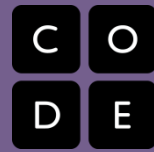


Curriculum Framework



Code.org K-5 Curriculum Course 2

Lesson 1: Graph Paper Programming (unplugged)	
Objectives	<ul style="list-style-type: none">• Understand the difficulty of translating real problems into programs.• Learn that ideas may feel clear and yet still be misinterpreted by a computer.• Practice communicating ideas through codes and symbols.
Themes	Algorithms
Practices	Collaboration, Problem Solving
Standards	ISTE: 1.b, 1.c, 2.d, 4.b, 4.d CSTA: CPP.L1:3-04, CPP.L1:6-05, CT.L1:3-03, CT.L1:6-01, CT.L1:6-02, CT.L2-07 NGSS: K-2-PS3-2, 3-5-ETS1-2 CC Mathematical Practices: 1, 2, 3, 6, 7, 8 CC Math Standards: CC Math Standards: 2.G.2 CC ELA: SL.1.1, SL.1.2, L.1.6 SL.2.1, SL.2.2, L.2.6 SL.3.1, SL.3.3, L.3.6
Lesson 2: Real Life Algorithms - Paper Airplanes (unplugged)	
Objectives	<ul style="list-style-type: none">• Name various activities that make up their day.• Decompose large activities into a series of smaller events.• Arrange sequential events into their logical order.
Themes	Algorithms
Practices	Collaboration, Problem Solving
Standards	ISTE: 1.c, 1.c, 2.b, 2.d, 4.b, 6.c CSTA: CT.L1:3-03, CT.L1:6-01, CT.L1:6-02, CT.L1:6-05, CPP.L1:3-04, CPP.L1:6-05, CT.L2-03 CT.L2-06CC NGSS: K-2-PS3-2, 3-5-ETS1-2 Mathematical Practices: 1, 2, 3, 6, 7, 8 CC Math Standards: 1.G.1 2.G.3 3.G.2 CC ELA: SL.1.1, SL.1.2, L.1.6 SL.2.1, SL.2.2, L.2.6 SL.3.1, SL.3.3, L.3.6
Lesson 3: Maze - Sequence	
Objectives	<ul style="list-style-type: none">• Express movement as a series of commands• Order movement commands as sequential steps in a program.• Represent an algorithm as a computer program• Count the number of times an action should be executed and represent



	<p>it as instructions in a program.</p> <ul style="list-style-type: none"> Recall and apply the rules of pair programming. Use pair programming to complete collaborative tasks with or without a computer Identify situations when the rules of pair programming are not followed.
Themes	Computing Practice and Programming
Practices	Problem Solving
Standards	<p>ISTE: 1.a, 1.c, 4.b, 6.a, 6.c, 6.d CSTA: CT.L1:3-01, CL.L1:3-02, CPP.L1:6-05, CPP.L1:6-06, CT.L2-01, CT.L2-06, CT.L2-08, CT.L2-12 NGSS: K-2-PS3-2, 3-5-ETS1-2 CC Mathematical Practices: 1, 2, 5, 6, 7, 8 CC Math Standards: 1.OA.A.1 2.OA.A.1 3.OA.3 CC ELA: SL.1.1, L.1.6 SL.2.1, L.2.6 SL.3.1, L.3.6</p>

