrat (eventually) gets to the acorn. ○ Transition: Students should now be ready to transition to computers to complete online puzzles on their own. ○ As students work through the puzzles, see if they can figure out how many blocks they use with a loop vs. without a loop. ● Wrap Up and Reflection ○ What was today's lesson about? ○ Draw a face that shows how you felt about today's lesson in the corner of your journal page. ○ Draw Scrat and an acorn. ○ Draw yourself using a loop to do an everyday activity like brushing your teeth.
Lesson links/resources:	Lesson 8: Loops with Scrat
CS standards addressed:	The students will: ● Construct a program using structures that repeat areas of code ● Improve existing code by finding areas of repetition and moving them into looping structures

	Standards: ● **AP.1A.1a—**Students should be able to create and follow algorithms. ● **AP.1A.3a—**Students should be able to express ideas or address problems by developing programs with sequences and simple loops.
Time needed:	**Total time: 60 min** ● Warm Up **10 min** ● Bridging Activity **10 min** ● Main Activity **30 min** ● Wrap Up **10 min**
Materials needed:	Teacher: ● Smartboard/Projector with sound Students: ● Student devices with access to the internet ● Feeling Faces - Emotion Images ● Happy Map Cards - Worksheet ● Happy Map Game Pieces - Manipulatives ● Happy Map Game Pieces Bonus Pack - Manipulatives ● Pair-Programming - Video (Download) ● Unplugged Blockly Blocks (Grades K-1) - Manipulatives
Subject integrated:	Social Studies
Other standards addressed:	**G.K.3.2—**Identify cardinal and intermediate directions (e.g., north, northeast, northwest, southeast, southwest, east, and west).
Vocabulary:	Program: An algorithm that has been coded into something that can be run by a machine
Notes:	The link above gives step-by-step directions with pictures on how to complete the project.

Week 32: Code.org, Course A, Lesson 9—Loops With Laurel

Lesson overview:	Purpose: In this skill-building lesson, students continue learning the concepts of loops. Here, students use loops to collect treasure in open cave spaces. This lesson gives students more practice with loops and introduces a new block and treasure. Lesson: ● Warm Up ○ Quickly review the definition of a loop, the action of doing something over and over again.

	○ What are loops? Why do we use them? ● Main Activity ○ This activity will be combined with skill-building lessons and videos showing how to complete the skill builders. This also includes challenge, practice, and extra lessons. ● Wrap Up (Prompts): ○ What was today's lesson about? ○ Draw a face that shows how you felt about today's lesson in the corner of your journal page. ○ How did loops make your program easier to write? ○ Draw something that uses loops. ● Keyboarding/Mouse Practice ○ If time remains, have students use resources from above to practice using the keyboard/mouse.
Lesson links/resources:	● Lesson 9: Loops with Laurel ● Feeling Faces ● Unplugged Coding Blocks
CS standards addressed:	Students will be able to: ● Break down a long sequence of instructions into the smallest repeatable sequence possible ● Identify the benefits of using a loop structure instead of manual repetition Standards: ● **AP.1A.2—**Model the way programs store and manipulate data by using numbers or other symbols to represent information. ● **AP.1A.3—**Develop programs with sequences and simple loops to express ideas or address a problem. ● **AP.1A.4—**Decompose (break down) the steps needed to solve a problem into a precise sequence of instructions. ● **AP.1A.7—**Debug (identify and fix) errors in an algorithm or program that includes sequences and simple loops.
Time needed:	**Total Time: 60 min** ● Warm Up **10 min** ● Main Activity **30 min** ● Wrap Up **5 min** ● Keyboarding Activity **15 min**
Materials needed:	For the teachers: ● Smartboard/projector with sound ● CSF Lesson Recommendations - Resource Students: ● Student devices with access to the internet ● Feeling Faces Emotion Image - Resource ● Unplugged Blockly Blocks (Grades K-1) - Manipulatives
Subject integrated:	Social Studies
Other standards addressed:	**G.K.3.2—**Identify cardinal and intermediate directions (e.g., north, northeast, northwest, southeast, southwest, east, and west).
Vocabulary:	Loop: The action of doing something over and over Repeat: To do something again

Notes:	

Week 33: Code.org, Course A, Lesson 10—Ocean Scene With Loops

Lesson overview:	Purpose: In this skill-building lesson, students will learn how to draw images by looping simple sequences of instructions. Here, loops are creating patterns. At the end of this lesson, students will complete their own images. Lesson: ● Warm Up ○ Quickly review the definition of a loop, the action of doing something over and over again. ○ Discuss different patterns like zigzags and stairsteps. ■ How would you explain to someone how to draw that pattern? How could you draw this using a loop?

	○ In the artist levels, students will use 45-degree angles described as northwest, northeast, southwest, southeast. We recommend briefly discussing these directions with the class and drawing an image for students to refer to. ● Main Activity ○ Video: The Artist in Code Studio, complete skill-building 2-4. ○ Video: Loops in Artist, complete skill-building 6-10. ○ A challenge, practice, and free play are also included in this lesson. ● Wrap Up (Prompts): ○ What was today's lesson about? Draw a face that shows how you felt about today's lesson in the corner of your journal page. Draw some stairs. Imagine the loop needed to draw this. Draw something else in your life that uses loops. ● Keyboarding/Mouse Practice ○ If time remains, have students use resources from above to practice using the keyboard/mouse.
Lesson links/resources:	Lesson 10: Ocean Scene with Loops
CS standards addressed:	Students will be able to: ● Learn how to draw images by looping simple sequences of instructions ● Use loops to create patterns Standards: ● **AP.1A.2—**Model the way programs store and manipulate data by using numbers or other symbols to represent information. ● **AP.1A.3—**Develop programs with sequences and simple loops to express ideas or address a problem. ● **AP.1A.4—**Decompose (break down) the steps needed to solve a problem into a precise sequence of instructions ● **AP.1A.7—**Debug (identify and fix) errors in an algorithm or program that includes sequences and simple loops.
Time needed:	**Total Time: 60 min** ● Warm Up **10 min** ● Main Activity **30 min** ● Wrap Up **5 min** ● Keyboarding Activity **15 min**
Materials needed:	For the teachers: ● Smartboard/projector with sound ● CSF Lesson Recommendations - Resource ● Pause and Think Online - Video Students: ● Student devices with access to the internet ● Feeling Faces Emotion Image - Resource
Subject integrated:	ELA
Other standards addressed:	● **SL.K.2—**Confirm understanding of a text read aloud or information presented orally or through other media by asking and answering questions about key details and requesting clarification if something is not understood.

- **SL.K.3—**Ask and answer questions in order to seek help, get information, or clarify something that is not understood.
- **SL.K.6—**Speak audibly and express thoughts, feelings, and ideas clearly.

Vocabulary:

Loop: The action of doing something over and over
Repeat: To do something again

Notes:

Week 34: Code.org, Course A, Lesson 11—The Big Event Jr.

Lesson overview:

Purpose:
In this context-setting lesson, the class will experience the concept of events through a game where they move or sort when you press buttons on a giant remote.
Lesson:

- Warm Up
  - This lesson has a new and important vocabulary word: Event. An event is an action that causes something to happen. Let's see if we see a pattern here: When you flip a switch, the lights turn on. When you tap on a device, an app starts. When the alarm goes off, you get out of bed. In computer science, events cause other actions to happen.
- Main Activity
  - In earlier lessons, we created algorithms that allowed us to control a friend of flurb for several steps at a time. It was fun

	and useful, but what happens when you don't know everything that you want your friend to do in advance? This is where events come in. ● Wrap Up ○ Reflect on what students have learned through the following prompts: What did we learn? What are some examples of events?
Lesson links/resources:	Lesson 11: The Big Event Jr.
CS standards addressed:	The students will: ● Practice differentiating predefined actions and event-driven ones ● Recognize actions of the teacher as signals to initiate commands ● Repeat commands given by an instructor Standards: ● **AP.1A.2—**Model the way programs store and manipulate data by using numbers or other symbols to represent information. ● **AP.1A.4—**Decompose (break down) the steps needed to solve a problem into a precise sequence of instructions.
Time needed:	**Total Time: 60 min** ● Warm Up **15 min** ● Main Activity **15 min** ● Wrap Up **15 min** ● Keyboarding **15 min**
Materials needed:	For the teachers: ● Smartboard/projector with sound ● The Big Event - Assessment Answer Key Students: ● Student devices with access to the internet ● Feeling Faces - Emotion Image - Resource ● The Big Event - Unplugged Video (Download) ● The Big Event - Assessment ● The Big Event (Courses A, B) - Controller Image
Subject integrated:	ELA
Other standards addressed:	**RL.K.7—**With prompting and support, describe the relationship between illustrations and the story in which they appear (e.g., what moment in a story an illustration depicts.
Vocabulary:	Event: An action that causes something to happen

Notes:	

Week 35: Code.org, Course A, Lesson 12—Mini Project: On the Move With Play Lab

Lesson overview:	Purpose: Students will further develop their understanding of events using Play Lab today. Events are very common in most computer programs. In this activity, students will use events to make a character move around the screen, make noises, and change backgrounds based on user-initiated events. Lesson: ● Warm Up ○ Review "The Big Event" activity with the students. ■ What did we program the button events to do?

	○ Now we're going to add events to our code. Specifically, we're going to have an event for when two characters touch each other. ■ When have you seen two characters touch each other in an event in games? ● Main Activity ○ Bridging Activity (Choose One): ■ Unplugged Activity Using Paper Blocks ■ Previewing Online Puzzles as a Class ○ This is the most free-form plugged activity of the course. In the final stage, students have the freedom to create their own story. You may want to provide structured guidelines around what kind of story to write, particularly for students overwhelmed by too many options. ● Wrap Up ○ What was today's lesson about? ○ Imagine you have a remote-controlled robot. What would the remote look like? Draw a picture of what you think you could make the robot do.
Lesson links/resources:	Lesson 12: Mini-Project—On the Move with Play Lab
CS standards addressed:	The students will: ● Create an animated, interactive story using sequence- and event-handlers ● Identify actions that correlate to input events ● Share a creative artifact with other students Standards: ● **AP.1A.2—**Model the way programs store and manipulate data by using numbers or other symbols to represent information. ● **AP.1A.4—**Decompose (break down) the steps needed to solve a problem into a precise sequence of instructions.
Time needed:	**Total Time: 55 min** ● Warm Up **10 min** ● Bridging Activity **10 min** ● Main Activity **30 min** ● Wrap Up **5 min**
Materials needed:	For the teachers: ● Smartboard/projector with sound ● CS Fundamentals Main Activity Tips ● CSF Lesson Recommendations - Resource ● Pause and Think Online - Video Students: ● Student devices with access to the internet ● Feeling Faces - Emotion Image - Resource ● The Big Event (Courses A, B) - Controller Image ● Unplugged Blockly Blocks (Grades K-1) - Manipulatives
Subject integrated:	ELA
Other standards addressed:	**RL.K.7—**With prompting and support, describe the relationship between illustrations and the story in which they appear (e.g., what moment in a story an illustration depicts.

Vocabulary:	Event: An action that causes something to happen
Notes:	

Week 36: Code.org, Course A, Lesson 13—End of Course Project

Lesson overview: Coding	Purpose: This lesson gives students one last opportunity to creatively use their new computer science skills. Lesson: ● Warm Up ○ Get students excited and ready for the day's activity. Begin by asking the students to remember what they have already done in the earlier lesson using the Artist's tools. ● Main Activity

	○ Pull up the level for this lesson. ○ Today your job is to create a path for the Artist. The Artist will be taking a trip to three places: a garden, a zoo, and outer space. ○ Your job is to create a path for him and tell a story about what he did and saw. ● Wrap Up ○ Allow students to showcase their projects.
Lesson links/resources:	[Lesson 13: End of Course Project]()
CS standards addressed:	Students will be able to: ● Apply computer science concepts in an open-ended project ● Overcome obstacles such as time constraints or bugs Standards: ● **AP.1A.3—**Develop programs with sequences and simple loops to express ideas or address a problem.
Time needed:	**<u>Total Time:</u> 60 min** ● Warm Up **10 min** ● Main Activity **30 min** ● Wrap Up **20 min**
Materials needed:	For the teachers: ● Smartboard/projector with sound ● Artist Project Planning Guide - Answer Key Students: ● Student devices with access to the internet ● Artist Project Planning Guide - Handout
Subject integrated:	ELA
Other standards addressed:	**RL.K.7—**With prompting and support, describe the relationship between illustrations and the story in which they appear (e.g., what moment in a story an illustration depicts).
Vocabulary:	<u>Loop</u>: The action of doing something over and over
Notes:	

<u>Week 37: Kodable: Magic Machine</u>

Lesson overview: Unplugged	<u>Purpose:</u> Is technology just mysterious magic or do people control machines? Students explore what they already know about the technology they use daily. <u>Lesson:</u> ● Warm Up ○ Open the lesson with a true or false statements to check what students already know about technology. ○ Read the statements. If a statement is true, move to the left; if false, move to the right.

