Scope and Sequencing - Block

Illinois CS Standards

Table of Contents

Course Name	Lesson/Activity Count	Grade	Access	Difficulty	K-2	Elementary School	Middle School	High School	Page
Programming 102	16 Lessons 106 Activities	3-4		Intermediate		✔			24
STEM: Life Science 101	17 Lessons 68 Activities	3-5		Beginner		✔			36
STEM: Earth Science 101	20 Lessons 80 Activities	3-5		Beginner		✔			42
STEM: Physical Science 101	14 Lessons 56 Activities	3-5		Beginner		✔			48
STEM: Math 101	24 Lessons 96 Activities	3-5		Beginner		✔			53
STEM: English 101	15 Lessons 60 Activities	3-5		Beginner		✔			58
STEM: Social Studies 101	12 Lessons 48 Activities	3-5		Beginner		✔			61
micro:bit 101	16 Lessons 54 Activities	3-5		Intermediate		✔			65
WeDo Coding	11 Lessons 64 Activities	3-5		Beginner		✔			68
Artificial Intelligence 101	5 Lessons 25 Activities	3-8		Intermediate		✔	✔		70
Augmented Reality	17 Lessons 62 Activities	5-7		Intermediate		✔	✔		71
Drones 101	11 Lessons 65 Activities	5-7		Intermediate		✔	✔		73

Course Name	Lesson/Activity Count	Grade	Access	Difficulty	K-2	Elementary School	Middle School	High School	Page
Programming 201	17 Lessons 98 Activities	5-6		Beginner		✔	✔		26
Programming 202	16 Lessons 87 Activities	5-6		Intermediate		✔	✔		29
Programming 300	5 Lessons 43 Activities	6-8		Beginner			✔		21
Programming 301	17 Lessons 111 Activities	7-8		Beginner			✔		31
STEM: Life Science 201	31 Lessons 124 Activities	6-8		Intermediate			✔		38
STEM: Earth Science 201	19 Lessons 76 Activities	6-8		Intermediate			✔		45
STEM: Physical Science 201	23 Lessons 22 Activities	6-8		Intermediate			✔		50
STEM: Math 201	11 Lessons 44 Activities	6-8		Intermediate			✔		56
STEM: English 201	10 Lessons 40 Activities	6-8		Intermediate			✔		60
STEM: Social Studies 201	17 Lessons 68 Activities	6-8		Intermediate			✔		63
Programming 302	16 Lessons 104 Activities	7+		Advanced			✔	✔	34

Pre-Reader Course Collection

Grades PreK-2

Scope and Sequence

Each lesson takes about 45-60 minutes to complete.

The Pre-Reader Course Collection uses the Tynker Junior app, which is specifically designed for students in grades PreK-2 who are still learning how to read. The app is available for iPads and features word-free code blocks, pictures, and friendly voiceovers. The stories, games, puzzles, and projects in this course engage students in developing computational thinking skills, as listed below from the CSTA Standards and UK Computing standards. The Common Core State Standards for Mathematics and English Language Arts that students develop are also listed here.

	Lesson 1 - Underwater Coding	Lesson 2 - Aquarium Architect	Lesson 3 - Deep Sea Sequencing	Lesson 4 - Deep Sea Sequencing 2	Lesson 5 - Assembly Line	Lesson 6 - Robot Builder	Lesson 7 - Electric Events	Lesson 8 - Battery Sequencing
Key Skills and Concepts	• Connect visual blocks to form a shape	• Create your own aquarium	• Create your own sequence • Sequence blocks of code to create algorithms	• Construct an algorithm to solve a problem • Identify cause and effect patterns using code blocks	• Construct sequences in different ways • Demonstrate more than one way to solve a problem	• Create your own robot	• Debug a program • Identify different event code blocks	• Apply sequencing to navigate robots
CCSS-Math Standards	MP.1	MP.1	MP.1	MP.1	MP.1	MP.1	MP.1	MP.1
CCSS-ELA Standards	--	--	--	--	--	--	--	--
CSTA Standards	1A-AP-09 1A-AP-11 1A-CS-01	1A-AP-09 1A-AP-11 1A-CS-01	1A-AP-09 1A-AP-11 1A-CS-01	1A-AP-09 1A-AP-11 1A-CS-01	1A-AP-09 1A-AP-11 1A-CS-01	1A-AP-09 1A-AP-11 1A-CS-01	1A-AP-09 1A-AP-11 1A-CS-01	1A-AP-09 1A-AP-11 1A-CS-01
Illinois CS Standards	K-2.CS.1 K-2.AP.08 K-2.AP.09 K-2.AP.11	K-2.CS.1 K-2.AP.08 K-2.AP.09 K-2.AP.12	K-2.CS.1 K-2.AP.08 K-2.AP.09 K-2.AP.11 K-2.AP.15	K-2.CS.1 K-2.AP.08 K-2.AP.09 K-2.AP.11 K-2.AP.15	K-2.CS.1 K-2.AP.08 K-2.AP.09 K-2.AP.11 K-2.AP.15	K-2.CS.1 K-2.AP.08 K-2.AP.09 K-2.AP.12	K-2.CS.1 K-2.AP.08 K-2.AP.09 K-2.AP.11	K-2.CS.1 K-2.AP.08 K-2.AP.09 K-2.AP.11 K-2.AP.15
ISTE Standards	1.1.c, 1.2.b, 1.5.c	1.1.c, 1.2.b, 1.5.c	1.1.c, 1.2.b, 1.5.c	1.1.c, 1.2.b, 1.5.c	1.1.c, 1.2.b, 1.5.c	1.1.c, 1.2.b, 1.5.c	1.1.c, 1.2.b, 1.5.c	1.1.c, 1.2.b, 1.5.c
UK National Curriculum	Key stage 1*	Key stage 1*	Key stage 1*	Key stage 1*	Key stage 1*	Key stage 1*	Key stage 1*	Key stage 1*
Sample Application of Skills	Use sequencing and critical thinking skills to connect blocks to make shapes.	Design an aquarium with different sea creatures, props, and music.	Use sequencing, pattern recognition, debugging, and critical thinkinking skills to solve puzzles.	Solve challenging sequencing coding puzzles.	Use flexible sequencing to design different types of robots.	Design different robots by customizing the robot's face, body, and arms.	Code your robot to react to taps and tilts on the device.	Program robots to ride conveyor belts and collect batteries.

*See individual lesson guides for details on UK Computer standards

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	Lesson 9 - The North American Grasslands	Lesson 10 - The Southeast Asian Rainforest	Lesson 11 - The African Savanna	Lesson 12 - The African Jungle	Lesson 13 - Meet the Dust Bunnies	Lesson 14 - Home Sweet Home	Lesson 15- Balloon Bonanza	Lesson 16 - So Many Blocks
Key Skills and Concepts	• Detect patterns and use code blocks with numerical parameters	• Sequence blocks of code to create algorithms	• Code with loops • Detect patterns in code sequences	• Construct an algorithm to solve a problem	• Demonstrate the importance of order in sequencing	• Create your own Dust Bunny home	• Design a simple program using conditional loops	• Demonstrate your understanding of conditional loops and nested loops
CCSS-Math Standards	MP.1	MP.1	MP.1	MP.1	MP.1	MP.1	MP.1	MP.1
CCSS-ELA Standards	--	--	--	--	--	--	--	--
CSTA Standards	1A-AP-08 1A-AP-09 1A-AP-10 1A-AP-11 1A-CS-01	1A-AP-08 1A-AP-09 1A-AP-10 1A-AP-11 1A-CS-01	1A-AP-09 1A-AP-11 1A-CS-01	1A-AP-08 1A-AP-09 1A-AP-10 1A-AP-11 1A-AP-14 1A-CS-01	1A-AP-08 1A-AP-09 1A-AP-10 1A-AP-11 1A-AP-14 1A-CS-01	1A-AP-09 1A-AP-11 1A-CS-01	1A-AP-08 1A-AP-09 1A-AP-10 1A-AP-11 1A-AP-14	1A-AP-08 1A-AP-09 1A-AP-10 1A-AP-11 1A-AP-14 1A-CS-01
Illinois CS Standards	K-2.CS.1 K-2.AP.08 K-2.AP.09 K-2.AP.11 K-2.AP.15	K-2.CS.1 K-2.AP.08 K-2.AP.09 K-2.AP.11	K-2.CS.1 K-2.AP.08 K-2.AP.09 K-2.AP.10 K-2.AP.11 K-2.AP.14 K-2.AP.15	K-2.CS.1 K-2.AP.08 K-2.AP.09 K-2.AP.10 K-2.AP.11 K-2.AP.14	K-2.CS.1 K-2.AP.08 K-2.AP.09 K-2.AP.10 K-2.AP.11 K-2.AP.14	K-2.CS.1 K-2.AP.08 K-2.AP.09 K-2.AP.12	K-2.CS.1 K-2.AP.08 K-2.AP.09 K-2.AP.10 K-2.AP.11 K-2.AP.14	K-2.CS.1 K-2.AP.08 K-2.AP.09 K-2.AP.10 K-2.AP.11 K-2.AP.14 K-2.AP.15
ISTE Standards	1.1.c, 1.2.b, 1.5.c	1.1.c, 1.2.b, 1.5.c	1.1.c, 1.2.b, 1.5.c	1.1.c, 1.2.b, 1.5.c	1.1.c, 1.2.b, 1.5.c	1.1.c, 1.2.b, 1.5.c	1.1.c, 1.2.b, 1.5.c	1.1.c, 1.2.b, 1.5.c
UK National Curriculum	Key stage 1*	Key stage 1*	Key stage 1*	Key stage 1*	Key stage 1*	Key stage 1*	Key stage 1*	Key stage 1*
Sample Application of Skills	Use sequencing to help prairie animals reach their mothers.	Program animals to climb down cliffs and ride on logs to navigate a jungle maze.	Look for patterns and use loops to navigate the Savannah.	Use delays to avoid snakes and journey across the dangerous terrain.	Use loops to help puffballs jump, climb, and push their way to get socks.	Design the Dust Bunnies' home and play with physics.	Program puffballs to find keys, pop balloons, and chase flying socks while using conditional loops.	Use other conditional loops and kick boxes to clear a path to the socks.