Lesson 4: Artist - Sequence

Objectives	<ul style="list-style-type: none"> Create a program to complete an image using sequential steps. Select an argument for a given command. Differentiate between defining and non-defining attributes of triangles, squares, and rectangles. Draw triangles, squares, and rectangles to reflect defining attributes. Explain the difference between squares and rectangles and support it with evidence consisting of the commands used to draw the different shapes. Compare and contrast squares and rectangles by their number of sides and side lengths. Compose two-dimensional shapes (rectangles, squares, trapezoids, triangles) to create a composite shape, such as two squares to compose a rectangle and two rectangles to compose a square. Compose new shapes from composite shapes. Draw partitions into a rectangle and describe the partitions using the words halves, fourths, quarters, half of, fourth of, and quarter of. Describe a whole rectangle as two halves or four quarters. Explain that decomposing into more equal shares creates smaller shares.
Themes	Computing Practice and Programming
Practices	Creativity, Computing Practice and Programming
Standards	<p>ISTE: 1.a, 1.c, 4.b, 6.a, 6.c, 6.d CSTA: CT.L1:3-01, CL.L1:3-02, CPP.L1:6-05, CPP.L1:6-06, CT.L2-01, CT.L2-06, CT.L2-08, CT.L2-12 NGSS: K-2-PS3-2, 3-5-ETS1-2 CC Mathematical Practices: 1, 2, 4, 5, 6, 7, 8 CC Math Standards: 1.OA.1, 1.G.A.1, 1.G.A.2 2.OA.1, 2.G.A.1 3.OA.3, 3.G.A.2 CC ELA: SL.1.1, L.1.6 SL.2.1, L.2.6</p>



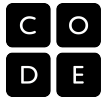
	SL.3.1, L.3.6
Lesson 5: Getting Loopy (unplugged)	
Objectives	<ul style="list-style-type: none"> Repeat actions initiated by the instructor. Translate a picture program into a live-action dance. Convert a series of multiple actions into a single loop.
Themes	Algorithms
Practices	Collaboration, Problem Solving
Standards	ISTE: 1.c, 2.d, 4.b, 6.a CSTA: CT.L1:3-03, CT.L1:6-01, CT.L1:6-02, CT.L1:6-05, CPP.L1.3-04, CPP.L1:6-05, CT.L2-03, CT.L2-06, CT.L3A-03 NGSS: K-2-PS3-2, 3-5-ETS1-2 Mathematical Practices: 1, 2, 4, 6, 7, 8 CC Math Standards: 1.MD.4 CC ELA: SL.1.1, SL.1.2, L.1.6 SL.2.1, SL.2.2, L.2.6 SL.3.1, SL.3.3, L.3.6
Lesson 6: Maze - Loops	
Objectives	<ul style="list-style-type: none"> Identify the benefits of using a loop structure instead of manual repetition. Create a program for a given task which loops a single command. Break down a long sequence of instructions into the smallest repeatable sequence possible. Create a program for a given task which loops a sequence of commands. Employ a combination of sequential and looped commands to reach the end of a maze.
Themes	Computing Practice and Programming
Practices	Problem solving
Standards	ISTE: 1.a, 1.c, 4.b, 6.a, 6.c, 6.d CSTA: CL.L1:3-02, CT.L1:3-01, CPP.L1:6-05, CPP.L1:6-06, CT.L2-01, CT.L2-06, CT.L2-08, CT.L2-12, CT.L3A-03 NGSS: K-2-PS3-2, K-2-ETS1-1, 3-5-ETS1-2 CC Mathematical Practices: 1, 2, 4, 5, 6, 7, 8 CC Math Standards: 1.OA.A.1 2.OA.A.1 3.OA.3 CC ELA: SL.1.1, L.1.6 SL.2.1, L.2.6 SL.3.1, L.3.6
Lesson 7: Artist - Loops	
Objectives	<ul style="list-style-type: none"> Count the number of times an action should be repeated and represent it as a loop. Decompose a shape into its smallest repeatable sequence. Create a program that draws complex shapes by repeating simple sequences.
Themes	Computing Practice and Programming
Practices	Problem solving
Standards	ISTE: 1.a, 1.b, 1.c, 4.b, 6.a, 6.c, 6.d