	● Main Activity ○ Introduce the vocabulary cards and images. ○ Go over the terms and definitions and talk about what technology is and the role humans play in making machines function. ○ We will work in a small group and think about how we use technology. ○ Introducing the technology mind map. ○ The groups will write and draw what comes to mind when they think of technology. ● Wrap Up ○ Once groups finish brainstorming, bring the whole class together to share.
Lesson links/resources:	● Magic Machine ● Magic Machine Resources
CS standards addressed:	Students will be able to: ● Activate prior knowledge related to technology and coding ● Recognize the role communication plays in technology ● Identify the ways humans control machines Standards: ● **AP.1A.1—**Model daily processes by creating and following algorithms (sets of step-by-step instructions) to complete the tasks. ● **AP.1A.2—**Model the way programs store and manipulate data by using numbers or other symbols to represent information.
Time needed:	**Total Time: 60 min** Warm Up **15 min** Main Activity **25-30 min** Wrap Up **5-10 min**
Materials needed:	Teacher: ● Smartboard/projector with sound Students: ● Student devices with access to the internet
Subject integrated:	Science ELA
Other standards addressed:	Science ● **E.K.10.1—**Participate in a teacher-led activity to gather, organize, and record recyclable materials data on a chart or table using technology and communicate results. ELA ● **W.K.2—**Use a combination of drawing, dictating, and writing to compose informative/explanatory texts in which they name what they are writing about and supply some information about the topic.
Vocabulary:	Programmer: Person who creates a program Program: An algorithm that has been coded into something that can be run by a machine Code: Giving instructions to a computer or robot Command: A specific order from a user to the computer's operating system or to an application to perform a service Algorithm: A list of steps to finish a task

Notes:

Week 38: Kodable: Show What You Know

Lesson overview:

Purpose:
Students will design, draw, and solve their own programming problems. See a sample of the Sequence Capstone lesson on the Kodable school plan.

Lesson:

- Warm Up
    - Students will create and solve their own programming problem by designing mazes and using commands that visually represent their programming process.
- Main Activity
    - Seat students on the floor and explain they will become programmers and create and solve their own programming problem.

	○ Give each student the Maze Maker handout. ○ Send them to their workspace to cut and glue. ● Wrap Up ○ Have students explain their design to the class before they draw it. Once they have planned out their maze and explained it, they can draw it out. ● Keyboarding/Mouse Practice ○ If time remains, have students use resources from above to practice using the keyboard/mouse.
Lesson links/resources:	● Show What You Know ● Show What You Know Resources
CS standards addressed:	Students will be able to: ● Create their own programming problem ● Solve programming problems ● Visually represent programming problems ● Explain programming processes Standards: ● **AP.1A.1—**Model daily process by creating and following algorithms. ● **AP.1A.2—**Model the way programs store and manipulate data by using numbers or other symbols to represent information.
Time needed:	**Total Time: 60 min** ● Warm Up **10 min** ● Main Activity **30 min** ● Wrap Up **10 min** ● Keyboarding Practice **10 min**
Materials needed:	Teacher: ● Smartboard/projector with sound Students: ● Student devices with access to the internet
Subject integrated:	ELA
Other standards addressed:	**W.K.3—**Use a combination of drawing, dictating, and writing to narrate a single event or several loosely linked events, tell about the events in the order in which they occurred, and provide a reaction to what happened.
Vocabulary:	Program: An algorithm that has been coded into something that can be run by a machine Sequence: A set of related events, movements, or things that follow each other in a particular order Command: A specific order from a user to the computer's operating system or to an application to perform a service Code: Giving instructions to a computer or robot Bug: Part of a program that does not work correctly Debugging: Finding and fixing problems in an algorithm or program

Notes:

Week 39: If Flash, the Clap!

Lesson overview:

Unplugged

Purpose:
If there is lightning, then thunder will follow! Students explore conditional statements in a hands-on science activity.

Lesson:

- Warm Up:
    - We are going to learn about computer science concepts and practice our problem-solving skills.
- Main Activity:

	○ An example of a condition is something we experience everyday weather! ○ Let's learn about how thunder and lightning happen. ○ Show the video on thunder and lightning (See the video in the lesson link.). ○ The students will rub the balloon on their head for five seconds. Explain that this is creating a positive charge, like lightning. ○ Students blow into their brown bags to fill them with air and twist them closed. ○ Hit the bag with your free hand creating thunder. ● Wrap Up: ○ Students can tell if they liked the thunder or lightning activity best.
Lesson links/resources:	● If Flash, the Clap! ● If Flash, the Clap! Resources
CS standards addressed:	The students will: ● Students will be able to determine the effect of a condition being true. ● Students will be able to connect real-world conditions with "If Statements" in programming. ● Students will be able to create "If Statements" to describe real world cause and effect. Standards: ● **AP.1A.4** Decompose (break down) the steps needed to clove a problem into a precise sequence of instructions.
Time needed:	**Total Time: 60 min** Warm up **15 min** Main Lesson **35 min** On-screen practice **10 min**
Materials needed:	Teacher: ● Smartboard/Projector with sound Students: ● Student devices with access to the internet
Subject integrated:	Science
Other standards addressed:	**E.K.8A** Students will demonstrate an understanding of the pattern of seasonal changes on the Earth.
Vocabulary:	Sequence: A set of related events, movements, or things that follow each other in a particular order Program: An algorithm that has been coded into something that can be run by a machine Programmer: Person who creates a program Code: Giving instructions to a computer or robot Command: A specific order from a user to the computer's operating system or to an application to perform a service

Notes:	

Week 40: Kodable Hour of Code: Advanced	
Lesson overview:	Purpose: Why does communication matter? How do people communicate with machines to do what we want? Test communication skills as you learn to code. Lesson: ● Warm Up ○ Review the vocabulary words. ○ Tell the students we will learn how computers work. ● Main Activity

	○ Students will act as programmers and apply basic knowledge of programming language and sequence to command a robot to move forward and jump. ● Wrap Up ○ Students will put the commands in the correct sequence to successfully direct the Kodable fuzz through the maze.
Lesson links/resources:	● Hour of Code: Advanced ● Hour of Code: Advanced Resources
CS standards addressed:	Students will be able to: ● Define sequences ● Decompose a task into a sequence of events ● Relate an order of events to sequencing in programming ● Explain what a programmer does ● Instruct a robot to move forward and jump with basic programming language Standards: ● **AP.1A.3—**Develop programs with sequences and simple loops to express ideas or address a problem. ● **AP.1A.5a—**Students should be able to develop and visually illustrate the plan for what a program will do. ● **AP.1A.8—**Using the correct terminology, describe steps taken and choices made during the iterative process of program development. ● **AP.1A.8a—**Students should be able to talk or write about the goals and expected outcomes of the programs they create and the choices that they made when creating programs.
Time needed:	**Total time: 60 min** ● Warm Up **15 min** ● Main Activity **35 min** ● Wrap Up **10 min**
Materials needed:	Teacher: ● Smartboard/projector with sound Students: ● Student devices with access to the internet
Subject integrated:	ELA
Other standards addressed:	**W.K.3—**Use a combination of drawing, dictating, and writing to narrate a single event or several loosely linked events, tell about the events in the order in which they occurred, and provide a reaction to what happened.
Vocabulary:	Computer: A device for working with information like numbers, words, pictures, movies, or sounds Programmer: Person who creates a program Code: Giving instructions to a computer or robot Commands: A specific order from a user to the computer's operating system or to an application to perform a service Sequence: A set of related events, movements, or things that follow each other in a particular order

Notes:

Appendix A: Code.org

I'd like to start using Code.org in my classroom. How should I start?

https://support.code.org/hc/en-us/articles/228116468-I-d-like-to-start-using-Code-org-in-my-classroom-How-should-I-start-

How to create a teacher account:

https://support.code.org/hc/en-us/articles/228116468-I-d-like-to-start-using-Code-org-in-my-classroom-How-should-I-start-

How to create a classroom section:

https://support.code.org/hc/en-us/articles/115000488132-Creating-a-classroom-section

Finding curriculum and lesson plans:

https://support.code.org/hc/en-us/articles/115001595051-Finding-curriculum-and-lesson-plans

Code.org Support

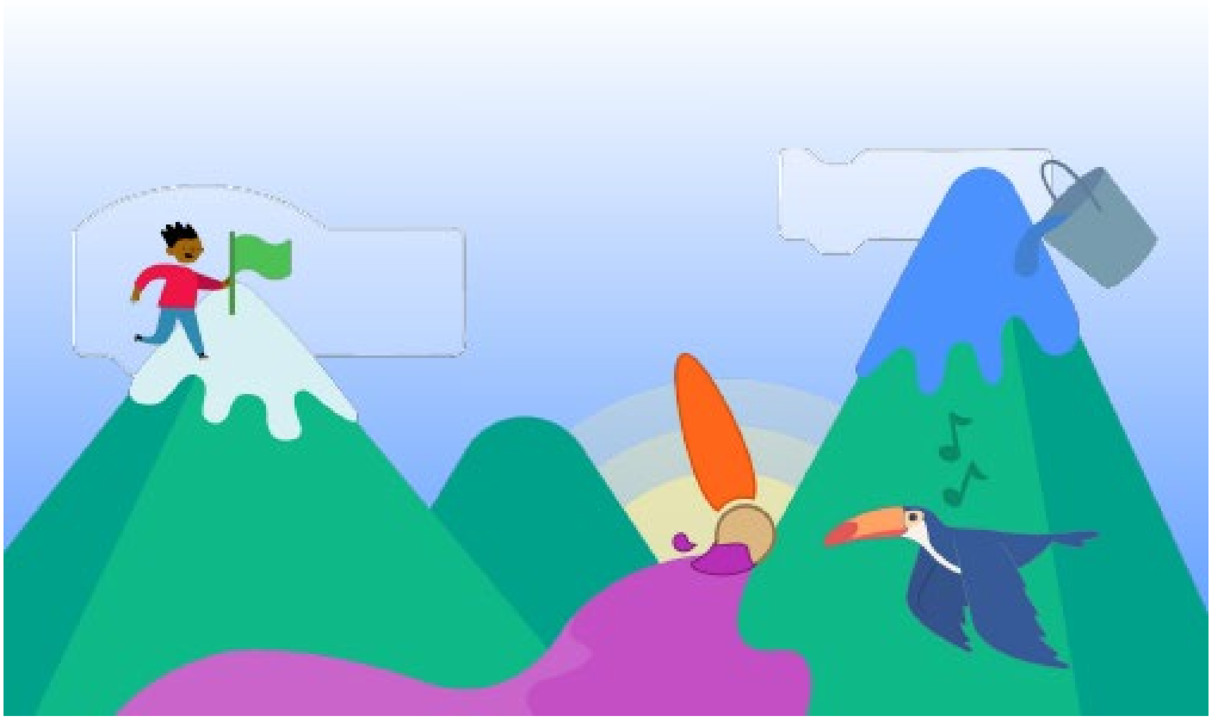
https://support.code.org/hc/en-us

Appendix B: Scratch

SCRATCH

Educator's Guide

- Teacher Accounts
- Beginner's Guide
- Lesson Guides



Teacher Accounts

As an educator, you can request a Scratch Teacher Account. A Scratch Teacher Account provides educators with additional features to manage student participation on Scratch, including the ability to create student accounts, organize student projects into studios, and monitor student comments. This guide will walk you through creating an account, creating a class, adding and managing your students, and creating class studios. You can also see our Scratch for Educators page and our Teacher Account FAQ page for additional information.

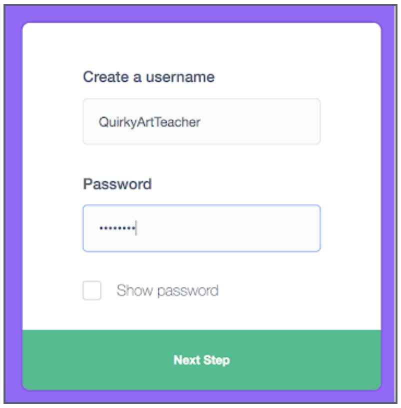
Create Your Teacher Account

Visit this link to get started: https://scratch.mit.edu/educators/register

You'll be prompted to create a username and password. ***Make sure that your username does not contain your name or personal information***, like your school, location, or email address.

Within the Scratch community, all users are asked to refrain from sharing personal information through their usernames. ***It's important that both you and your students follow these guidelines. Accounts that do not adhere to these guidelines will be deleted.***

Creating your teacher account



Create a username

QuirkyArtTeacher

Password

••••••••

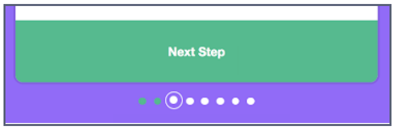
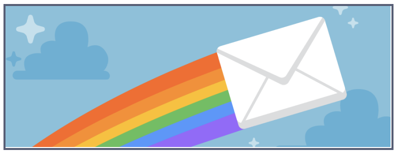
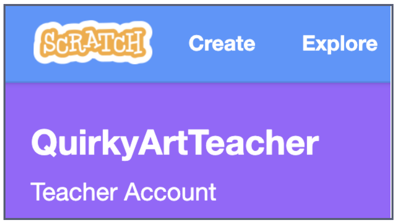
□ Show password

Next Step

Tips for making your username

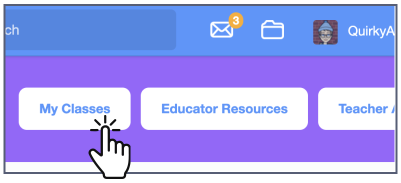
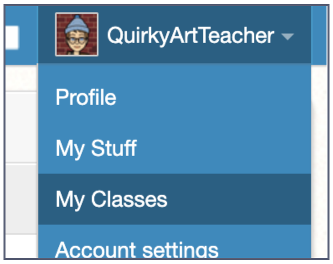
- **Incorporate the name of the subject you teach**
  - ex: QuirkyArtTeacher
- **Use a tool or term from the subject you teach**
  - ex: MetamorphicRocks
- **Add an important date, be unique**
  - ex: Bibliophile1440
- **Make it memorable with a pun or an alliteration!**
  - ex: TyranoTeacher

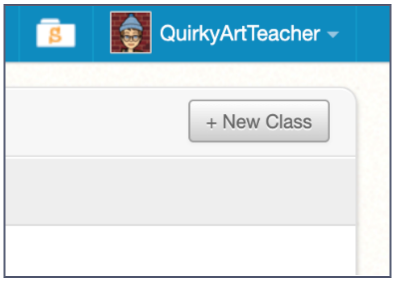
Be sure to make a note of your username and password.