*See individual lesson guides for details on UK Computer standards

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Grades PreK-2

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	Lesson 17 - Join the Squad	Lesson 18 - Missing Money	Lesson 19 - The Museum Heist	Lesson 20 - Iguana Industries	Lesson 21 - Wild Tracks	Lesson 22 - Seabed Scribbler	Lesson 23 - Starfish Spirals	Lesson 24 - Puff Paint
Key Skills and Concepts	• Design a superhero using code	• Code with loops • Detect patterns in code sequences • Apply conditional logic	• Recognize patterns • Apply conditional logic	• Demonstrate your understanding of conditional loops and nested loops	• Demonstrate your understanding of using parameters • Identify the paw prints of different animals	• Create an art project using different shapes • Apply geometry concepts • Use counting loops	• Demonstrate an understanding of parameters to create a design • Apply sequencing	• Apply sequencing to create an art project • Use code blocks with parameters • Apply conditional logic
CCSS-Math Standards	MP.1	MP.1	MP.1	K.CC.B.4 MP.1	MP.1	MP.1	MP.1	K.CC.B.4 MP.1
CCSS-ELA Standards	--	--	--	--	--	--	--	--
CSTA Standards	1A-AP-09 1A-AP-11 1A-CS-01	1A-AP-09 1A-AP-11 1A-CS-01	1A-AP-08 1A-AP-09 1A-AP-10 1A-AP-11 1A-CS-01	1A-AP-08 1A-AP-09 1A-AP-10 1A-AP-11 1A-CS-01	1A-AP-09 1A-AP-11 1A-CS-01	1A-AP-09 1A-AP-11 1A-CS-01	1A-AP-09 1A-AP-11 1A-CS-01	1A-AP-09 1A-AP-11 1A-AP-14 1A-CS-01
Illinois CS Standards	K-2.CS.1 K-2.DA.05 K-2.AP.08 K-2.AP.09 K-2.AP.12	K-2.CS.1 K-2.AP.08 K-2.AP.09 K-2.AP.10 K-2.AP.11 K-2.AP.14 K-2.AP.15	K-2.CS.1 K-2.AP.08 K-2.AP.09 K-2.AP.10 K-2.AP.11 K-2.AP.14 K-2.AP.15	K-2.CS.1 K-2.AP.08 K-2.AP.09 K-2.AP.10 K-2.AP.11 K-2.AP.14 K-2.AP.15	K-2.CS.1 K-2.AP.08 K-2.AP.09 K-2.AP.11	K-2.CS.1 K-2.AP.08 K-2.AP.09 K-2.AP.10 K-2.AP.11 K-2.AP.12 K-2.AP.14 K-2.AP.15	K-2.CS.1 K-2.AP.08 K-2.AP.09 K-2.AP.10 K-2.AP.11 K-2.AP.12 K-2.AP.14 K-2.AP.15	K-2.CS.1 K-2.AP.08 K-2.AP.09 K-2.AP.10 K-2.AP.11 K-2.AP.12 K-2.AP.14 K-2.AP.15
ISTE Standards	1.1.c, 1.2.b, 1.5.c	1.1.c, 1.2.b, 1.5.c	1.1.c, 1.5.c	1.1.c, 1.2.b, 1.5.c	1.1.c, 1.2.b, 1.5.c	1.1.c, 1.2.b, 1.5.c	1.1.c, 1.2.b, 1.5.c	1.1.c, 1.2.b, 1.5.c
UK National Curriculum	Key stage 1*	Key stage 1*	Key stage 1*	Key stage 1*	Key stage 1*	Key stage 1*	Key stage 1*	Key stage 1*
Sample Application of Skills	Customize a superhero by choosing their costume, cape color, character, and superpower.	Look for patterns and use loops to navigate a path.	Use conditional statements to navigate a path.	Program multiple superheroes to defeat the evil Doctor Iguana.	Create art with different animal tracks.	Use coding and geometry concepts to create fun shapes.	Customize the size, color, and shape of their spiral art.	Create an art project with colorful lines, fun shapes, and different art effects.

*See individual lesson guides for details on UK Computer standards

Pre-Reader Course Collection

Grades PreK-2

Scope and Sequence

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	Lesson 25 - Octodrum	Lesson 26 - Pocket Band	Lesson 27 - Jelly Bash	Lesson 28 - Barbershop Bayou	Lesson 29 - Day in the Park	Lesson 30 - Squad Pose	Lesson 31 - RoboDance	Lesson 32 - Emoji Chat
Key Skills and Concepts	• Use counting loops • Apply different drum code block • Use a random sound generator	• Use counting loops • Apply music code blocks • Use the "wait" command	• Apply sequencing to create a musical project • Use loops and touch events • Code up to 4 different jelly blobs	• Use code blocks with parameters • Use counting loops	• Use counting loops • Apply sequencing to tell a story	• Use code blocks to pose the superheroes • Demonstrate an understanding of sequencing	• Create a dance sequence using loops • Code different robots to dance	• Use "wait" blocks to time the dust bunnies' dialogue • Create different conversations between the dust bunnies
CCSS-Math Standards	MP.1	MP.1	MP.1	MP.1	MP.1	MP.1	MP.1	MP.1
CCSS-ELA Standards	--	--	--	--	--	--	--	--
CSTA Standards	1A-AP-09 1A-AP-11 1A-CS-01	1A-AP-09 1A-AP-11 1A-CS-01	1A-AP-09 1A-AP-11 1A-AP-14 1A-CS-01	1A-AP-09 1A-AP-11 1A-CS-01	1A-AP-09 1A-AP-11 1A-CS-01	1A-AP-09 1A-AP-11 1A-CS-01	1A-AP-09 1A-AP-11 1A-CS-01	1A-AP-09 1A-AP-11 1A-CS-01
Illinois CS Standards	K-2.CS.1 K-2.AP.08 K-2.AP.09 K-2.AP.10 K-2.AP.11 K-2.AP.12 K-2.AP.14 K-2.AP.15	K-2.CS.1 K-2.DA.05 K-2.AP.08 K-2.AP.09 K-2.AP.10 K-2.AP.11 K-2.AP.12 K-2.AP.14 K-2.AP.15	K-2.CS.1 K-2.AP.08 K-2.AP.09 K-2.AP.10 K-2.AP.11 K-2.AP.12 K-2.AP.14 K-2.AP.15	K-2.CS.1 K-2.AP.08 K-2.AP.09 K-2.AP.10 K-2.AP.11 K-2.AP.12 K-2.AP.14 K-2.AP.15	K-2.CS.1 K-2.AP.08 K-2.AP.09 K-2.AP.10 K-2.AP.11 K-2.AP.12 K-2.AP.14 K-2.AP.15	K-2.CS.1 K-2.DA.05 K-2.AP.08 K-2.AP.09 K-2.AP.12	K-2.CS.1 K-2.AP.08 K-2.AP.09 K-2.AP.10 K-2.AP.11 K-2.AP.12 K-2.AP.14 K-2.AP.15	K-2.CS.1 K-2.AP.08 K-2.AP.09 K-2.AP.10 K-2.AP.11 K-2.AP.12 K-2.AP.14 K-2.AP.15
ISTE Standards	1.1.c, 1.2.b, 1.5.c	1.1.c, 1.2.b, 1.5.c	1.1.c, 1.2.b, 1.5.c	1.1.c, 1.2.b, 1.5.c	1.1.c, 1.2.b, 1.5.c	1.1.c, 1.2.b, 1.5.c	1.1.c, 1.2.b, 1.5.c	1.1.c, 1.2.b, 1.5.c
UK National Curriculum	Key stage 1*	Key stage 1*	Key stage 1*	Key stage 1*	Key stage 1*	Key stage 1*	Key stage 1*	Key stage 1*
Sample Application of Skills	Create music using the sounds of different drums.	Program 5 different characters at the same time to create music.	Code different jelly blobs to make a sound when the user taps them.	Code bayou animals to sing.	Create a scene with their favorite superhero.	Program more than one character in the same project to pose for a picture.	Create a robot dance party.	Use code to make the dust bunnies have a conversation.