	<p>CSTA: CL.L1:3-02, CT.L1:3-01, CPP.L1:6-05, CPP.L1:6-06, CT.L2-01, CT.L2-06, CT.L2-08, CT.L2-12, CT.L3A-03 NGSS: K-2-PS3-2, K-2-ETS1-1, 3-5-ETS1-2 CC Mathematical Practices: 1, 2, 3, 4, 5, 6, 7, 8 CC Math Standards: 1.OA.1, 1.G.A.1, 1.G.A.2 2.OA.1, 2.G.A.1 3.OA.3, 3.G.A.2 CC ELA: SL.1.1, L.1.6 SL.2.1, L.2.6 SL.3.1, L.3.6</p>
<p>Lesson 8: Bee - Loops</p>	
Objectives	<ul style="list-style-type: none"> • Write a program for a given task which loops a single command. • Identify when a loop can be used to simplify a repetitive action. • Employ a combination of sequential and looped commands to move and perform actions.
Themes	Computing Practice and Programming
Practices	Problem solving
Standards	<p>ISTE: 1.a, 1.c, 4.b, 6.a, 6.c, 6.d CSTA: CL.L1:3-02, CT.L1:3-01, CPP.L1:6-05, CPP.L1:6-06, CT.L2-01, CT.L2-06, CT.L2-08, CT.L2-12, CT.L3A-03 NGSS: K- 2-PS3-2, K-2-ETS1-1, 3-5-ETS1-2 Mathematical Practices: 1, 2, 4, 5, 6, 7, 8 CC Math Standards: 1.OA.A.1 2.OA.A.1 3.OA.3 CC ELA: SL.1.1, L.1.6 SL.2.1, L.2.6 SL.3.1, L.3.6</p>
<p>Lesson 9: Relay Programming (unplugged)</p>	
Objectives	<ul style="list-style-type: none"> • Practice communicating ideas through codes and symbols • Use teamwork to complete a task • Verify the work of their teammates to ensure a successful outcome
Themes	Algorithms
Practices	Collaboration, Problem Solving
Standards	<p>ISTE: 1.a, 1.c, 2.d, 4.b, 4.d, 6.a CSTA: CT.L1:3-01, CT.L1:3-03, CT.L1:6-01, CT.L1:6-02, CT.L1:6-05, CT.L2-01, CT.L2-03, CT.L2-06, CT.L2-07, CT.L2-08, CT.L2-12, CPP.L1.3-04, CPP.L1:6-05 NGSS: K- 2-PS3-2, K-2-ETS1-1, 3-5-ETS1-2 Mathematical Practices: 1, 2, 3, 6, 7, 8 CC Math Standards: 2.G.2 CC ELA: SL.1.1, SL.1.2, L.1.6 SL.2.1, SL.2.2, L.2.6 SL.3.1, SL.3.3, L.3.6</p>