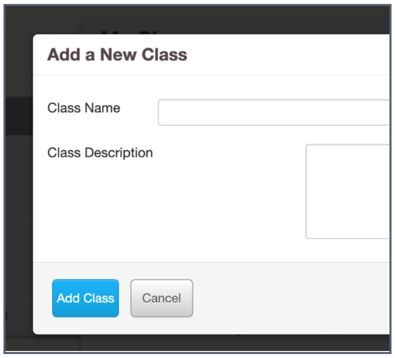
 	Click through each step to **complete registration**.
	Log into your email and confirm your email address. Check your spam folder if you do not see the email. Once you have **confirmed your email address**, we'll review your account.
 Scratch Create Explore QuirkyArtTeacher Teacher Account	Once your account has been reviewed and approved, **you will receive a welcome email**. Then, you can **log into your teacher account at scratch.mit.edu**!

Create a Class

Creating classes allows you to manage groups of students, and create studios where your students can add their projects.

Creating your class	
 ch 3 QuirkyA My Classes Educator Resources Teacher A  QuirkyArtTeacher Profile My Stuff My Classes Account settings	Once you have successfully logged into your Teacher Account, if you are looking at the homepage, there will be a bar at the top of the screen with three options. Select "**My Classes**." You can also access your classes from the dropdown under your username.





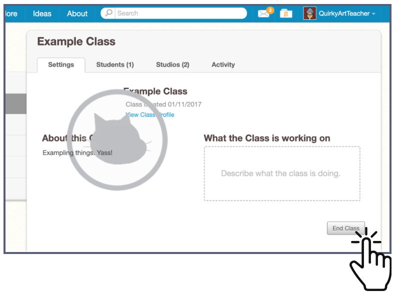
To create a class, click the “**+ New Class**” button at the top right of the page.

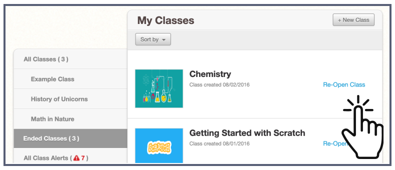
Enter the class name and description.

Warning: Do not include real names and locations, like the name of your school or city/town.

Once you have created a class, you can add students.

Ending your class





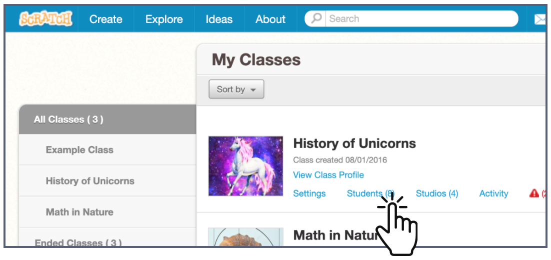
To end a class, under “My Classes,” choose your class and on the Settings tab, click the “End Class” button.

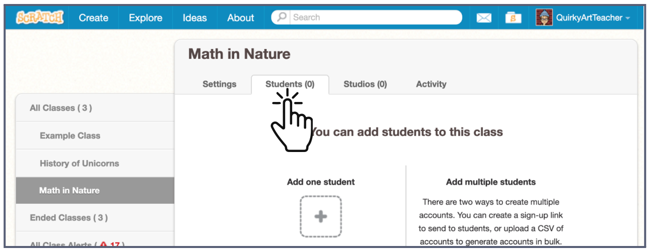
When you end a class, your class profile page will be hidden and your students will no longer be able to log in (but their projects and the class studios will still be visible on the site).

You may re-open the class at any time. By going to the “Ended Classes” tab and clicking the “Re-Open Class” link near the class you want to reopen.

Add Students to Your Class

While on “My Classes,” select the class and then click on “Students” (either the link under the class name or the Students tab). Once created, your student accounts will appear here.



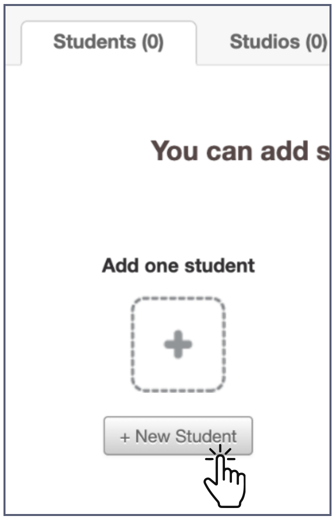


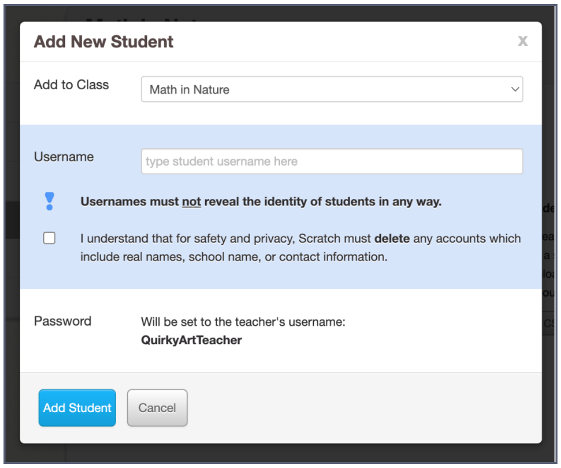
ou can add students to this class

There are two ways to create multiple accounts. You can create a sign-up link to send to students, or upload a CSV of accounts to generate accounts in bulk.

There are three ways to add students to your class. The first method allows you to add an individual student to a class. Methods 2 and 3 allow you to add multiple students to a class.

Tip: Create a naming convention as a guideline for generating usernames. For example, you may want each name to include an abbreviation for the course name, the class section, and the student’s number on your roster (ex: VisArts-02-17). Use the [Student Username List]() we have created to record the usernames and passwords your students have created.

Method 1: Add Individual Students	
 Students (0) Studios (0) Add one student + New Student You can add s	Click the “+ New Student” button to add students individually. Confirm the correct class is showing in the “Add to Class” dropdown menu. You will be prompted to create a username for this student. **Warning:** Make sure that the usernames you create do not contain identifying information about yourself, your students, or your school. Accounts that do not adhere to these guidelines will be deleted. The password for this student username will automatically be set as the username of your teacher account.



Add New Student

Add to Class: Math in Nature

Username: type student username here

Usernames must not reveal the identity of students in any way.

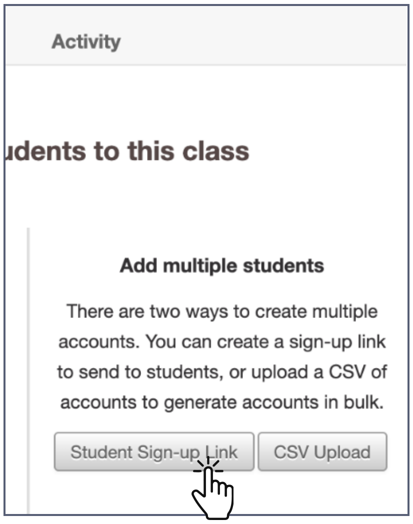
□ I understand that for safety and privacy, Scratch must **delete** any accounts which include real names, school name, or contact information.

Password: Will be set to the teacher's username: **QuirkyArtTeacher**

Have students log into their accounts and change their passwords as soon as possible.

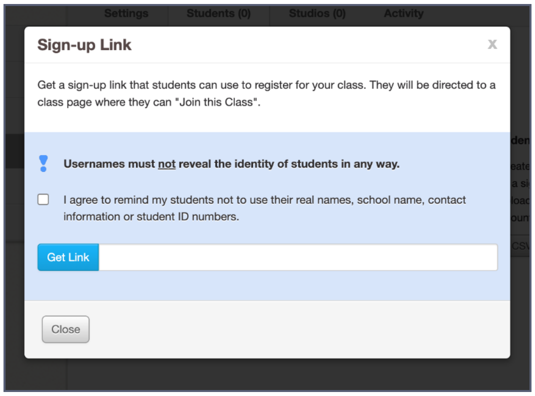
Tip: It is not possible to add an existing Scratch account to a classroom. You will need to create a new Student Account for them using your Teacher Account. A student can only be a part of one class, and it is not possible to transfer students from one class or teacher to another.

Method 2: Student Sign-up Link



Add multiple students

There are two ways to create multiple accounts. You can create a sign-up link to send to students, or upload a CSV of accounts to generate accounts in bulk.



Sign-up Link

Get a sign-up link that students can use to register for your class. They will be directed to a class page where they can "Join this Class".

Usernames must not reveal the identity of students in any way.

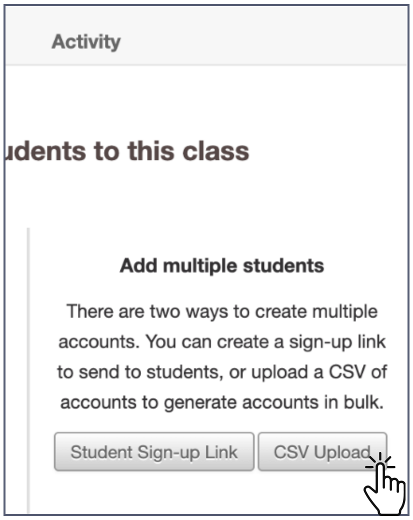
□ I agree to remind my students not to use their real names, school name, contact information or student ID numbers.

Clicking the “Student Sign-Up Link” button brings you to another window and clicking the “Get Link” button will generate a link that will allow your students to join the class you have just created. The link will start with “http://scratch.mit.edu/signup…”

Students can then create their own usernames and passwords.

Warning: Remind your students that, when making their usernames, the username should not contain identifying information about themself, their teacher, or their school. Accounts that do not adhere to these guidelines will be deleted.

Method 3: CSV Upload

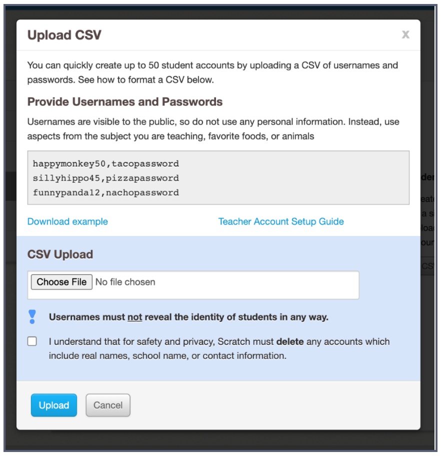


Activity

udents to this class

Add multiple students

There are two ways to create multiple accounts. You can create a sign-up link to send to students, or upload a CSV of accounts to generate accounts in bulk.



Upload CSV

You can quickly create up to 50 student accounts by uploading a CSV of usernames and passwords. See how to format a CSV below.

Provide Usernames and Passwords

Usernames are visible to the public, so do not use any personal information. Instead, use aspects from the subject you are teaching, favorite foods, or animals

```
happymonkey50,tacopassword
sillyhippo45,pizzapassword
funnypanda12,nachopassword
```

Download example   Teacher Account Setup Guide

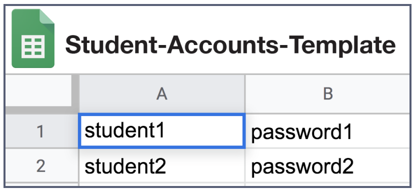
CSV Upload

Choose File No file chosen

Usernames must <u>not</u> reveal the identity of students in any way.

□ I understand that for safety and privacy, Scratch must **delete** any accounts which include real names, school name, or contact information.

x
Upload
Cancel



Student-Accounts-Template

	A	B
1	student1	password1
2	student2	password2

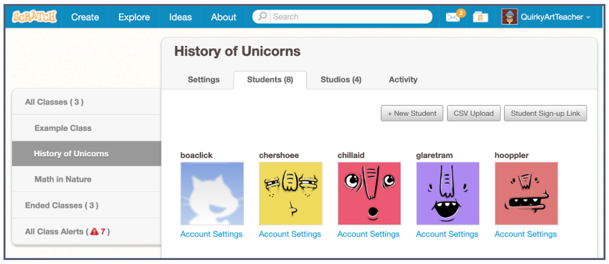
Click the “CSV Upload” button on the class page.

Using the template provided by clicking the “Download example” link, create a username and password for each of your students. You can use the template provided or create your own spreadsheet with student usernames in column A and passwords in column B. To upload your own template, you’ll need to save the file as a CSV file.

Once you’ve created usernames and passwords for each student and saved the file, click the “Choose file” button to locate the file, then click the “Upload” button.

It is not possible to add more than 250 students to a single class. You can, however, create a new class and add another 250 student accounts to each new class.

Warning: Make sure that the usernames you create do not contain identifying information about yourself, your students, or your school. Accounts that do not adhere to these guidelines will be deleted.



You can add students via any of these methods at any time under the “Students” tab.

Creating Studios for Student Work

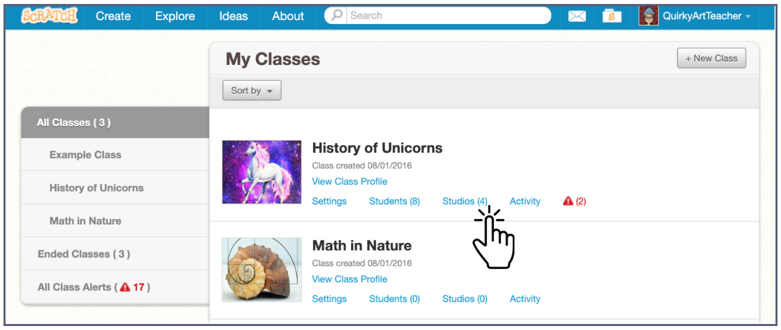
Studios allow you to create collections of student projects for specific classes or assignments. This makes it easier for you to view their projects throughout their creative process. It also makes it easier for students to collaborate and be inspired by each other's work.