*See individual lesson guides for details on UK Computer standards

Pre-Reader Course Collection — Grades PreK-2

Scope and Sequence

Each lesson takes about 45-60 minutes to complete.

The Pre-Reader Course Collection uses the Tynker Junior app, which is specifically designed for students in grades PreK-2 who are still learning how to read. The app is available for iPads and features word-free code blocks, pictures, and friendly voiceovers. The stories, games, puzzles, and projects in this course engage students in developing computational thinking skills, as listed below from the CSTA Standards and UK Computing standards. The Common Core State Standards for Mathematics and English Language Arts that students develop are also listed here.

	Lesson 33 - Birthday Card	Lesson 34 - Valentine's Day Card	Lesson 35 - Mother's Day Card	Lesson 36 - Deep Sea Salvage	Lesson 37 - Whack 'Em	Lesson 38 - Training Mode		
Key Skills and Concepts	• Apply sequencing to design an interactive birthday card • Use code blocks with parameters	• Animate characters • Use code blocks with parameters	• Use counting loops with numerical parameters • Apply sequencing to create flowers	• Apply sequencing • Use code blocks with parameters • Count coins	• Apply sequencing • Use code blocks to customize a "whack-a-mole" style game	• Apply conditional logic • Code a game		
CCSS-Math Standards	K.CC.B.4 MP.1	K.CC.B.4 MP.1	K.CC.B.4 MP.1	K.CC.B.4 MP.1	K.CC.B.4 MP.1	K.CC.B.4 MP.1		
CCSS-ELA Standards	--	--	--	--	--	--		
CSTA Standards	1A-AP-09 1A-AP-11 1A-AP-14 1A-CS-01	1A-AP-09 1A-AP-11 1A-AP-14 1A-CS-01	1A-AP-09 1A-AP-11 1A-AP-14 1A-CS-01	1A-AP-09 1A-AP-11 1A-AP-14 1A-CS-01	1A-AP-09 1A-AP-11 1A-AP-14 1A-CS-01	1A-AP-09 1A-AP-11 1A-AP-14 1A-CS-01		
Illinois CS Standards	K-2.CS.1 K-2.AP.08 K-2.AP.09 K-2.AP.10 K-2.AP.11 K-2.AP.12 K-2.AP.14 K-2.AP.15	K-2.CS.1 K-2.AP.08 K-2.AP.09 K-2.AP.10 K-2.AP.11 K-2.AP.12 K-2.AP.14 K-2.AP.15	K-2.CS.1 K-2.AP.08 K-2.AP.09 K-2.AP.10 K-2.AP.11 K-2.AP.12 K-2.AP.14 K-2.AP.15	K-2.CS.1 K-2.AP.08 K-2.AP.09 K-2.AP.10 K-2.AP.11 K-2.AP.12 K-2.AP.14 K-2.AP.15	K-2.CS.1 K-2.AP.08 K-2.AP.09 K-2.AP.10 K-2.AP.11 K-2.AP.12 K-2.AP.14 K-2.AP.15	K-2.CS.1 K-2.AP.08 K-2.AP.09 K-2.AP.10 K-2.AP.11 K-2.AP.12 K-2.AP.14 K-2.AP.15		
ISTE Standards	1.1.c, 1.2.b, 1.5.c	1.1.c, 1.2.b, 1.5.c	1.1.c, 1.5.c	1.1.c, 1.2.b, 1.5.c	1.1.c, 1.2.b, 1.5.c	1.1.c, 1.2.b, 1.5.c		
UK National Curriculum	Key stage 1*	Key stage 1*	Key stage 1*	Key stage 1*	Key stage 1*	Key stage 1*		
Sample Application of Skills	Design an animated Birthday Card with customized decorations.	Design an animated Valentine's Day Card with a festive background, animated Actors, and special effects.	Design an animated Mother's Day card with a special greeting and unique flowers.	Design a coin collecting game.	Create a Whack 'Em game where robots pop up from pipes.	Apply sequencing and conditional logic to program the Super Squad to destroy objects		

*See individual lesson guides for details on UK Computer standards

All About Computers I

Grades PreK-2

Scope and Sequence

Each lesson takes about 45-60 minutes to complete.

In this course, students are introduced to computing basics as they watch entertaining and educational videos about how computers work, how the Internet works, good digital citizenship, simple data collection, and more. Videos are grouped together to form a lesson. Students then follow along with their instructor in an extended discussion about the key topics of the videos. By watching the videos and discussing, students develop their background knowledge of computing and society as listed below from the CSTA Level 1A Computer Science standards and UK Computing standards. The Common Core State Standards for Mathematics and English Language Arts that students develop are also listed here. Note: This is the first course of the "All About Computers" video series, which both courses combined have **100% CSTA compliance**.

	Lesson 1 - What is a Computer?	Lesson 2 - What Do We Use Computers For?	Lesson 3 - Data	Lesson 4 - When Something Doesn't Work	Lesson 5 - Algorithms and Programming	Lesson 6 - Online Safety	Lesson 7 - Then Versus Now
Key Skills and Concepts	• Definition of a computer • Terms related to technology, including device, input/output, hardware, and software	• Applications of computing • Definition of a network and the internet	• Opening, saving, copying, and deleting files • Data collection • Patterns in data	• Common computer errors • Common hardware and software problems • Describing errors	• Algorithms • Copyright	• Online safety • Online dos/don'ts • Passwords	• History of computing technology • Technology benefits/drawbacks
CCSS-Math Standards	--	MP.3	MP.1	MP.1	MP.1	MP.3	--
CCSS-ELA Standards	SL.K.2, SL.K.3 SL.1.1, SL.1.2, SL.1.3 SL.2.1, SL.2.2, SL.2.3 L.K.3, L.1.6, L.2.6	SL.K.2, SL.K.3 SL.1.1, SL.1.2, SL.1.3 SL.2.1, SL.2.2, SL.2.3 L.K.3, L.1.6, L.2.6	SL.K.2, SL.K.3 SL.1.1, SL.1.2, SL.1.3 SL.2.1, SL.2.2, SL.2.3 L.K.3, L.1.6, L.2.6	SL.K.2, SL.K.3 SL.1.1, SL.1.2, SL.1.3 SL.2.1, SL.2.2, SL.2.3 L.K.3, L.1.6, L.2.6	SL.K.2, SL.K.3 SL.1.1, SL.1.2, SL.1.3 SL.2.1, SL.2.2, SL.2.3 L.K.3, L.1.6, L.2.6	SL.K.2, SL.K.3 SL.1.1, SL.1.2, SL.1.3 SL.2.1, SL.2.2, SL.2.3 L.K.3, L.1.6, L.2.6	SL.K.2, SL.K.3 SL.1.1, SL.1.2, SL.1.3 SL.2.1, SL.2.2, SL.2.3 L.K.3, L.1.6, L.2.6
CSTA Standards	1A-CS-01 1A-CS-02 1A-CS-03	1A-CS-01	1A-DA-05 1A-DA-06 1A-DA-07	1A-CS-03	1A-AP-08 1A-AP-13	1A-NI-04 1A-IC-17 1A-IC-18	1A-IC-16
Illinois CS Standards	K-2.CS.1 K-2.CS.2 K-2.CS.3	K-2.CS.1 K-2.ET.A	K-2.DA.05 K-2.DA.06 K-2.DA.07 K-2.ET.A	K-2.CS.03	K-2.AP.08 K-2.AP.13	K-2.IC.17 K-2.IC.18	K-2.IC.16 K-2.ET.A K-2.ET.B
ISTE Standards	1.1.d 1.3.b 1.3.d	1.1.d 1.3.b 1.3.d	1.1.d, 1.3.b, 1.3.d, 1.5.a, 1.5.b, 1.5.c, 1.6.c	1.1.d 1.3.b 1.3.d	1.1.d, 1.2.c, 1.3.b, 1.3.d 1.4.a, 1.5.a, 1.5.c, 1.5.d 1.6.b	1.1.d, 1.2.b 1.2.d, 1.3.b 1.3.d	1.1.d 1.3.b 1.3.d
UK National Curriculum	Key stage 1*	Key stage 1*	Key stage 1*	Key stage 1*	Key stage 1*	Key stage 1*	Key stage 1*
Sample Application of Skills	Identify some of the basic parts of a computer.	Describe the many ways we can use computers in our everyday lives.	Discuss how computers can be useful for helping us collect, analyze, and display data.	Identify examples of common errors that happen while using computers.	Identify examples of an algorithm for an everyday task.	Discuss why it's important to be safe online.	Discuss how technology has changed over time.