Lesson 10: Bee Debugging	
Objectives	<ul style="list-style-type: none"> Predict where a program will fail. Modify an existing program to solve errors. Identify an algorithm that is unsuccessful when the steps are out of order. Reflect on the debugging process in an age-appropriate way.
Themes	Algorithms, Computing Practice and Programming
Practices	Persistence, Problem Solving
Standards	ISTE: 1.a, 1.c, 4.b, 4.c, 4.d, 6.a, 6.c, 6.d CSTA: CL.L1:3-02, CT.L1:3-01, CT.L1:6-01, CT.L2-01, CT.L2-06, CT.L2-08, CT.L2-12 CPP.L1:6-05, CPP.L1:6-06, CT.L3A-03 NGSS: K- 2-PS3-2, K-2-ETS1-1, 3-5-ETS1-2 Mathematical Practices: 1, 2, 4, 5, 6, 7, 8 CC Math Standards: 1.OA.1 2.OA.A.1 3.OA.3 CC ELA: SL.1.1, L.1.6 SL.2.1, L.2.6 SL.3.1, L.3.6
Lesson 11: Artist - Debugging	
Objectives	<ul style="list-style-type: none"> Predict where a program will fail. Modify an existing program to solve errors. Identify an algorithm that is unsuccessful when the steps are out of order. Reflect on the debugging process in an age-appropriate way. Something about calculating angles / measuring distance.
Themes	Algorithms, Computing Practice and Programming
Practices	Persistence, Problem Solving
Standards	ISTE: 1.a, 1.c, 4.b, 4.d, 6.a, 6.c, 6.d CSTA: CL.L1:3-02, CT.L1:3-01, CT.L1:6-01, CT.L2-01, CT.L2-06, CT.L2-07, CT.L2-08, CT.L2-12 CPP.L1:6-05, CPP.L1:6-06, CT.L3A-03 NGSS: K- 2-PS3-2, K-2-ETS1-1, 3-5-ETS1-2 Mathematical Practices: 1, 2, 4, 5, 6, 7, 8 CC Math Standards: 1.OA.1, 1.G.A.1, 1.G.A.2 2.OA.1, 2.G.2, 2.G.A.1, 2, 2.MD.5 3.OA.3, 3.G.A.2 CC ELA: SL.1.1, L.1.6 SL.2.1, L.2.6 SL.3.1, L.3.6
Lesson 12: Conditionals (unplugged)	
Objectives	<ul style="list-style-type: none"> Define circumstances when certain parts of programs should run and when they shouldn't. Determine whether a conditional is met based on criteria. Traverse a program and predict the outcome, given a set of input.
Themes	Algorithms
Practices	Problem solving
Standards	ISTE: 1.a, 1.c, 2.d, 4.b, 6.a CSTA: CT.L1:3-03, CT.L1:6-01, CT.L1:6-02, CT.L1:6-05, CPP.L1.3-04, CPP.L1:6-



	<p>05, CT.L2-03, CT.L2-06, CT.L3A-03 NGSS: 3-5-ETS1-2 Mathematical Practices: 1, 2, 4, 6, 7, 8 CC Math Standards: 1.MD.4 CC ELA: SL.1.1, SL.1.2, L.1.6 SL.2.1, SL.2.2, L.2.6 SL.3.1, SL.3.3, L.3.6</p>
<p>Lesson 13: Bee - Conditionals</p>	
Objectives	<ul style="list-style-type: none"> • Compare binary values. • Translate spoken language conditional statements into a program. • Identify when a conditional can be used to deal with unknown values. • Execute an algorithm with a conditional statement. • Solve puzzles using a combination of looped sequences and conditionals.
Themes	Computing Practice and Programming
Practices	Problem solving
Standards	<p>ISTE: 1.a, 1.c, 4.b, 4.d, 6.a, 6.c, 6.d CSTA: CT.L1:3-02, CT.L1:3-03, CPP.L1:6-05, CPP.L1:6-06, CT.L1:6-01, CT.L2-01, CT.L2-06, CT.L2-07, CT.L2-08, CT.L2-012, CT.L2-14, CT.L3A-03 NGSS: K-2-PS3-2, K-2-ETS1-1, 3-5-ETS1-2 Mathematical Practices: 1, 2, 4, 5, 6, 7, 8 CC Math Standards: 1.OA.1 2.OA.1, 2.G.2, 2.MD.5, 2.NBT.A.4 3.OA.3 CC ELA: SL.1.1, L.1.6 SL.2.1, L.2.6 SL.3.1, L.3.6</p>
<p>Lesson 14: Binary Bracelets (unplugged)</p>	
Objectives	<ul style="list-style-type: none"> • Encode letters into binary. • Decode binary back to letters. • Relate the idea of storing initials on a bracelet to the idea of storing information in a computer.
Themes	Data
Practices	Creativity
Standards	<p>ISTE: 1.a, 1.c, 2.d, 4.b, 6.a, 6.d CSTA: CT.L1:3-03, CT.L1:6-03, CT.L1:3-05, CT.L2-07, CT.L2-08 NGSS: K-2-PS3-2, K-2-ETS1-1 Mathematical Practices: 1, 2, 4, 6, 7, 8 CC ELA: SL.1.1, SL.1.2, L.1.6 SL.2.1, SL.2.2, L.2.6 SL.3.1, SL.3.3, L.3.6</p>
<p>Lesson 15: The Big Event (unplugged)</p>	
Objectives	<ul style="list-style-type: none"> • Repeat commands given by an instructor. • Recognize actions of the teacher as signals to initiate commands. • Practice differentiating pre-defined actions and event-driven ones.
Themes	Algorithms
Practices	Creativity, Collaboration