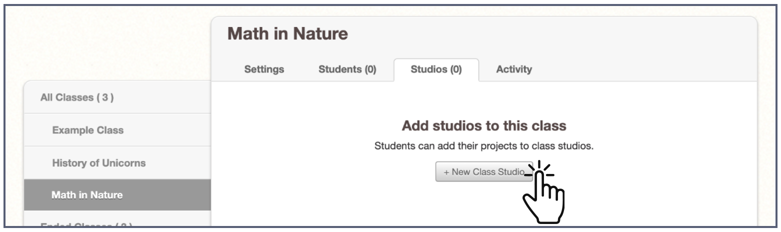
Scratcher status is required in order to create a studio, and the person who created the studio is automatically assigned the role of "host." There is only one host per studio, and only studio hosts can edit the title, thumbnail, and description.

Studios are immediately public, even those created in the context of a class. Unlike Scratch projects, there is no share/unshare option for studios. Everyone can follow a studio, see studio comments and projects, and leave a comment or add a project (unless commenting or the ability to add projects is turned off).

There are two ways to create a studio on a teacher account. Method one creates studios that automatically add all students in a class as curators. Method two creates studios without automatically adding students as curators, and students or any Scratcher can be individually added as curators.

Method 1: Create a studio that automatically adds all students in a class as curators



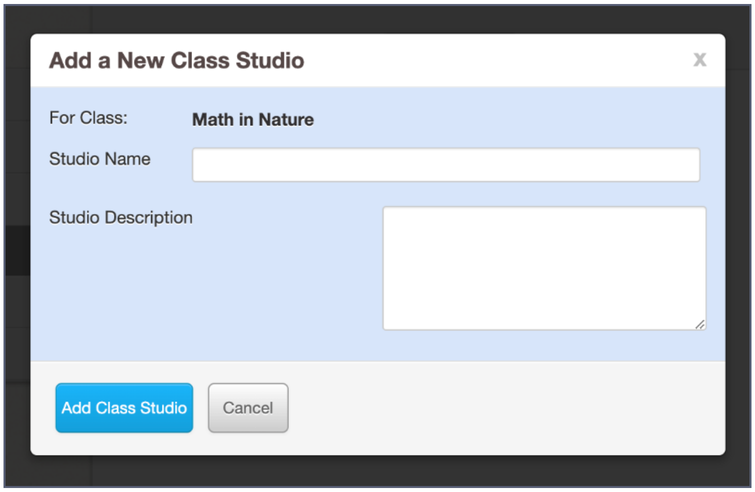


Add studios to this class

Students can add their projects to class studios.

Once logged into your Scratch account, go to "My Classes."

Choose the class to assign the studio to, then click on "Studios" (either the link under the class name or the Studios tab). Then click the "+ New Class Studio" button.

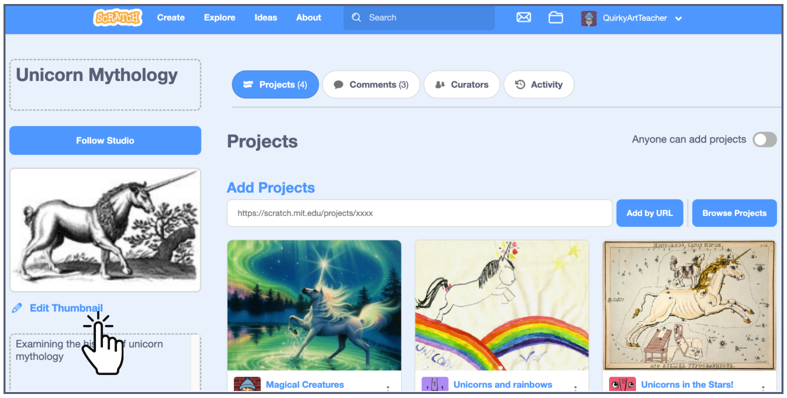


Add a New Class Studio

For Class: **Math in Nature**

Studio Name

Studio Description



Unicorn Mythology

Examining the [illegible] unicorn mythology

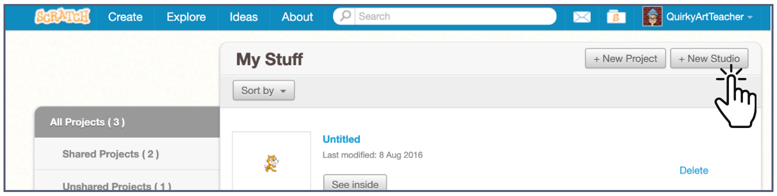
On the window that appears, you will be asked to **give the studio a name and description**. (These can always be adjusted in the studio later.) In the description, you can share the theme of the studio, what kinds of projects you are looking to include… Just be sure your title and description don't reveal any personal information (like school name or first and last name).

Then, click the "Add Class Studio" button.

Once in the studio, click the "Edit Thumbnail" button to change the default gray cat image in the upper left-hand corner. **Upload your own studio thumbnail image**. The maximum file size for a thumbnail is 512 KB and your image must be less than 500x500 pixels.

When you click on the "Curators" tab, you should see all the class students have been set as studio curators.

Method 2: Create a studio without automatically adding students as curators

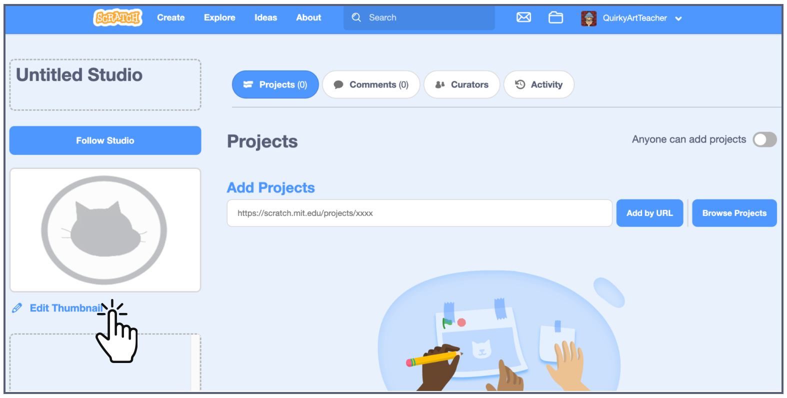


My Stuff

Untitled
Last modified: 8 Aug 2016

Once logged into your Scratch account, go to "My Stuff."

Choose the "**+ New Studio**" button at the top right.



Click on “Untitled Studio” to **give your studio a name and description**. In the description, you can share the theme of the studio, what kinds of projects you are looking to include… Just be sure your title and description don’t reveal any personal information (like school name or first and last name).

Click the “Edit Thumbnail” button to change the default gray cat image in the upper left-hand corner. **Upload your own studio thumbnail image**. The maximum file size for a thumbnail is 512 KB and your image must be less than 500x500 pixels.

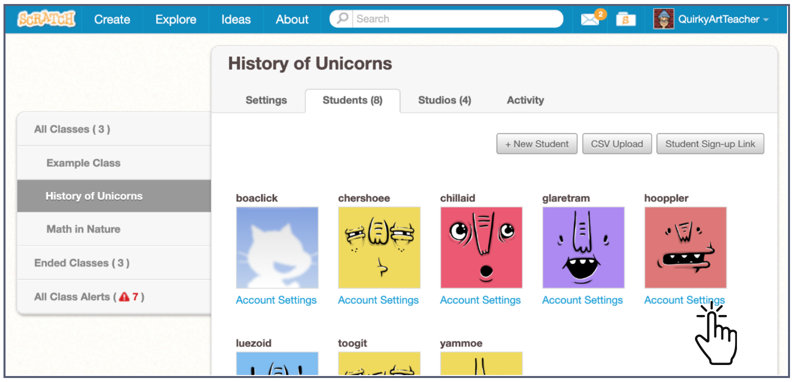
When you click on the “Curators” tab, you should see no curators have been assigned yet.

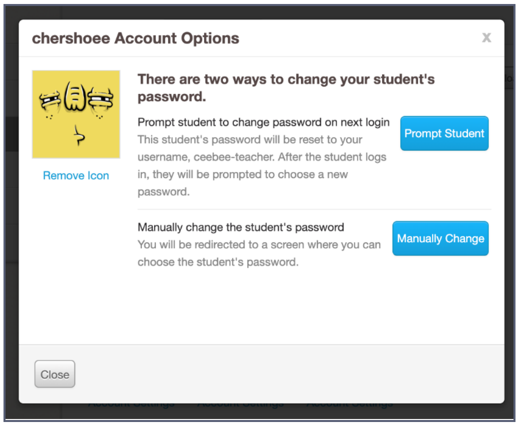
See our Studio Guide for detailed information on:

- Studio Definitions
- How to Manage a Studio
- How to Add Projects to a Studio

Managing Your Students

Managing a student





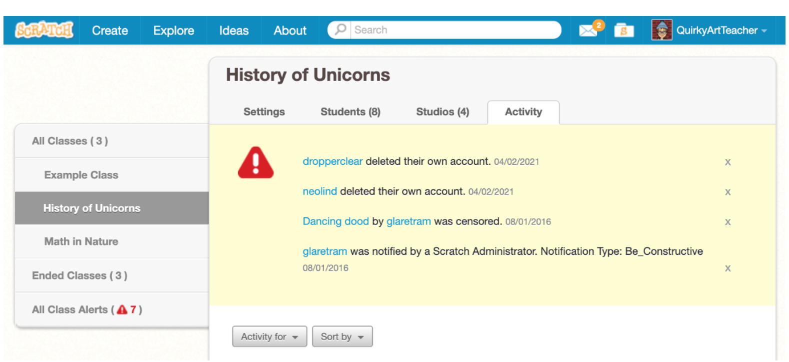
There are two ways to change your student's password.

Prompt student to change password on next login
This student's password will be reset to your username, ceebee-teacher. After the student logs in, they will be prompted to choose a new password.

Manually change the student's password
You will be redirected to a screen where you can choose the student's password.

You can manually **reset a student password** from within your Scratch Teacher Account. First, navigate to “My Classes” and choose the class and go to the “Students” tab. Then click on the “Account Settings” link below the student’s account.

You cannot delete a student’s account by using a Teacher Account, but students can delete their own account.



dropperclear deleted their own account. 04/02/2021

neolind deleted their own account. 04/02/2021

Dancing dood by glaretram was censored. 08/01/2016

glaretram was notified by a Scratch Administrator. Notification Type: Be_Constructive 08/01/2016

You can see alerts about notifications your students receive on the “Activity” tab of a class or the “All Class Alerts” tab.

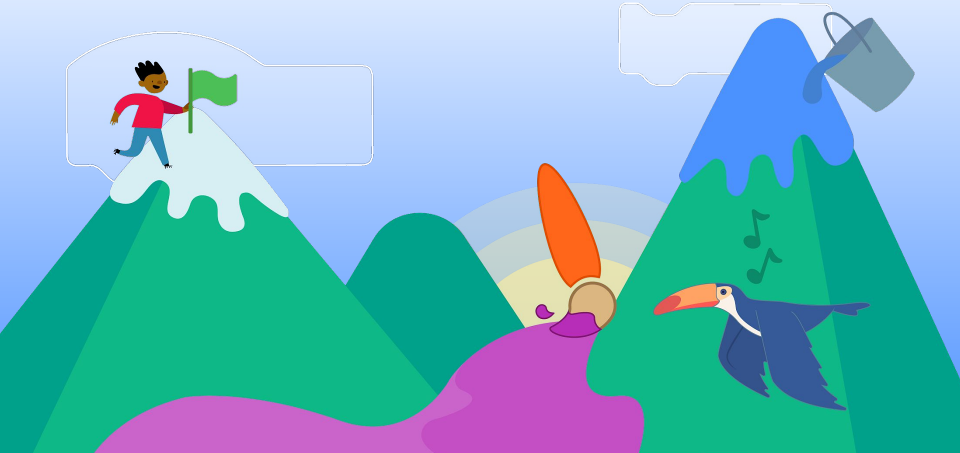
Tip: If you’d like to translate this guide, **click here to make a copy** of this Google doc.

Getting Started with

SCRATCH

Beginner's Guide

Create your own games, animations, interactive stories, and more.

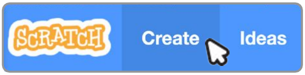


GETTING STARTED

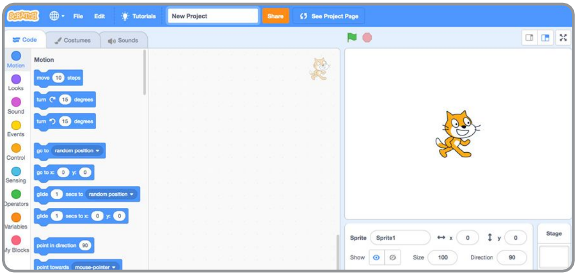
You can use Scratch online at: **scratch.mit.edu**

scratch.mit.edu

Once you've navigated to scratch.mit.edu, click **Create**.



This will bring you to the **Scratch Editor,** where you can start creating projects.

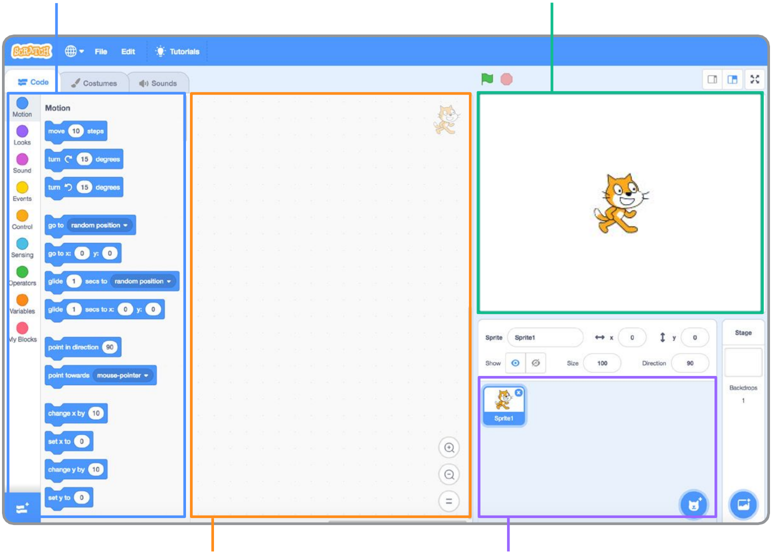


If your computer uses an older operating system, or your internet connection is unreliable, you can download Scratch and use it offline.