*See individual lesson guides for details on UK Computer standards

Barbie™ You Can Be Anything — Grades K-4

Scope and Sequence

Each lesson takes about 45-60 minutes to complete.

Barbie™ You Can Be Anything is a course for students in grades K-4 who are new to programming. It is available for free for mobile and web devices. In this course, students will discover how coding concepts can be applied to six exciting careers: Robotics Engineer, Musician, Astronaut, Farmer, Beekeeper, and Pastry Chef. The stories, games, puzzles, and projects in this course engage students in developing computational thinking skills, as listed below from the CSTA Standards and Illinois CS Computing standards. The Common Core State Standards for Mathematics and English Language Arts that students develop are also listed here.

	Lesson 1 - Robotics Engineer	Lesson 2 - Musician	Lesson 3 - Astronaut	Lesson 4 - Farmer	Lesson 5 - Beekeeper	Lesson 6 - Pastry Chef		
Key Skills and Concepts	• Sequence blocks of code to create algorithms • Code with loops	• Apply simple sequencing logic • Demonstrate the importance of order in sequencing	• Code using different "looks" blocks • Demonstrate knowledge of "wait" commands	• Code using different "movement" blocks • Apply knowledge of delays with movement blocks	• Use variables • Broadcast and receive messages between Actors	• Apply new coding concepts such as stamping, turning, and switching costumes		
CCSS-Math Standards	K.CC.A.2 K.CC.B.5 MP.1	MP.1	MP.1	K.CC.A.2 MP.1	MP.1	K.CC.A.2 K.CC.B.4 MP.1		
CCSS-ELA Standards	W.K.2, SL.K.1, SL.K.3, RF.K.4, W.1.2, SL.1.1, SL.1.3, RF.1.4.A, W.2.1, SL.2.1, SL.2.3, RF.2.4.A, SL.3.1, SL.3.3, RF.3.4.A, SL.4.1, SL.4.1.C, RF.4.4.A	W.K.2, SL.K.1, SL.K.3, RF.K.4, W.1.2, SL.1.1, SL.1.3, RF.1.4.A, W.2.1, SL.2.1, SL.2.3, RF.2.4.A, SL.3.1, SL.3.3, RF.3.4.A, SL.4.1, SL.4.1.C, RF.4.4.A	W.K.2, SL.K.1, SL.K.3, RF.K.4, W.1.2, SL.1.1, SL.1.3, RF.1.4.A, W.2.1, SL.2.1, SL.2.3, RF.2.4.A, SL.3.1, SL.3.3, RF.3.4.A, SL.4.1, SL.4.1.C, RF.4.4.A	W.K.2, SL.K.1, SL.K.3, RF.K.4, W.1.2, SL.1.1, SL.1.3, RF.1.4.A, W.2.1, SL.2.1, SL.2.3, RF.2.4.A, SL.3.1, SL.3.3, RF.3.4.A, SL.4.1, SL.4.1.C, RF.4.4.A	W.K.2, SL.K.1, SL.K.3, RF.K.4, W.1.2, SL.1.1, SL.1.3, RF.1.4.A, W.2.1, SL.2.1, SL.2.3, RF.2.4.A, SL.3.1, SL.3.3, RF.3.4.A, SL.4.1, SL.4.1.C, RF.4.4.A	W.K.2, SL.K.1, SL.K.3, RF.K.4, W.1.2, SL.1.1, SL.1.3, RF.1.4.A, W.2.1, SL.2.1, SL.2.3, RF.2.4.A, SL.3.1, SL.3.3, RF.3.4.A, SL.4.1, SL.4.1.C, RF.4.4.A		
CSTA Standards	1A-AP-09, 1A-AP-10 1A-AP-11, 1A-AP-14 1A-AP-15, 1B-AP-10, 1B-AP-11, 1B-AP-12 1B-AP-15, 1A-CS-01	1A-AP-09, 1A-AP-10 1A-AP-11, 1A-AP-14 1A-AP-15, 1B-AP-10, 1B-AP-11, 1B-AP-12 1B-AP-15, 1A-CS-01	1A-AP-09, 1A-AP-10 1A-AP-11, 1A-AP-14 1A-AP-15, 1B-AP-10, 1B-AP-11, 1B-AP-12 1B-AP-15, 1A-CS-01	1A-AP-09, 1A-AP-10 1A-AP-11, 1A-AP-14 1A-AP-15, 1B-AP-10, 1B-AP-11, 1B-AP-12 1B-AP-15, 1A-CS-01	1A-AP-09, 1A-AP-10 1A-AP-11, 1A-AP-14 1A-AP-15, 1B-AP-10, 1B-AP-11, 1B-AP-12 1B-AP-15, 1A-CS-01	1A-AP-09, 1A-AP-10 1A-AP-11, 1A-AP-14 1A-AP-15, 1B-AP-10, 1B-AP-11, 1B-AP-12 1B-AP-15, 1A-CS-01		
Illinois CS Standards	K-2.CS.1, K-2.AP.08 K-2.AP.09, K-2.AP.10 K-2.AP.11, K-2.AP.12 K-2.AP.14, K-2.AP.15 3-5.AP.08, 3-5.AP.11 3-5.AP.12, 3-5.AP.15	K-2.CS.1, K-2.AP.08 K-2.AP.09, K-2.AP.10 K-2.AP.11, K-2.AP.12 K-2.AP.14, K-2.AP.15 3-5.AP.08, 3-5.AP.11 3-5.AP.12, 3-5.AP.15	K-2.CS.1, K-2.AP.08 K-2.AP.09, K-2.AP.10 K-2.AP.11, K-2.AP.12 K-2.AP.14, K-2.AP.15 3-5.AP.08, 3-5.AP.11 3-5.AP.12, 3-5.AP.15	K-2.CS.1, K-2.AP.08 K-2.AP.09, K-2.AP.10 K-2.AP.11, K-2.AP.12 K-2.AP.14, K-2.AP.15 3-5.AP.08, 3-5.AP.11 3-5.AP.12, 3-5.AP.15	K-2.CS.1, K-2.AP.08 K-2.AP.09, K-2.AP.10 K-2.AP.11, K-2.AP.12 K-2.AP.14, K-2.AP.15 3-5.AP.08, 3-5.AP.11 3-5.AP.12, 3-5.AP.15	K-2.CS.1, K-2.AP.08 K-2.AP.09, K-2.AP.10 K-2.AP.11, K-2.AP.12 K-2.AP.14, K-2.AP.15 3-5.AP.08, 3-5.AP.11 3-5.AP.12, 3-5.AP.15		
ISTE Standards	1.1.c, 1.2.b, 1.5.c, 1.6.b, 1.7.c	1.1.c, 1.2.b, 1.5.c, 1.6.b, 1.7.c	1.1.c, 1.2.b, 1.5.c, 1.6.b, 1.7.c	1.1.c, 1.2.b, 1.5.c, 1.6.b, 1.7.c	1.1.c, 1.2.b, 1.5.c, 1.6.b, 1.7.c	1.1.c, 1.2.b, 1.5.c, 1.6.b, 1.7.c		
UK National Curriculum	Key stage 1 & 2 Computing*	Key stage 1 & 2 Computing*	Key stage 1 & 2 Computing*	Key stage 1 & 2 Computing*	Key stage 1 & 2 Computing*	Key stage 1 & 2 Computing*		
Sample Application of Skills	Use sequencing and loops to animate a robot dance party.	Use sequencing to edit a music video and mix songs.	Apply new coding concepts to create a report on a space mission.	Create a tour of the farm by programming animal Actors to follow the tractor Actor.	Use coding concepts to design a video game about bees.	Use coding concepts to frost cupcake Actors and decorate a cake Actor.		