Standards	ISTE: 1.a, 4.b, 6.a CSTA: CPP.L1:3-04, CT.L1:6-02, CT.L1:6-05, CT.L1:6-01, CT.L2-06 NGSS: K-2-ETS1-1 Mathematical Practices: 1, 2, 6, 7, 8 CC ELA: SL.1.1, SL.1.2, L.1.6 SL.2.1, SL.2.2, L.2.6 SL.3.1, SL.3.3, L.3.6
Lesson 16: Flappy	
Objectives	<ul style="list-style-type: none"> Match blocks with the appropriate event handler. Create a game using event handlers. Share a creative artifact with other students.
Themes	Computing Practice and Programming
Practices	Persistence, Problem Solving
Standards	ISTE: 1.a, 1.b, 1.c, 4.b, 6.a, 6.c, 6.d CSTA: CL.L1:3-02, CL.L1:6-01, CPP.L1:6-05, CPP.L1:6-06, CT.L1:3-02, CT.L1:6-01, CT.L2-01, CT.L2-06, CT.L2-07, CT.L2-08, CT.L2-12 NGSS: K-2-PS3-2, K-2-ETS1-1, 3-5-ETS1-2 CC Mathematical Practices: 1, 2, 5, 6, 7, 8 CC ELA: SL.1.1, SL.1.2, L.1.6 SL.2.1, SL.2.2, L.2.6 SL.3.1, SL.3.3, L.3.6
Lesson 17: Play Lab - Create a Story	
Objectives	<ul style="list-style-type: none"> Identify actions that correlate to input events. Create an animated, interactive story using sequence, loops, and event-handlers. Share a creative artifact with other students.
Themes	Computing Practice and Programming
Practices	Creativity, Problem Solving, Collaboration
Standards	ISTE: 1.a, 1.b, 1.c, 4.b, 6.a, 6.c, 6.d CSTA: CT.L1:3-01, CL.L1:3-02, CL.L1:6-01, CPP.L1:3-03, CPP.L1:6-03, CPP.L1:6-05, CPP.L1:6-06, CT.L2-01, CT.L2-06, CT.L2-07, CT.L2-08, CT.L2-12 NGSS: K-2-PS3-2, K-2-ETS1-1, 3-5-ETS1-2 CC Mathematical Practices: 1, 2, 5, 6, 7, 8 CC Math Standards: 1.OA.A.1 2.OA.A.1, 2.MD.5 CC ELA: SL.1.1, SL.1.5, L.1.6, W.1.6 SL.2.1, SL.2.5, L.2.6, W.2.3 SL.3.1, SL.3.6, W.3.3, W.3.6
Lesson 18: Your Digital Footprint (unplugged)	
Objectives	<ul style="list-style-type: none"> Understand that being safe when they visit websites is similar to staying safe in real life. Learn to recognize websites that are alright for them to visit. Recognize if they should ask an adult they trust before they visit a particular website. Explore what information is appropriate to be put online.
Themes	Community Global and Ethical Impacts
Practices	Communicating



K–5 Curriculum Course 2

Framework

Standards	ISTE: 5.a, 5.b, 6.a CSTA: CI.L1:3-01, CPP.L2-06 CC ELA: SL.1.1, SL.1.2, L.1.6 SL.2.1, SL.2.2, L.2.6 SL.3.1, SL.3.3, L.3.6
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