Visit: **https://scratch.mit.edu/download** for information on downloading and installing the Scratch app.

THE SCRATCH EDITOR

The Scratch Editor is where you create projects in Scratch. Here are its main parts:



Blocks Palette

Blocks for coding your projects

The Stage

Where your creations come to life

Coding Area

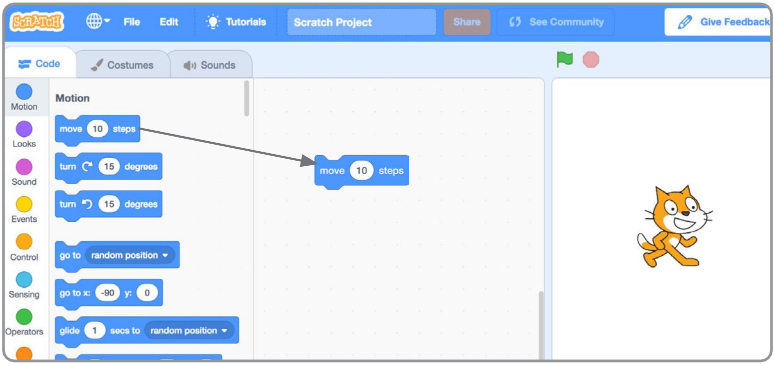
Drag in blocks and snap them together to code your sprites

Sprite List

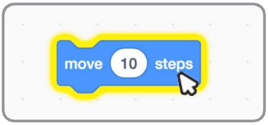
Click the thumbnail of a sprite to select it

LET’S CODE!

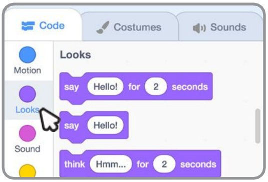
To code projects in Scratch, you snap together blocks. Start by dragging out a **move** block.



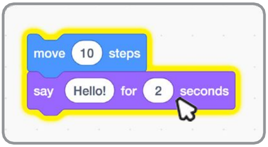
Click the block to try it.
Does your cat move?



Now say something!
Click the **Looks** category.

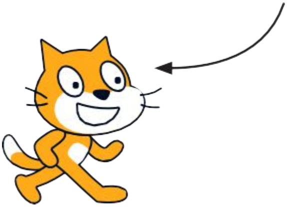


Drag out a **say** block.
Snap it onto the **move** block. Click on your blocks to try them.

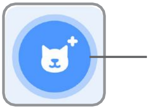


WHAT IS A SPRITE?

In Scratch, any character or object is called a sprite. Every new project in Scratch starts with the Cat sprite.

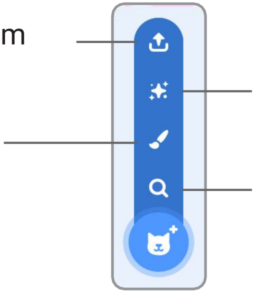


Want to choose a different sprite?



Click the New Sprite icon.

Or, hover over the **New Sprite** icon to see more options.



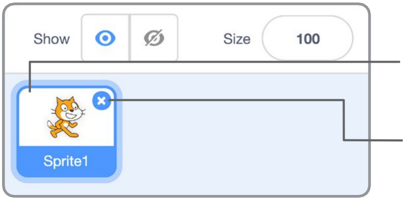
Upload an image from your computer.

Draw your own sprite.

Click for a surprise sprite!

Choose a sprite from the library.

Want to **delete a sprite** from your project?



First, select the sprite by clicking on its thumbnail in the Sprite List.

Then, click here to delete the sprite.

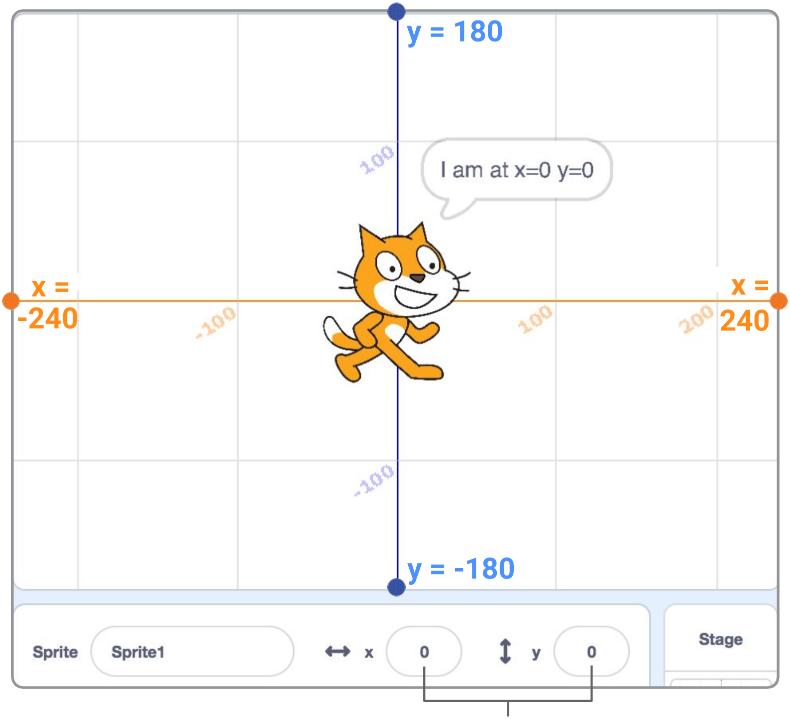
WHERE IS YOUR SPRITE?

Every sprite has an **x** and **y** position on the Stage.

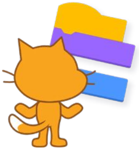
x is the position of the sprite from left-to-right.

y is the position from top-to-bottom.

At the very center of the stage, **x** is 0 and **y** is 0.



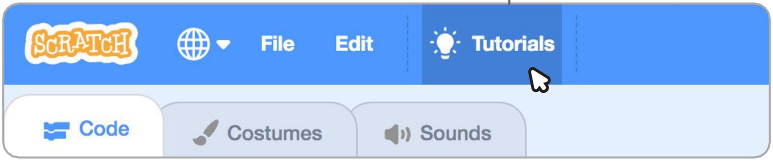
When you move your sprite, you can see its **x** and **y** position change.



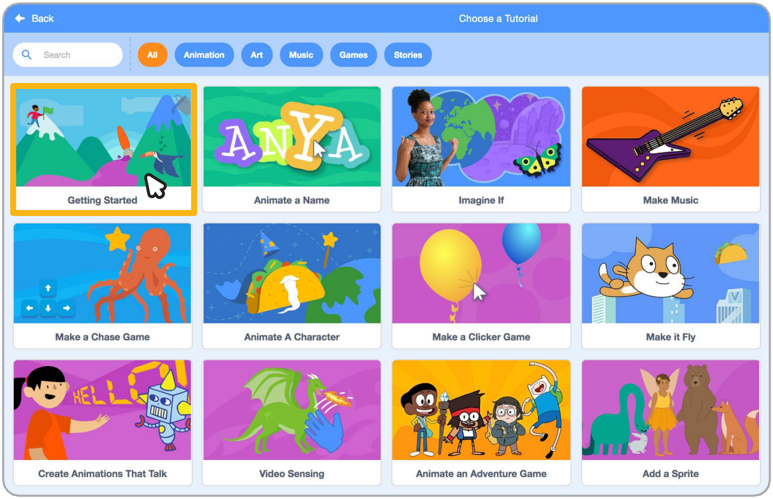
TUTORIALS

There are a range of tutorials available in the Scratch **Tutorials Library**, which guide learners in creating projects with Scratch. Students can get started making their own stories, animations, and games.

You can get to the Tutorials Library from the Scratch Editor by clicking the **Tutorials** button.



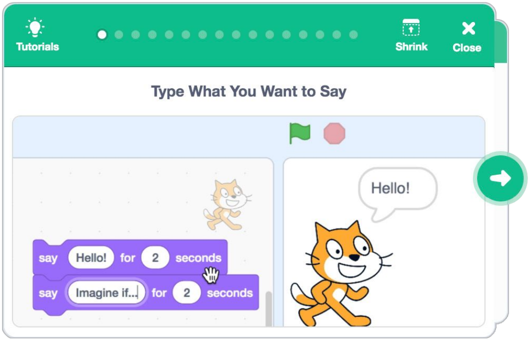
The **Getting Started** tutorial will walk you through the basics.



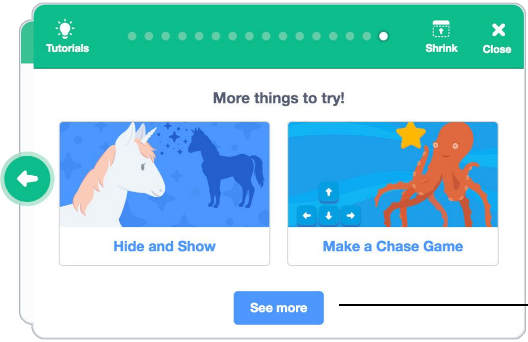
TUTORIALS

Once you've selected the tutorial, it will open in the Scratch Editor.

Click the green arrow to see each step.



When you've reached the end of a tutorial you can select another tutorial, and keep adding to your project.



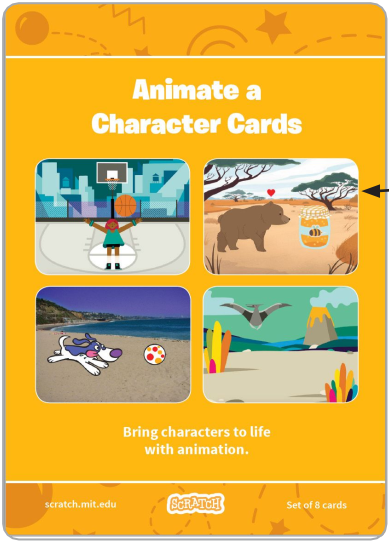
Click here to see all the Tutorials.

CODING CARDS

The Scratch **Coding Cards** provide another way to learn to create projects with Scratch. Download the cards at **scratch.mit.edu/ideas**.

Each set of cards starts with a title card, which shows you what you can create.

The **Animate a Character** cards are a great set to start with.



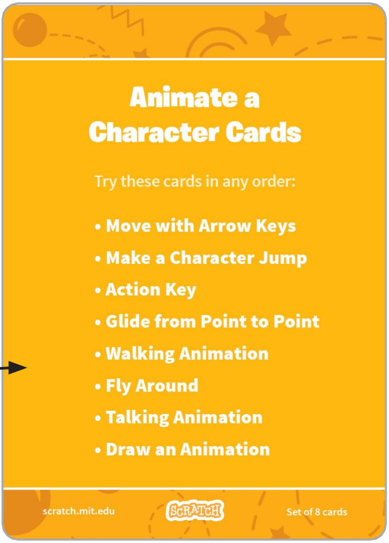
Animate a Character Cards

Bring characters to life with animation.

scratch.mit.edu

Set of 8 cards

Examples of what you can create



Animate a Character Cards

Try these cards in any order:

- **Move with Arrow Keys**
- **Make a Character Jump**
- **Action Key**
- **Glide from Point to Point**
- **Walking Animation**
- **Fly Around**
- **Talking Animation**
- **Draw an Animation**

scratch.mit.edu

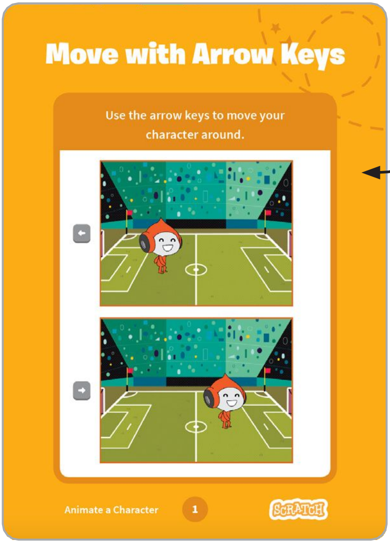
Set of 8 cards

A list of all the cards in this set

USING THE CODING CARDS

After each title card is a series of cards walking you through each step of creating a project.

Add your own sprites, backdrops and more!

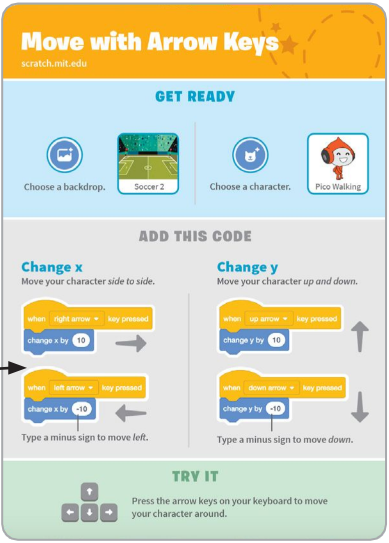


Move with Arrow Keys

Use the arrow keys to move your character around.

Animate a Character 1 SCRATCH

The front of each card shows you what you can create.



Move with Arrow Keys

scratch.mit.edu

GET READY

Choose a backdrop. Soccer 2

Choose a character. Pico Walking

ADD THIS CODE

Change x

Move your character *side to side.*

```
when right arrow key pressed
change x by 10
```

```
when left arrow key pressed
change x by -10
```

Type a minus sign to move *left.*

Change y

Move your character *up and down.*

```
when up arrow key pressed
change y by 10
```

```
when down arrow key pressed
change y by -10
```

Type a minus sign to move *down.*

TRY IT

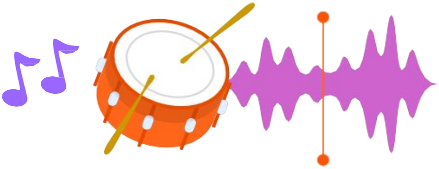
Press the arrow keys on your keyboard to move your character around.