*See individual lesson guides for details on UK Computer standards

Space Cadet

Scope and Sequence

Grades 1-2

Each lesson takes about 45-60 minutes to complete.

This course uses Tynker Blocks to introduce elementary readers to computational thinking and introductory computer science concepts such as sequencing, debugging, events, loops, conditional statements, and more. In Space Cadet, students will help a friendly astronaut collect parts to repair their spaceship. The games, puzzles, and projects in this course engage students in developing computational thinking skills, as listed below from the CSTA Standards and UK Computing standards. The Common Core State Standards for Mathematics and English Language Arts that students develop are also listed here.

	Lesson 1 - Crash Landed!	Lesson 2 - Dance Party	Lesson 3 - Stay the Course	Lesson 4 - Walk. Repeat. Jump.	Lesson 5 - Glitchy Code	Lesson 6 - Asteroids	Lesson 7 - Shifty Aliens	Lesson 8 - Blast Off!
Key Skills and Concepts	• Sequence commands to follow a path • Create algorithms	• Program multiple Actors in 1 project • Animate Actors	• Create multiple solutions • Apply sequencing	• Identify patterns • Use loops • Boolean values	• Debugging • Troubleshoot	• Use different events • Use code blocks to navigate the spaceship	• Use "if" statements • Apply conditional logic	• Advanced sequencing • Use loops • Apply conditional logic
CCSS-Math Standards	2.OA.B.2 MP.1	2.OA.B.2 MP.1	2.OA.B.2 MP.1	2.OA.B.2 MP.1	1.OA.B.3 2.OA.B.2 MP.1	2.OA.B.2 MP.1	2.OA.B.2 MP.1	2.OA.B.2 MP.1
CCSS-ELA Standards	RF.1.4 RF.2.4 RF.1.4.A RF.2.4.A 1.RI.10 2.RI.10	RF.1.4 RF.2.4 RF.1.4.A RF.2.4.A 1.RI.10 2.RI.10	RF.1.4 RF.2.4 RF.1.4.A RF.2.4.A 1.RI.10 2.RI.10	RF.1.4 RF.2.4 RF.1.4.A RF.2.4.A 1.RI.10 2.RI.10	RF.1.4 RF.2.4 RF.1.4.A RF.2.4.A 1.RI.10 2.RI.10	RF.1.4 RF.2.4 RF.1.4.A RF.2.4.A 1.RI.10 2.RI.10	RF.1.4 RF.2.4 RF.1.4.A RF.2.4.A 1.RI.10 2.RI.10	RF.1.4 RF.2.4 RF.1.4.A RF.2.4.A 1.RI.10 2.RI.10
CSTA Standards	1A-AP-09 1A-AP-11 1A-CS-01	1A-AP-09 1A-AP-11 1A-CS-01	1A-AP-09 1A-AP-11 1A-CS-01	1A-AP-09 1A-AP-10 1A-AP-11 1A-AP-14 1A-CS-01	1A-AP-09 1A-AP-10 1A-AP-11 1A-AP-14 1A-CS-01	1A-AP-09 1A-AP-11 1A-CS-01	1A-AP-09 1A-AP-11 1A-CS-01	1A-AP-09 1A-AP-10 1A-AP-11 1A-AP-14
Illinois CS Standards	K-2.CS.1 K-2.AP.08 K-2.AP.09 K-2.AP.11 K-2.AP.15	K-2.CS.1 K-2.AP.08 K-2.AP.09 K-2.AP.11 K-2.AP.12 K-2.AP.15	K-2.CS.1 K-2.AP.08 K-2.AP.09 K-2.AP.11 K-2.AP.15	K-2.CS.1 K-2.AP.08 K-2.AP.09 K-2.AP.10 K-2.AP.11 K-2.AP.14 K-2.AP.15	K-2.CS.1 K-2.AP.08 K-2.AP.09 K-2.AP.10 K-2.AP.11 K-2.AP.14 K-2.AP.15	K-2.CS.1 K-2.AP.08 K-2.AP.09 K-2.AP.10 K-2.AP.11 K-2.AP.12 K-2.AP.14 K-2.AP.15	K-2.CS.1 K-2.AP.08 K-2.AP.09 K-2.AP.10 K-2.AP.11 K-2.AP.14 K-2.AP.15	K-2.CS.1 K-2.AP.08 K-2.AP.09 K-2.AP.10 K-2.AP.11 K-2.AP.12 K-2.AP.14 K-2.AP.15
ISTE Standards	1.1.c, 1.1.d, 1.4.d 1.5.c, 1.5.d, 1.6.b	1.1.c, 1.1.d, 1.4.d 1.5.c, 1.5.d, 1.6.b	1.1.c, 1.1.d, 1.4.d 1.5.c, 1.5.d, 1.6.b	1.1.c, 1.1.d, 1.4.d 1.5.c, 1.5.d, 1.6.b	1.1.c, 1.1.d, 1.4.d 1.5.c, 1.5.d, 1.6.b	1.1.c, 1.1.d, 1.4.d 1.5.c, 1.5.d, 1.6.b	1.1.c, 1.1.d, 1.4.d 1.5.c, 1.5.d, 1.6.b	1.1.c, 1.1.d, 1.4.d 1.5.c, 1.5.d, 1.6.b
UK National Curriculum	Key stage 1 & 2 Computing*	Key stage 1 & 2 Computing*	Key stage 1 & 2 Computing*	Key stage 1 & 2 Computing*	Key stage 1 & 2 Computing*	Key stage 1 & 2 Computing*	Key stage 1 & 2 Computing*	Key stage 1 & 2 Computing*
Sample Application of Skills	Use code blocks to collect items in space.	Animate an astronaut dance party.	Explore multiple ways to solve a problem.	Identify a pattern, then use a loop to repeat the pattern.	Find and fix programming errors.	Learn different event code blocks: touch, collision, tilt, and messaging.	Use "if" statements to make your code work in different situations.	Create a program that makes fun shapes and patterns.

*See individual lesson guides for details on UK Computer standards

Dragon Spells

Scope and Sequence

Grades 1-3

Each lesson takes about 45-60 minutes to complete.

Dragon Spells is a course for students in grades 1-3 who are new to programming. It is available for free on iPads as part of the Everyone Can Code program from Apple. You can download a free teacher guide iBook from Apple. The stories, games, puzzles, and projects in this course engage students in developing computational thinking skills, as listed below from the CSTA Level 1 Computer Science standards and UK Computing standards. The Common Core State Standards for Mathematics and English Language Arts that students develop are also listed here.