The back shows you how to do it.

GET CREATIVE!

Encourage students to use their imagination as you create projects. There are many different ways they can make their Scratch projects unique.

You can choose or draw your own characters.



Choose a sound or record your own.

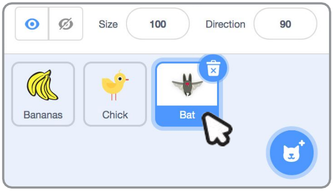
Try changing numbers or adding blocks to your code to see what happens.

Experiment and customize your project however you want!

GET CREATIVE WITH SPRITES!

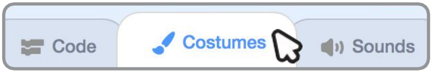
Scratch has its own paint tools, which allow you to customize sprites from the library, or even create sprites of your own.

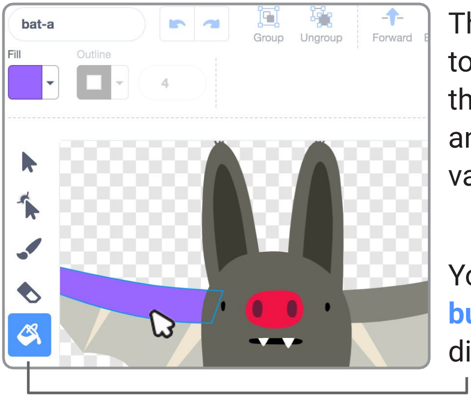
Let's start by editing a sprite from the library.



Select a sprite to edit by clicking on it in the Sprite list.

Click the **Costumes** tab at the top left to see the paint tools.





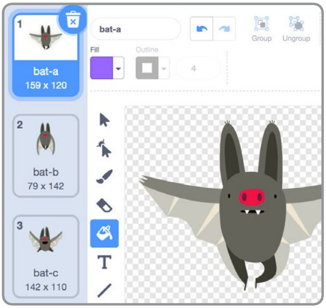
The paint tools allow you to recolor sprites, add to them with a paint brush, and change them in a variety of ways.

You can use the **paint bucket** tool to recolor different parts of a sprite.

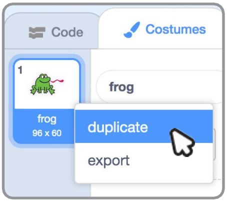
GET CREATIVE WITH SPRITES!

Some sprites, like the Bat sprite have multiple costumes, or poses.

You can see a sprite's costumes by clicking the **Costumes** tab.

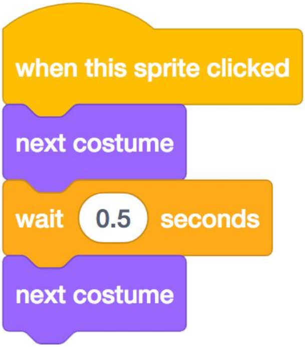


If your sprite only has one costume, right click on the costume to duplicate it (On Mac control + click).



Now you can modify the second costume using the paint tools, so your sprite has two different poses or facial expressions.

Click the **Code** tab, then try adding these blocks.

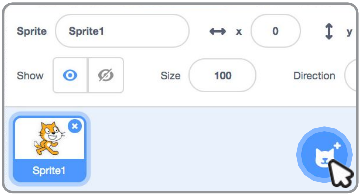


```
when this sprite clicked
next costume
wait 0.5 seconds
next costume
```

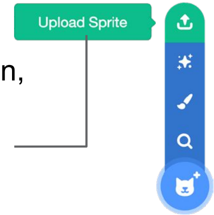
ADD YOUR OWN PHOTOS

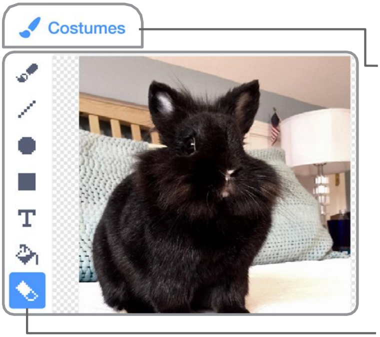
There are many ways to create your own sprites and artwork using the Scratch paint tools.

You can create your own sprites by uploading photos or images and erasing the background.



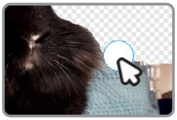
Hover over the New Sprite button, then select **Upload Sprite**.

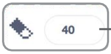




Next click the **Costumes** tab. You will see bitmap tools for editing your image.

Click the **eraser** icon and use the eraser tool to remove the background from your photo.





Tip: to adjust the size of the eraser, type a larger or smaller number.

There are two modes for drawing in Scratch:

1. **Bitmap Mode** allows you to edit photos and paint with pixels.
2. **Vector Mode** allows you to create and edit shapes.

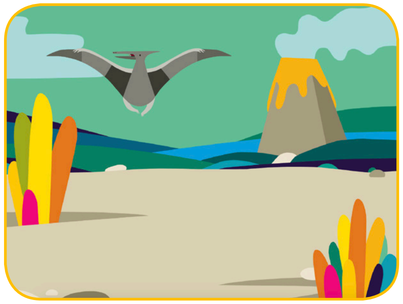
Tip: If you'd like to remix and customize this guide, **click here to make your own copy** of the Google Slides template.

| | | | | | | | | | | COLOR SCHEME

EDUCATOR GUIDE

Animate a Character

With this guide, you can plan and lead a 55-minute lesson using Scratch. Students will gain experience with coding as they bring characters to life with animation.



Lesson Outline

Objective: Students will become familiar with the Scratch environment by animating a character.

IMAGINE
10 minutes

First, gather as a group to introduce the theme and spark ideas.

CREATE
40 minutes

Next, help students as they animate characters, working at their own pace through the tutorial.

SHARE
5 minutes

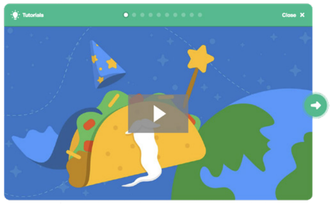
At the end of the session, gather together to share and reflect.

Get Ready for the Lesson

Use this checklist to prepare for the lesson.

□ Preview the Tutorial

The*Animate a Character* tutorial shows students how to create their own projects. Preview the tutorial before your lesson and try the first few steps: scratch.mit.edu/tutorials



□Print the Activity Cards (optional)

Print a few sets of*Animate a Character* cards to have available for students during the lesson.
scratch.mit.edu/ideas

□ Make sure students sign into their Scratch accounts

Have students sign into their own Scratch accounts at scratch.mit.edu.

□ Set up computers or laptops

Arrange computers so that students can work individually or in pairs.

□ Set up a computer with projector or large monitor

You can use a projector to show examples and demonstrate how to get started.

Imagine

IMAGINE

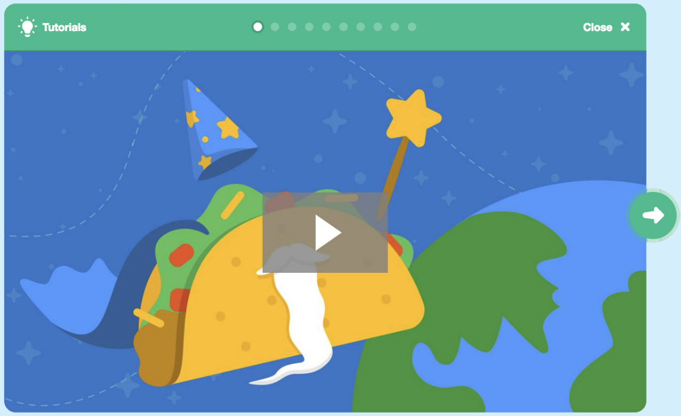
Begin by gathering the students to introduce the theme and spark ideas for projects.

Warm-up Activity: Favorite Characters

Gather the group in a circle. Ask each student to say their name, then share a favorite character from a book, movie, or TV show, and one or two of their favorite things about that character.

Provide Ideas and Inspiration

To spark ideas, watch the Animate a Character video at the start of the tutorial. The video shows a variety of projects to spark ideas and inspiration.



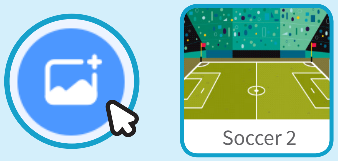
View the scratch.mit.edu/ideas

Demonstrate the First Steps

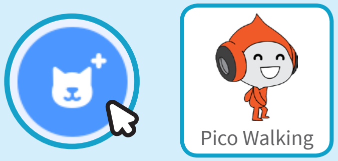
IMAGINE

Demonstrate the first few steps of the tutorial so students can see how to get started.

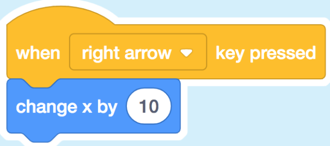
Choose a backdrop.



Choose a character to animate.

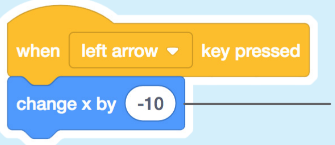


Make your sprite move right and left with arrow keys:



```
when [right arrow ▾] key pressed
change x by (10)
```

Choose right arrow from the menu.



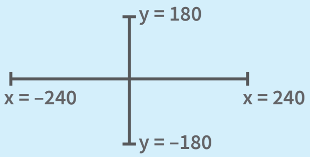
```
when [left arrow ▾] key pressed
change x by (-10)
```

Choose left arrow from the menu.

Type a minus sign to move left.

Press the left arrow and right arrow keys on your keyboard to move. ↑ ↓

Helpful Hint: Understanding x y coordinates will help students figure out how to move sprites around the stage.



y is the position on the Stage from top to bottom.

x is the position on the Stage from right to left.

Create

CREATE

Support students as they create animated Scratch projects.

Start with Prompts

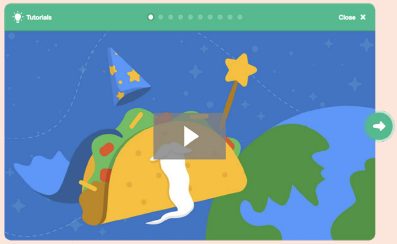
Ask students questions to get started

Which character would you like to animate?

What do you want your character to do?

Provide Resources

Offer options for getting started



Some students may want to follow the online tutorial: scratch.mit.edu/animate

Others may want to explore using the activity cards: scratch.mit.edu/ideas

Suggest Ideas for Starting

- Choose a character to animate.
- Animate your character: make it jump, fly, glide or talk!
- Choose a backdrop.

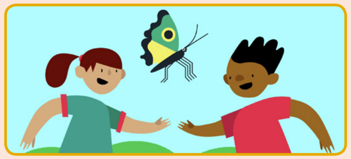
CREATE

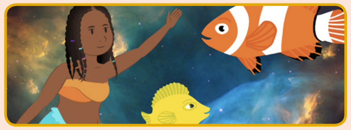
More Things to Try

- Try combining more than one kind of animation.
- If you're not sure what to do, pick a card and try something new.
- Add a second character or object to animate.

Support collaboration

- When someone gets stuck, connect them to another participant who can help.
- See a cool idea? Ask the creator to share with others.





Encourage experimenting

The Animate a Character activity can be done in any order, with a range of different character and object sprites.

Encourage students to try new things:

What will your character do next?

How can you make your animation interactive?

Share

SHARE

Have students share their project with their neighbors.

Ask questions they can discuss:

What do you like best about the project you made?

What was the hardest part?

If you had more time, what would you add or change?

What's Next?

Students can use the ideas and concepts from this lesson to create a wide variety of projects. Encourage them to continue developing their projects into games, stories or interactive art with the resource listed below.

Video Sensing

Interact with characters and objects in Scratch with video sensing.

Find this project and more in the Tutorials library: **scratch.mit.edu/ideas**

Scratch is a project of the Lifelong Kindergarten Group at the MIT Media Lab.

EDUCATOR GUIDE

Make It Fly

With this guide, you can plan and lead a 55-minute lesson using Scratch. Students will choose a character and program it to fly.

Lesson Outline

Objective: Students will create an animation with the illusion of a flying character.

IMAGINE
10 minutes

First, gather as a group to introduce the theme and spark ideas.

CREATE
40 minutes

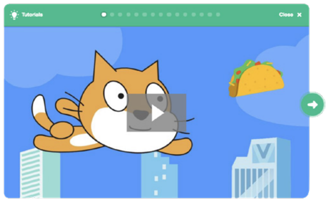
Next, help students as they create a flying animation, working at their own pace through the tutorial.

SHARE
5 minutes

At the end of the session, gather together to share and reflect.

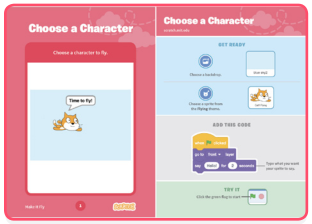
Get Ready for the Lesson

Use this checklist to prepare for the lesson.



□ Preview the Tutorial

The *Make It Fly* tutorial shows students how to create their own projects. Preview the tutorial before your lesson and try the first few steps: scratch.mit.edu/fly



□ Print the Activity Cards (optional)

Print a few sets of *Make It Fly* cards to have available for students during the lesson.
scratch.mit.edu/fly/cards

□ Make sure students sign into their Scratch accounts

Have students sign into their own Scratch accounts at scratch.mit.edu.

□ Set up computers or laptops

Arrange computers so that students can work individually or in pairs.

□ Set up a computer with projector or large monitor

You can use a projector to show examples and demonstrate how to get started.