	Lesson 1 - Dragon Eggs	Lesson 2 - Blast Through	Lesson 3 - Deja Vu	Lesson 4 - Twisted Trees	Lesson 5 - Dragon Scrolls	Lesson 6 - Ancient Spells	Lesson 7 - Catch Me If You Can	Lesson 8 - The Long Road
Key Skills and Concepts	• Build a set of commands, forming an algorithm • Sequence commands in a specific order to solve a problem	• Analyze algorithms to find errors • Troubleshoot and debug a program	• Detect patterns in code sequences • Build more efficient algorithms using loops	• Deconstruct problems into manageable parts • Assemble parts of a program to solve a larger problem • Recognize patterns	• Group common elements together to create efficient processes in solving problems	• Create functions to shorten code • Call a function to trigger a set of code	• Run code when a condition is true • Construct dynamic programs that can respond to changing conditions	• Repeatedly run a series of commands based on whether certain conditions are true • Nested loops
CCSS-Math Standards	2.OA.B.2 3.NBT.A.2 MP.1	2.OA.B.2 3.NBT.A.2 MP.1	2.OA.B.2 3.NBT.A.2 MP.1	2.OA.B.2 3.NBT.A.2 MP.1	2.OA.B.2 3.NBT.A.2 MP.1	2.OA.B.2 3.NBT.A.2 MP.1	2.OA.B.2 3.NBT.A.2 MP.1	2.OA.B.2 3.NBT.A.2 MP.1
CCSS-ELA Standards	RF.1.4 RF.2.4 RF.1.4.A RF.2.4.A 1.RI.10 2.RI.10 RF.3.4.A	RF.1.4 RF.2.4 RF.1.4.A RF.2.4.A 1.RI.10 2.RI.10 RF.3.4.A	RF.1.4 RF.2.4 RF.1.4.A RF.2.4.A 1.RI.10 2.RI.10 RF.3.4.A	RF.1.4 RF.2.4 RF.1.4.A RF.2.4.A 1.RI.10 2.RI.10 RF.3.4.A	RF.1.4 RF.2.4 RF.1.4.A RF.2.4.A 1.RI.10 2.RI.10 RF.3.4.A	RF.1.4 RF.2.4 RF.1.4.A RF.2.4.A 1.RI.10 2.RI.10 RF.3.4.A	RF.1.4 RF.2.4 RF.1.4.A RF.2.4.A 1.RI.10 2.RI.10 RF.3.4.A	RF.1.4 RF.2.4 RF.1.4.A RF.2.4.A 1.RI.10 2.RI.10 RF.3.4.A
CSTA Standards	1A-CS-01 1A-AP-09 1A-AP-11 1B-AP-11 1B-AP-15	1A-CS-01 1A-AP-09 1A-AP-11 1B-AP-11 1B-AP-15	1A-CS-01 1A-AP-09 1A-AP-11 1B-AP-08 1B-AP-11, 1B-AP-15	1A-CS-01 1A-AP-09 1A-AP-11 1B-AP-11 1B-AP-15	1A-CS-01 1A-AP-09 1A-AP-11 1B-AP-11 1B-AP-12, 1B-AP-15	1A-CS-01 1A-AP-09 1A-AP-11 1B-AP-11 1B-AP-15	1A-CS-01 1A-AP-09 1A-AP-11 1B-AP-10, 1B-AP-11 1B-AP-12, 1B-AP-15	1A-CS-01 1A-AP-09 1A-AP-11 1B-AP-10, 1B-AP-11 1B-AP-12, 1B-AP-15
Illinois CS Standards	K-2.CS.1, K-2.AP.08 K-2.AP.09, K-2.AP.10 K-2.AP.11, K-2.AP.14 K-2.AP.15, 3-5.AP.08 3-5.AP.11, 3-5.AP.15	K-2.CS.1, K-2.AP.08 K-2.AP.09, K-2.AP.10 K-2.AP.11, K-2.AP.14 K-2.AP.15, 3-5.AP.08 3-5.AP.11, 3-5.AP.15	K-2.CS.1, K-2.AP.08 K-2.AP.09, K-2.AP.10 K-2.AP.11, K-2.AP.14 K-2.AP.15, 3-5.AP.08 3-5.AP.11, 3-5.AP.15	K-2.CS.1, K-2.AP.08 K-2.AP.09, K-2.AP.10 K-2.AP.11, K-2.AP.14 K-2.AP.15, 3-5.AP.08 3-5.AP.11, 3-5.AP.15	K-2.CS.1, K-2.AP.08 K-2.AP.09, K-2.AP.10 K-2.AP.11, K-2.AP.14 K-2.AP.15, 3-5.AP.08 3-5.AP.11, 3-5.AP.15	K-2.CS.1, K-2.AP.08 K-2.AP.09, K-2.AP.10 K-2.AP.11, K-2.AP.14 K-2.AP.15, 3-5.AP.08 3-5.AP.11, 3-5.AP.15	K-2.CS.1, K-2.AP.08 K-2.AP.09, K-2.AP.10 K-2.AP.11, K-2.AP.14 K-2.AP.15, 3-5.AP.08 3-5.AP.10, 3-5.AP.11 3-5.AP.15	K-2.CS.1, K-2.AP.08 K-2.AP.09, K-2.AP.10 K-2.AP.11, K-2.AP.14 K-2.AP.15, 3-5.AP.08 3-5.AP.10, 3-5.AP.11 3-5.AP.15
ISTE Standards	1.1.c, 1.1.d, 1.4.d, 1.5.c, 1.5.d, 1.7.c	1.1.c, 1.1.d, 1.4.d, 1.5.c, 1.5.d, 1.7.c	1.1.c, 1.1.d, 1.4.d, 1.5.c, 1.5.d, 1.7.c	1.1.c, 1.1.d, 1.4.d, 1.5.c, 1.5.d, 1.7.c	1.1.c, 1.1.d, 1.4.d, 1.5.c, 1.5.d, 1.7.c	1.1.c, 1.1.d, 1.4.d, 1.5.c, 1.5.d, 1.7.c	1.1.c, 1.1.d, 1.4.d, 1.5.c, 1.5.d, 1.7.c	1.1.c, 1.1.d, 1.4.d, 1.5.c, 1.5.d, 1.7.c
UK National Curriculum	Key stage 1 & 2 Computing*	Key stage 1 & 2 Computing*	Key stage 1 & 2 Computing*	Key stage 1 & 2 Computing*	Key stage 1 & 2 Computing*	Key stage 1 & 2 Computing*	Key stage 1 & 2 Computing*	Key stage 1 & 2 Computing*
Sample Application of Skills	Use sequencing to solve puzzles.	Fix the broken code to solve the puzzles.	Demonstrate understanding of sequencing and loops.	Use simple loops and custom sequencing to solve puzzles.	Use loops and sequencing .	Create a Mad Libs-style game.	Use conditional statements to solve the puzzles.	Use conditional statements and loops to solve the puzzles.

*See individual lesson guides for details on UK Computer standards

Dragon Spells
Scope and Sequence

Grades 1-3

Each lesson takes about 45-60 minutes to complete.

Dragon Spells is a course for students in grades 1-3 who are new to programming. It is available for free on iPads as part of the Everyone Can Code program from Apple. You can download a free teacher guide iBook from Apple. The stories, games, puzzles, and projects in this course engage students in developing computational thinking skills, as listed below from the CSTA Level 1 Computer Science standards and UK Computing standards. The Common Core State Standards for Mathematics and English Language Arts that students develop are also listed here.

	Lesson 9 - Gem Collector	Lesson 10 - Dragon Maker					
Key Skills and Concepts	• Create a program that tracks a value that can change over time • Build programs that take input and give output	• Use loops and conditional statements to solve coding puzzles					
CCSS-Math Standards	2.OA.B.2 3.NBT.A.2 MP.1, MP.2, MP.4	2.OA.B.2 3.NBT.A.2 MP.1, MP.2, MP.4					
CCSS-ELA Standards	RF.1.4 RF.2.4 RF.1.4.A RF.2.4.A 1.RI.10 2.RI.10 RF.3.4.A	RF.1.4 RF.2.4 RF.1.4.A RF.2.4.A 1.RI.10 2.RI.10 RF.3.4.A					
CSTA Standards	1A-CS-01 1A-AP-09 1A-AP-11 1B-AP-10 1B-AP-11 1B-AP-12 1B-AP-15	1A-CS-01 1A-AP-09 1A-AP-11 1B-AP-10 1B-AP-11 1B-AP-12 1B-AP-15					
Illinois CS Standards	K-2.CS.1, K-2.AP.08 K-2.AP.09, K-2.AP.10 K-2.AP.11, K-2.AP.14 K-2.AP.15, 3-5.AP.08 3-5.AP.10, 3-5.AP.11 3-5.AP.15	K-2.CS.1, K-2.AP.08 K-2.AP.09, K-2.AP.10 K-2.AP.11, K-2.AP.14 K-2.AP.15, 3-5.AP.08 3-5.AP.10, 3-5.AP.11 3-5.AP.15					
ISTE Standards	1.1.c, 1.1.d, 1.4.d, 1.5.c, 1.5.d, 1.6.b, 1.7.c	1.1.c, 1.1.d, 1.4.d, 1.5.c, 1.5.d, 1.6.b, 1.7.c					
UK National Curriculum	Key stage 1 & 2 Computing*	Key stage 1 & 2 Computing*					
Sample Application of Skills	Create and modify variables to solve puzzles.	Customize a dragon using intuitive UI buttons.					

*See individual lesson guides for details on UK Computer standards

Programming 1A

Grades 1-2

Scope and Sequence

Each lesson takes about 45-60 minutes to complete.

Programming 1A is a course for students in grades 1-2 who are new to programming. The puzzles and projects engage students in developing computational thinking skills, as listed below from the CSTA Standards and Illinois CS Computing standards. The Common Core State Standards for Mathematics and English Language Arts that students develop are also listed here.

	Lesson 1 - Welcome	Lesson 2 - Connect Code Blocks	Lesson 3 - Recognize the Pattern	Lesson 4 - Follow the Path	Lesson 5 - Sequencing	Lesson 6 - Conditional Logic	Lesson 7 - Conditional Loops	Lesson 8 - Draw Simple Shapes
Key Skills and Concepts	• Learn about Tynker and what you can build with code	• Use simple events • Use simple loops	• Use conditional loops • Create custom sequences to solve puzzles • Recognize patterns to create algorithms	• Sequence blocks of code to create algorithms	• Use simple events • Use simple loops • Use repetition to create algorithms	• Recognize patterns • Use conditional loops • Sequence blocks of code	• Use simple events • Recognize patterns • Use conditional loops • Sequence blocks of code	• Sequence blocks of code • Draw geometric shapes and angles using repetition and loops
CCSS-Math Standards	N/A	1.OA.B.3 2.OA.B.2 MP.1	1.OA.B.3 2.OA.B.2 MP.1	1.OA.B.3 2.OA.B.2 MP.1	1.OA.B.3 2.OA.B.2 MP.1	1.OA.B.3 2.OA.B.2 MP.1	MP.1	1.OA.B.3 1.GA.1, 1.GA.2 2.GA.1, 2.GA.2 2.OA.B.2 2.NBT.A.1.A MP.1
CCSS-ELA Standards	RF.1.4, RF.2.4 RF.1.4.A, RF.2.4.A	RI.1.1, RI.2.1 RI.1.6, RI.2.6 RI.1.10, RF.1.4,RF.2.4 RF.1.4.A, RF.2.4.A RF.1.1, SL.1.1, SL.2.1 SL.1.2, SL.2.2 SL.1.3, SL.2.3	RI.1.1, RI.2.1 RI.1.6, RI.2.6 RI.1.10, RF.1.4,RF.2.4 RF.1.4.A, RF.2.4.A RF.1.1, SL.1.1, SL.2.1 SL.1.2, SL.2.2 SL.1.3, SL.2.3	RI.1.6, RI.2.6 RI.1.10, RF.1.4,RF.2.4 RF.1.4.A, RF.2.4.A RF.1.1, SL.1.1, SL.2.1 SL.1.3, SL.2.3	RI.1.1, RI.2.1 RI.1.6, RI.2.6 RI.1.10, RF.1.4,RF.2.4 RF.1.4.A, RF.2.4.A RF.1.1, SL.1.1, SL.2.1 SL.1.2, SL.2.2 SL.1.3, SL.2.3	RI.1.1, RI.2.1 RI.1.6, RI.2.6 RI.1.10, RF.1.4,RF.2.4 RF.1.4.A, RF.2.4.A RF.1.1, SL.1.1, SL.2.1 SL.1.2, SL.2.2 SL.1.3, SL.2.3	RI.1.1, RI.2.1 RI.1.6, RI.2.6 RI.1.10, RF.1.4,RF.2.4 RF.1.4.A, RF.2.4.A RF.1.1, SL.1.1, SL.2.1 SL.1.2, SL.2.2 SL.1.3, SL.2.3	RI.1.1, RI.2.1 RI.1.6, RI.2.6 RI.1.10, RF.1.4,RF.2.4 RF.1.4.A, RF.2.4.A RF.1.1, SL.1.1, SL.2.1 SL.1.2, SL.2.2 SL.1.3, SL.2.3
CSTA Standards	N/A	1A-AP-09 1A-AP-10 1A-AP-11 1A-AP-14	1A-AP-09 1A-AP-10 1A-AP-11 1A-AP-14	1A-AP-09 1A-AP-10 1A-AP-11 1A-AP-14	1A-AP-08 1A-AP-09 1A-AP-10 1A-AP-11 1A-AP-12 1A-AP-14	1A-AP-08 1A-AP-09 1A-AP-10 1A-AP-11 1A-AP-12 1A-AP-14	1A-AP-09 1A-AP-10 1A-AP-11 1A-AP-14	1A-AP-09 1A-AP-11 1A-AP-15
Illinois CS Standards	N/A	K-2.CS.1, K-2.AP.08 K-2.AP.09, K-2.AP.10 K-2.AP.11, K-2.AP.14 K-2.AP.15	K-2.CS.1, K-2.AP.08 K-2.AP.09, K-2.AP.10 K-2.AP.11, K-2.AP.14 K-2.AP.15	K-2.CS.1, K-2.AP.08 K-2.AP.09, K-2.AP.10 K-2.AP.11, K-2.AP.14 K-2.AP.15	K-2.CS.1, K-2.AP.08 K-2.AP.09, K-2.AP.10 K-2.AP.11, K-2.AP.14 K-2.AP.15	K-2.CS.1, K-2.AP.08 K-2.AP.09, K-2.AP.10 K-2.AP.11, K-2.AP.14 K-2.AP.15	K-2.CS.1, K-2.AP.08 K-2.AP.09, K-2.AP.10 K-2.AP.11, K-2.AP.14 K-2.AP.15	K-2.CS.1, K-2.AP.08 K-2.AP.09, K-2.AP.10 K-2.AP.11, K-2.AP.14 K-2.AP.15
ISTE Standards	N/A	1.1.c, 1.1.d, 1.4.d, 1.5.c, 1.5.d, 1.7.c	1.1.c, 1.1.d, 1.4.d, 1.5.c, 1.5.d, 1.7.c	1.1.c, 1.1.d, 1.4.d, 1.5.c, 1.5.d, 1.7.c	1.1.c, 1.1.d, 1.4.d, 1.5.c, 1.5.d, 1.7.c	1.1.c, 1.1.d, 1.4.d, 1.5.c, 1.5.d, 1.7.c	1.1.c, 1.1.d, 1.4.d, 1.5.c, 1.5.d, 1.7.c	1.1.c, 1.1.d, 1.4.d, 1.5.c, 1.5.d, 1.7.c
UK National Curriculum	Key stage 1 & 2 Computing*	Key stage 1 & 2 Computing*	Key stage 1 & 2 Computing*	Key stage 1 & 2 Computing*	Key stage 1 & 2 Computing*	Key stage 1 & 2 Computing*	Key stage 1 & 2 Computing*	Key stage 1 & 2 Computing*
Sample Application of Skills	Understand how to use visual blocks to program algorithms to solve puzzles.	Demonstrate understanding of sequencing and loops.	Use sequencing and repetition to solve puzzles.	Use sequencing and conditional loops to solve puzzles.	Use sequencing and repetition to solve puzzles.	Use sequencing, repetition, conditional logic, and conditional loops to solve puzzles.	Use sequencing, conditional loops, and repetition to solve puzzles.	Draw simple shapes and angles using sequencing, repetition, and loops.

*See individual lesson guides for details on UK Computer standards

Programming 1A — Grades 1-2

Scope and Sequence

Each lesson takes about 45-60 minutes to complete.

Programming 1A is a course for students in grades 1-2 who are new to programming. The puzzles and projects engage students in developing computational thinking skills, as listed below from the CSTA Standards and Illinois CS Computing standards. The Common Core State Standards for Mathematics and English Language Arts that students develop are also listed here.

	Lesson 9 - Squares, Triangles, and Staircases	Lesson 10 - Sequencing Review	Lesson 11 - Use Repeat Loops	Lesson 12 - Complete Multiple Tasks in Order				
Key Skills and Concepts	• Use simple loops • Use simple events • Draw geometric shapes with repetition and loops	• Use sequencing concepts • Use simple loops • Recognize patterns	• Use simple loops • Sequence code blocks to program algorithms	• Use functions to handle sub-tasks • Call functions • Use conditional loops				
CCSS-Math Standards	1.OA.B.3 1.GA.1, 1.GA.2 2.GA.1, 2.GA.2 2.OA.B.2 2.NBT.A.1.A MP.1	MP.1	1.OA.B.3 2.OA.B.2 MP.1	1.OA.B.3 2.OA.B.2 MP.1				
CCSS-ELA Standards	RI.1.1, RI.2.1 RI.1.6, RI.2.6 RI.1.10, RF.1.4 RF.2.4 , RF.1.4.A RF.2.4.A, RF.1.1 SL.1.1, SL.2.1 SL.1.2, SL.2.2 SL.1.3, SL.2.3	RI.1.1, RI.2.1 RI.1.6, RI.2.6 RI.1.10, RF.1.4,RF.2.4 RF.1.4.A, RF.2.4.A RF.1.1, SL.1.1, SL.2.1 SL.1.2, SL.2.2 SL.1.3, SL.2.3	RI.1.1, RI.2.1 RI.1.6, RI.2.6 RI.1.10, RF.1.4,RF.2.4 RF.1.4.A, RF.2.4.A RF.1.1, SL.1.1, SL.2.1 SL.1.2, SL.2.2 SL.1.3, SL.2.3	RI.1.1, RI.2.1 RI.1.6, RI.2.6 RI.1.10, RF.1.4,RF.2.4 RF.1.4.A, RF.2.4.A RF.1.1, SL.1.1, SL.2.1 SL.1.2, SL.2.2 SL.1.3, SL.2.3				
CSTA Standards	1A-AP-09 1A-AP-10 1A-AP-11 1A-AP-12 1A-AP-14, 1A-AP-15	1A-AP-09 1A-AP-11 1A-AP-15	1A-AP-08 1A-AP-09 1A-AP-10 1A-AP-11 1A-AP-14	1A-AP-09 1A-AP-10 1A-AP-11 1A-AP-12 1A-AP-14				
Illinois CS Standards	K-2.CS.1, K-2.AP.08 K-2.AP.09, K-2.AP.10 K-2.AP.11, K-2.AP.14 K-2.AP.15	K-2.CS.1, K-2.AP.08 K-2.AP.09, K-2.AP.10 K-2.AP.11, K-2.AP.14 K-2.AP.15	K-2.CS.1, K-2.AP.08 K-2.AP.09, K-2.AP.10 K-2.AP.11, K-2.AP.14 K-2.AP.15	K-2.CS.1, K-2.AP.08 K-2.AP.09, K-2.AP.10 K-2.AP.11, K-2.AP.14 K-2.AP.15				
ISTE Standards	1.1.c, 1.1.d, 1.4.d, 1.5.c, 1.5.d, 1.7.c	1.1.c, 1.1.d, 1.4.d, 1.5.c, 1.5.d, 1.7.c	1.1.c, 1.1.d, 1.4.d, 1.5.c, 1.5.d, 1.7.c	1.1.c, 1.1.d, 1.4.d, 1.5.c, 1.5.d, 1.7.c				
UK National Curriculum	Key stage 1 & 2 Computing*	Key stage 1 & 2 Computing*	Key stage 1 & 2 Computing*	Key stage 1 & 2 Computing*				
Sample Application of Skills	Draw various shapes using sequencing, repetition and loops.	Use sequencing and repetition to solve puzzles.	Use sequencing, repetition, and loops to solve puzzles.	Use functions, sequencing, and loops to solve puzzles.				