Imagine

IMAGINE

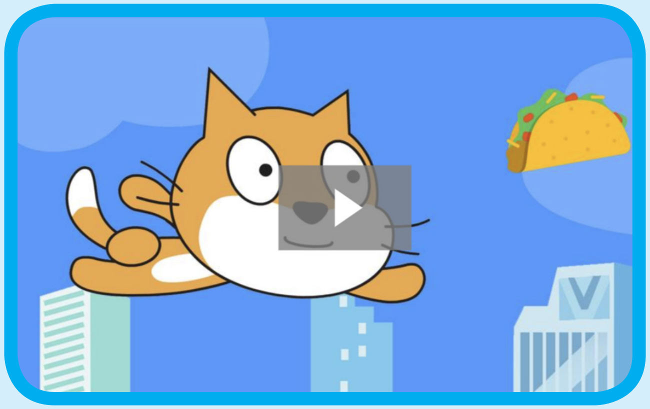
Begin by gathering the students to introduce the theme and spark ideas for projects.

Warm-up Activity: If I Could Fly...

Gather the group in a circle and ask, “If you could fly, where would you want to go?” Suggest that they close their eyes and imagine flying through their favorite place. Ask, “Where are you? What kinds of things do you see below you?” If there’s time, have each person say where they imagined flying or something they saw on their flight.

Provide Ideas and Inspiration

Show the introductory video for the *Make It Fly* tutorial. The video shows a variety of projects for ideas and inspiration.



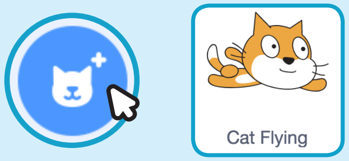
View at scratch.mit.edu/fly or vimeo.com/llk/fly

Demonstrate the First Steps

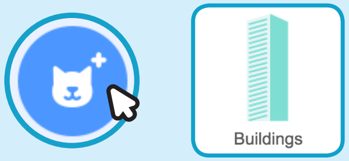
IMAGINE

Demonstrate the first few steps of the tutorial so students can see how to get started.

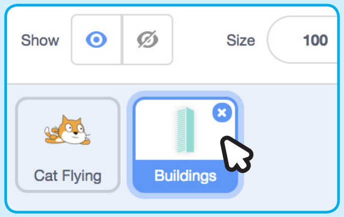
In Scratch, click Create.
Choose a flying sprite from the library:

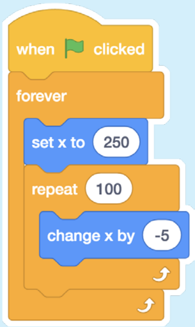


Choose a new sprite for your character to fly past:



Make the building move across the stage to make your character look like it's flying:





```
when 🏁 clicked
forever
  set x to 250
  repeat 100
    change x by -5
```

Create

CREATE

Support students as they make a flying animation.

Start with Prompts

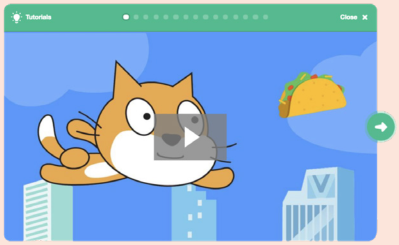
Ask students questions to get started

What character would you like to make fly?

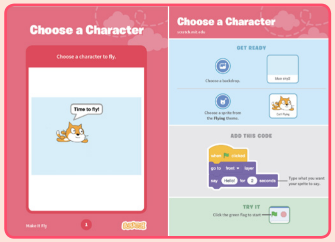
Where will your character go flying?

Provide Resources

Offer options for getting started



Some students may want to follow the online tutorial: scratch.mit.edu/fly



Others may want to explore using the activity cards: scratch.mit.edu/fly/cards

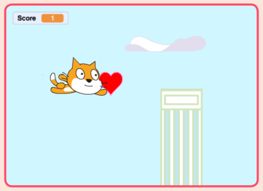
Suggest Ideas for Starting

- Choose a character
- Make the character say something
- Choose buildings or other scenery
- Make the scenery move

CREATE

More Things to Try

- Switch costumes to change the scenery.
- Make your character move when you press a key.
- Add clouds and other floating objects.
- Score points when touching an object.



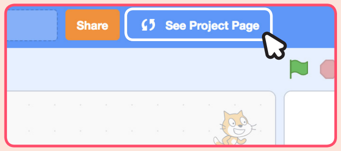
Encourage Debugging

Here are some strategies to suggest to help students fix any bugs or difficulties they encounter:

- When stuck, talk out what you're working on with someone.
- Try out small bits of code at a time to figure out what's happening at each step.
- Look closely at the blocks on the tutorial or activity cards to see if they are the same or different from the blocks you're using.
- Remember that bugs always arise when creating a computer program. Debugging is a helpful skill to know not just in coding, but throughout life.

Prepare to Share

To add instructions and credits to a project, click the button: "See project page".



Give your project a title, add instructions and credits, then click Share.

Share

SHARE

Share projects with others in the room. Organize a flying character showcase. Ask half the room show their projects, while the others view them. Then switch.

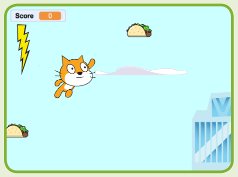
Suggest that they ask each other questions, such as:

What do you like best about the project you made?

What might you like to change or make next?

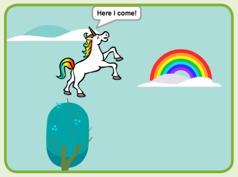
What's Next?

Students can use the ideas and concepts from this lesson to create other projects. Here are a couple of variations on the flying character project you could suggest.



Flying Game

Make a game where you avoid some objects and try to catch others. Add or subtract points based on what your character touches.



Flying Stories

Tell a story about your flying characters. You can record your voice and play sound clips. Or, use say blocks to make voice bubbles.

EDUCATOR GUIDE

Make a Chase Game

With this guide, you can plan and lead a 55-minute lesson using Scratch. Students will make a game that includes a variable to keep score.

Lesson Outline

Objective: Students will create a game using sensing.

IMAGINE
10 minutes

First, gather as a group to introduce the theme and spark ideas.

CREATE
40 minutes

Next, help students as they make chase games, working at their own pace through the tutorial.

SHARE
5 minutes

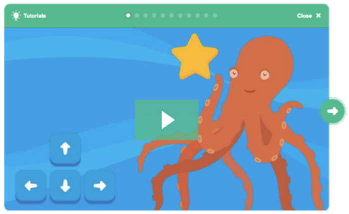
At the end of the session, gather together to share and reflect.

Get Ready for the Lesson

Use this checklist to prepare for the lesson.

□ Preview the Tutorial

The *Make a Chase Game* tutorial shows students how to create their own projects. Preview the tutorial before your lesson and try the first few steps,



□ Print the Activity Cards (optional)

Print a few sets of *Chase Game* cards to have available for students during the lesson. You can download the cards at: scratch.mit.edu/ideas

□ Make sure students sign into their Scratch accounts

Have students sign into their own Scratch accounts at scratch.mit.edu.

□ Set up computers or laptops

Arrange computers so that students can work individually or in pairs.

□ Set up a computer with projector or large monitor

You can use a projector to show examples and demonstrate how to get started.

Imagine

IMAGINE

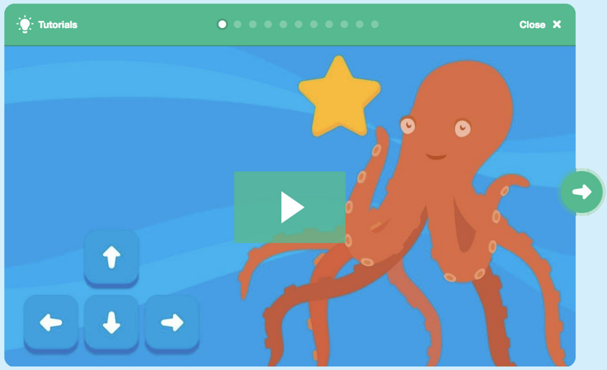
Begin by gathering the students to introduce the theme and spark ideas for projects.

Warm-up Activity: Imaginary Chase

Gather the students in a circle. Start by giving an example of one thing chasing another, such as “The dog is chasing the dinosaur.” The next person adds on, such as, “The dinosaur is chasing a donut.” The following person adds on by saying, “The donut is chasing a duck.” or whatever creature or object they choose. Continue until each person has added on to this imaginary game of chase.

Provide Ideas and Inspiration

To spark ideas, watch the Make a Chase Game video at the start of the tutorial.



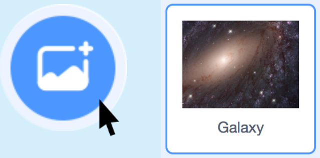
View the video at scratch.mit.edu/chase

Demonstrate the First Steps

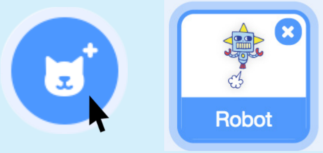
IMAGINE

Demonstrate the first few steps of the tutorial so students can see how to get started.

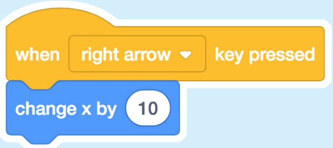
Choose a backdrop.



Choose a Sprite, like Robot.

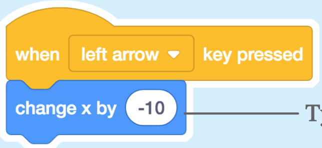


Make your sprite move right and left with arrow keys.



```
when right arrow key pressed
change x by 10
```

Choose right arrow from the menu.



```
when left arrow key pressed
change x by -10
```

Choose left arrow from the menu.

Type a minus sign to move left.

Press the left arrow and right arrow keys on your keyboard to move.

Discuss next steps they can try, such as coding the sprite to move up and down and adding a sprite to chase.

Create

CREATE

Support students as they create catch games. Suggest working in pairs.

Start with Prompts

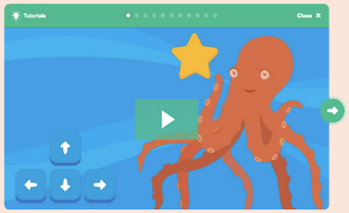
Ask students questions to get started

Which backdrop would you like to choose for your game?

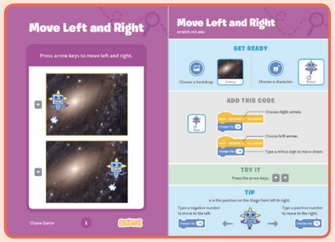
Who do you want as the main character in your game? What will it chase?

Provide Resources

Offer options for getting started



Some students may want to follow the online tutorial: scratch.mit.edu/chase



Others may want to explore using the printed cards: scratch.mit.edu/ideas

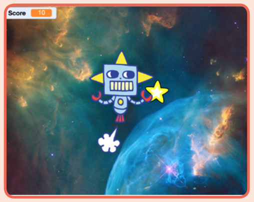
Suggest Ideas for Starting

- Choose a backdrop
- Choose or draw a main character
- Make it move with arrow keys.
- Select an object to chase.

CREATE

More Things to Try

- Code the star or other sprite to chase
- Add a variable to keep score
- Add sounds
- Add a level
- Show a message when reaching the new level



Encourage Tinkering

- Encourage students to feel comfortable trying combinations of blocks and seeing what happens.
- Suggest students look inside other chase games to see the code.
- If they find code they like, they can drag the scripts or sprites into the backpack to reuse in their own project.

Prepare to Share

To add instructions and credits to a project, click the button: *"See project page"*.

Share

SHARE

Have students share their projects with their neighbors.

Ask questions that encourage reflection:

What do you like best about your game?

If you had more time, what would you add or change?

What's Next?

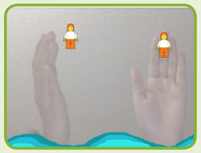
Chase Game projects provide an introduction to creating interactive games in Scratch. Here are a few ways that learners can build on the concepts they learned from this project.

Add Obstacles

For a more complex game, add obstacles to avoid. Subtract points when you hit the obstacles.

Make a Two-Player Game

For an extra challenge, make a version of the game that allows two players to play.



Video Sensing

If the computers have a web camera attached or built-in, learners can make a game that they interact by moving their bodies. See the Video Sensing tutorial and educator guide for support.

Created by the Scratch Team

EDUCATOR GUIDE

Pong Game

With this guide, you can plan and lead a 55-minute lesson using Scratch. Students will gain experience with coding as they design a bouncing ball game.

Lesson Outline

Objective: Students will develop an interactive game using variables to keep score.

IMAGINE
10 minutes

First, gather as a group to introduce the theme and spark ideas.

CREATE
40 minutes

Next, help students as they make games, working at their own pace through the tutorial.

SHARE
5 minutes

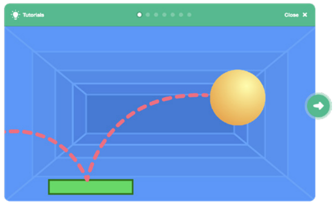
At the end of the session, gather together to share and reflect.

Get Ready for the Lesson

Use this checklist to prepare for the lesson.

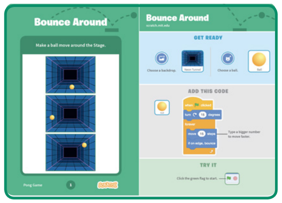
□ Preview the Tutorial

The*Pong Game* tutorial shows students how to create their own projects. Preview the tutorial before your lesson and try the first few steps: scratch.mit.edu/pong



□ Print the Activity Cards (optional)

Print a few sets of*Pong Game* cards to have available for students during the lesson.
scratch.mit.edu/ideas



□ Make sure students sign into their Scratch accounts

Have students sign into their own Scratch accounts at scratch.mit.edu.

□ Set up computers or laptops

Arrange computers so that students can work individually or in pairs.

□ Set up a computer with projector or large monitor

You can use a projector to show examples and demonstrate how to get started.

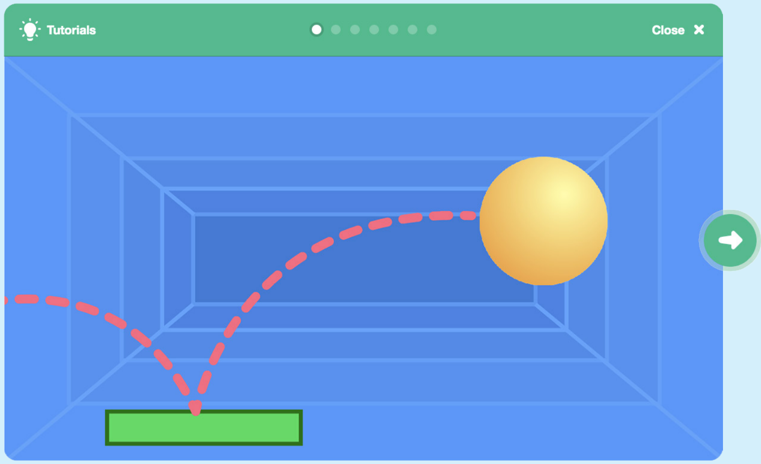
Imagine

IMAGINE

Begin by gathering the students to introduce the theme and spark ideas for projects.

Provide Ideas and Inspiration

Show the introductory video for the *Pong Game* tutorial. The video shows pong games with a variety of themes, including everything from soccer to a magic potion-themed Pong game.



View at scratch.mit.edu/pong

Warm-up Activity: Bouncing Ideas

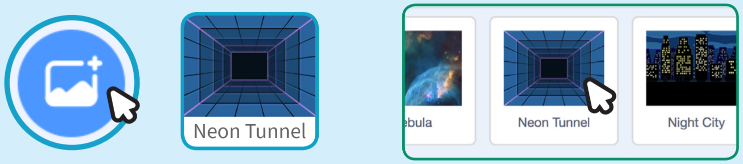
To get students thinking about a theme for their game, take turns calling out a theme, such as pizza pong or flower pong and brainstorming ideas for the type of images they could use to represent the theme.

Demonstrate the First Steps

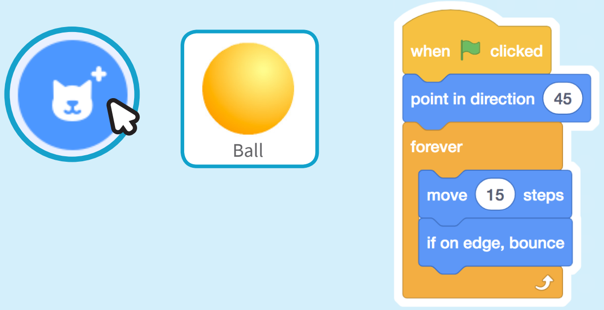
IMAGINE

Demonstrate the first few steps of the tutorial so students can see how to get started.

Go to the Scratch website. Click Create. Choose a new backdrop:

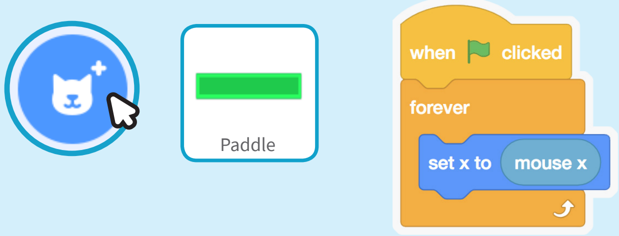


Choose a ball sprite and make it bounce around:



when 🏁 clicked
point in direction 45
forever
move 15 steps
if on edge, bounce

Add a paddle sprite and control it with the mouse:



when 🏁 clicked
forever
set x to mouse x

Create

CREATE

Support students as they create pong games, on their own or in pairs.

Start with Prompts

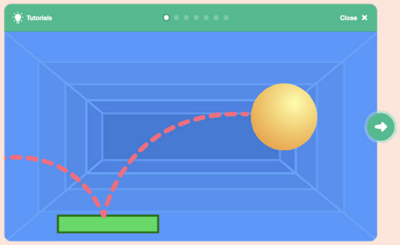
Ask students questions to get started

What background do you want for your game?

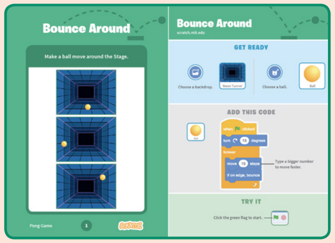
What color or type of ball?

Provide Resources

Offer options for getting started



Some particpants may want to follow the online tutorial: scratch.mit.edu/pong



Others may want to use the printed activity cards: scratch.mit.edu/ideas

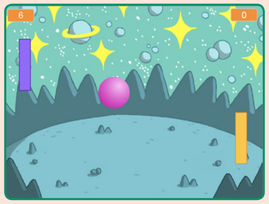
Suggest Ideas for Starting

- Choose a backdrop
- Choose or draw a ball sprite and make it bounce around
- Add a paddle sprite that you can control
- Make the ball bounce off the paddle

CREATE

More Things to Try

- Add sounds and color effects
- Keep score by adding a variable
- Add a way to win or lose the game
- Change the backdrop when you reach a certain number of points
- Duplicate the ball for an added challenge



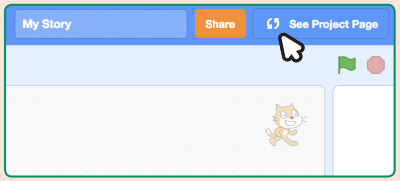
Offer strategies for problem solving

- Talk out what you're working on with someone
- Try out small bits of code at a time to figure out what's happening at each step
- Look closely at the blocks on the tutorial or activity cards to see if they are the same or different from the blocks you're using
- Look at the code for other pong games on the Scratch site

Prepare to Share

To add instructions and credits to a project, click the button: "See project page".

Then click the Share button if you want the project visible to others online.



Share

SHARE

Have participants share their projects with others in the room.

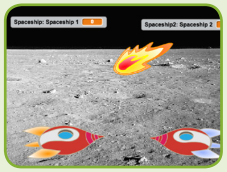
Ask questions to encourage reflection:

What did you notice about the games you tried?

What ideas might you add to your game?

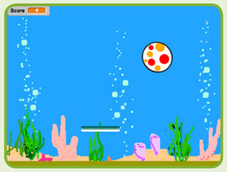
What's Next?

Here are a couple of other directions you could suggest:



Two-Player Game

For a more advanced project, try making a two-player game. To make a new version of your own project, click **File > Save as a Copy.**



Remix a Game

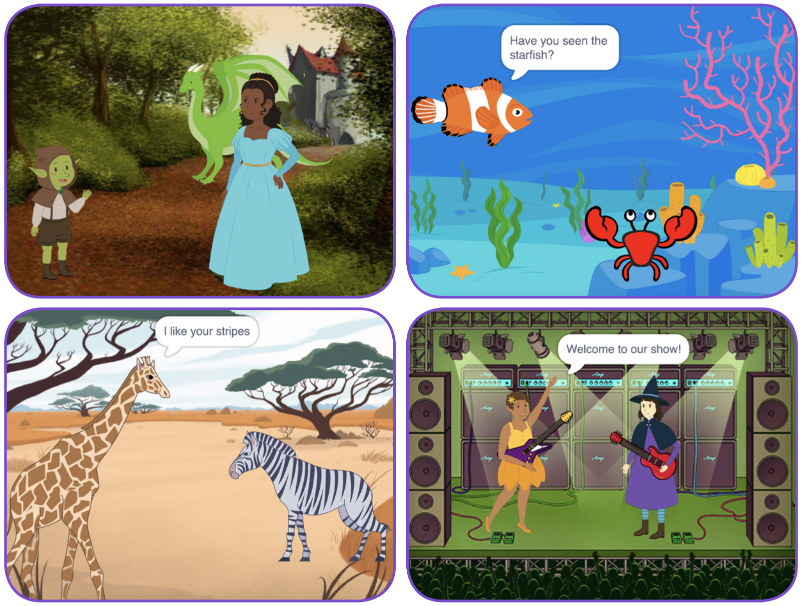
A different way to make a pong game is to remix someone else's project, adding images and ideas. Find a project to remix in the **Pong Game Studio**: scratch.mit.edu/studios/644508/ Click '**See inside**', then click the '**Remix**' button.

Scratch is a project of the Lifelong Kindergarten Group at the MIT Media Lab.

EDUCATOR GUIDE

Create a Story

With this guide, you can plan and lead a 55-minute lesson using Scratch. Students will create a story with settings, characters, and dialogue.



Lesson Outline

Objective: Students will create an animated story between at least two characters.

IMAGINE
10 minutes

First, gather as a group to introduce the theme and spark ideas.

CREATE
40 minutes

Next, help students as they create story projects, working at their own pace through the tutorial.

SHARE
5 minutes

At the end of the session, gather together to share and reflect.

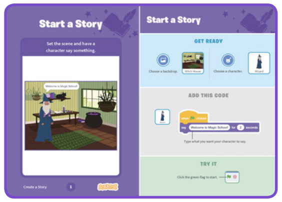
Get Ready for the Lesson

Use this checklist to prepare for the lesson.

□ Preview the Tutorial

The *Create a Story* tutorial shows students how to create their own projects. Preview the tutorial before your lesson and try the first few steps: scratch.mit.edu/story

□ Print the Coding Cards (optional)



Print a few sets of *Create a Story* cards to have available for students during the lesson. You can download from this page: scratch.mit.edu/ideas

□ Make sure students sign into their Scratch accounts

Have students sign into their own Scratch accounts at scratch.mit.edu.

□ Set up a studio for project sharing on Scratch

Set up a studio so students will be able to add their projects. Go to your ***My Stuff*** page, then click the ***+New Studio*** button. Type in a name for the studio.

□ Set up computers or laptops

Arrange computers so that students can work individually or in pairs.

Imagine

IMAGINE

Begin by gathering the students to introduce the theme and spark ideas for projects.

Warm-up Activity: Story Starters in a Bag

Have students make up a brief story by giving them a bag with three objects in it, and asking them to include all of the items in the story. In each bag, you could include small objects, pictures of animals or characters, and/or words (people, places, or things). Divide students into groups of two or three, and have each pick a bag. Give them a few minutes to come up with a quick story.

Provide Ideas and Inspiration

You can show the Create a Story tutorial video to show students how they can start making stories in Scratch.

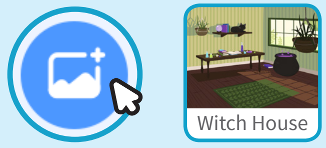
View the video at: scratch.mit.edu/story

Demonstrate the First Steps

IMAGINE

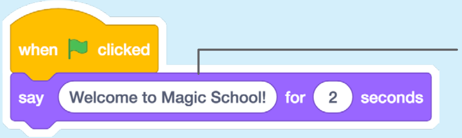
Demonstrate the first few steps of the tutorial so students can see how to get started.

In Scratch, click Create.
Choose a backdrop.



Choose any character (in Scratch called a *sprite*).

Code your character to say something.



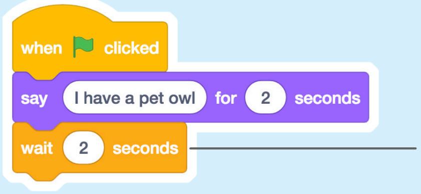
```
when [flag] clicked
say (Welcome to Magic School!) for (2) seconds
```

Type what you want your character to say.

Click the green flag to start.

Add another character.

Add code to the new character.



```
when [flag] clicked
say (I have a pet owl) for (2) seconds
wait (2) seconds
```

Use this block to have the second character wait before they say something.

Create

CREATE

Support students as they create Story projects, on their own or in pairs.

Start with Prompts

Ask students questions to get started

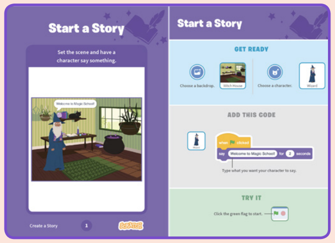
Where will your story take place?

What will happen first?

Provide Resources

Offer options for getting started

Some students may want to follow the online tutorial: scratch.mit.edu/story



Others may want to explore using the coding cards: scratch.mit.edu/ideas

Suggest Ideas for Starting

- Choose a backdrop.
- Choose a character.
- Make a character say something
- Make a character hide and show.

CREATE

More Things to Try

- Switch backdrops.
- Make your characters have a conversation.
- Move your characters.
- Change something when you click on it.

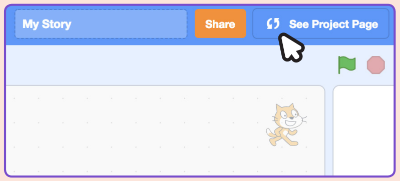
Support Tinkering

Scratch is designed to support creating by experimenting and tinkering. So, your students may want to start their stories without planning beforehand. As they create, one idea can spark another. Celebrate their sparks of creativity and the unexpected turns their stories may take.

Prepare to Share

To add instructions and credits to a project, click the button: "See project page".

Then click the Share button if you want the project visible to others online.



Share

SHARE

Help the students add their projects to a shared studio in Scratch. Give them a link to the studio. Then they can click 'Add Projects' at the bottom of the page.

Ask for volunteers to show their project to the group.

What's Next?

Students can use these ideas and concepts to create a variety of projects. Here are some variations on the story project you could suggest:

Retell a story

Start with a story you know and make it in Scratch. Imagine a new ending or a different setting.

Neighbourhood story

Take photos of your classroom, school, or neighborhood and use them as backdrops in your story.

Round-robin story

Give everyone 5 minutes to start a story. Then, have them switch to the next computer to add to the story. Repeat.

Created by the Scratch Team