*See individual lesson guides for details on UK Computer standards

Programming 1B — Grades 1-2

Scope and Sequence

Each lesson takes about 45-60 minutes to complete.

Programming 1B is a course for students in grades 1-2 who are new to programming. The puzzles and projects engage students in developing computational thinking skills, as listed below from the CSTA Standards and Illinois CS Computing standards. The Common Core State Standards for Mathematics and English Language Arts that students develop are also listed here.

	Lesson 1 - Welcome	Lesson 2 - Use Conditional Logic	Lesson 3 – Apply Advanced Logic	Lesson 4 - Animation and Sound	Lesson 5 - Apply Negative Logic	Lesson 6 - Use Nested Logic	Lesson 7 - Use Advanced Logic	Lesson 8 - Write a Story
Key Skills and Concepts	• Learn about Tynker and what you can build with code	• Use simple events • Use simple loops • Use negative logic	• Use conditional loops • Create custom sequences to solve puzzles	• Use simple events • Animate characters using sounds and events	• Use simple events • Use simple loops • Use repetition to create algorithms • Use negative logic	• Recognize patterns • Use conditional loops • Use nested logic	• Use simple events • Recognize patterns • Use conditional loops • Sequence blocks of code	• Sequence blocks of code • Animate characters using sounds, dialogue, and events
CCSS-Math Standards	N/A	2.OA.B.2 MP.1	2.OA.B.2 MP.1	2.OA.B.2 MP.1	2.OA.B.2 MP.1	2.OA.B.2 MP.1	2.OA.B.2 MP.1	2.OA.B.2 MP.1
CCSS-ELA Standards	RF.1.4,RF.2.4 RF.1.4.A, RF.2.4.A	RI.1.1, RI.2.1 RI.1.6, RI.2.6 RI.1.10, RF.1.4,RF.2.4 RF.1.4.A, RF.2.4.A RF.1.1, SL.1.1, SL.2.1 SL.1.2, SL.2.2 SL.1.3, SL.2.3	RI.1.1, RI.2.1 RI.1.6, RI.2.6 RI.1.10, RF.1.4,RF.2.4 RF.1.4.A, RF.2.4.A RF.1.1, SL.1.1, SL.2.1 SL.1.2, SL.2.2 SL.1.3, SL.2.3	RI.1.1, RI.2.1 RI.1.6, RI.2.6 RI.1.10, RF.1.4,RF.2.4 RF.1.4.A, RF.2.4.A RF.1.1, SL.1.1, SL.2.1 SL.1.2, SL.2.2 SL.1.3, SL.2.3	RI.1.1, RI.2.1 RI.1.6, RI.2.6 RI.1.10, RF.1.4,RF.2.4 RF.1.4.A, RF.2.4.A RF.1.1, SL.1.1, SL.2.1 SL.1.2, SL.2.2 SL.1.3, SL.2.3	RI.1.1, RI.2.1 RI.1.6, RI.2.6 RI.1.10, RF.1.4,RF.2.4 RF.1.4.A, RF.2.4.A RF.1.1, SL.1.1, SL.2.1 SL.1.2, SL.2.2 SL.1.3, SL.2.3	RI.1.1, RI.2.1 RI.1.6, RI.2.6 RI.1.10, RF.1.4,RF.2.4 RF.1.4.A, RF.2.4.A RF.1.1, SL.1.1, SL.2.1 SL.1.2, SL.2.2 SL.1.3, SL.2.3	RI.1.1, RI.2.1 RI.1.6, RI.2.6 RI.1.10, RF.1.4,RF.2.4 RF.1.4.A, RF.2.4.A RF.1.1, SL.1.1, SL.2.1 SL.1.2, SL.2.2 SL.1.3, SL.2.3
CSTA Standards	N/A	1A-AP-09 1A-AP-10 1A-AP-11 1A-AP-14 1A-AP-15	1A-AP-08 1A-AP-09 1A-AP-10 1A-AP-11 1A-AP-14 1A-AP-15	1A-AP-09 1A-AP-11 1A-AP-15	1A-AP-08 1A-AP-09 1A-AP-10 1A-AP-11 1A-AP-14 1A-AP-15	1A-AP-09 1A-AP-10 1A-AP-11 1A-AP-14	1A-AP-09 1A-AP-10 1A-AP-11 1A-AP-14	1A-AP-09 1A-AP-11 1A-AP-15
Illinois CS Standards	N/A	K-2.CS.1, K-2.AP.08 K-2.AP.09, K-2.AP.10 K-2.AP.11, K-2.AP.14 K-2.AP.15	K-2.CS.1, K-2.AP.08 K-2.AP.09, K-2.AP.10 K-2.AP.11, K-2.AP.14 K-2.AP.15	K-2.CS.1, K-2.AP.08 K-2.AP.09, K-2.AP.10 K-2.AP.11, K-2.AP.12 K-2.AP.14 K-2.AP.15	K-2.CS.1, K-2.AP.08 K-2.AP.09, K-2.AP.10 K-2.AP.11, K-2.AP.14 K-2.AP.15	K-2.CS.1, K-2.AP.08 K-2.AP.09, K-2.AP.10 K-2.AP.11, K-2.AP.14 K-2.AP.15	K-2.CS.1, K-2.AP.08 K-2.AP.09, K-2.AP.10 K-2.AP.11, K-2.AP.14 K-2.AP.15	K-2.CS.1, K-2.AP.08 K-2.AP.09, K-2.AP.10 K-2.AP.11, K-2.AP.12 K-2.AP.14 K-2.AP.15
ISTE Standards	N/A	1.1.c, 1.1.d, 1.4.d, 1.5.c, 1.5.d, 1.7.c	1.1.c, 1.1.d, 1.4.d, 1.5.c, 1.5.d, 1.7.c	1.1.c, 1.1.d, 1.4.d, 1.5.c, 1.5.d, 1.7.c	1.1.c, 1.1.d, 1.4.d, 1.5.c, 1.5.d, 1.7.c	1.1.c, 1.1.d, 1.4.d, 1.5.c, 1.5.d, 1.7.c	1.1.c, 1.1.d, 1.4.d, 1.5.c, 1.5.d, 1.7.c	1.1.c, 1.1.d, 1.4.d, 1.5.c, 1.5.d, 1.7.c
UK National Curriculum	Key stage 1 & 2 Computing*	Key stage 1 & 2 Computing*	Key stage 1 & 2 Computing*	Key stage 1 & 2 Computing*	Key stage 1 & 2 Computing*	Key stage 1 & 2 Computing*	Key stage 1 & 2 Computing*	Key stage 1 & 2 Computing*
Sample Application of Skills	Understand how to use visual blocks to program algorithms to solve puzzles.	Use repetitive sequencing and conditional logic to solve puzzles.	Use conditional logic and loops to solve puzzles.	Create an animation of a character interacting with their surroundings.	Use sequencing and repetition to solve puzzles.	Use sequencing, conditional logic, conditional loops, and repetition to solve puzzles.	Use sequencing, conditional loops, and repetition to solve puzzles.	Create an animation of a character interacting with their surroundings.

*See individual lesson guides for details on UK Computer standards

Programming 1B — Grades 1-2

Scope and Sequence

Each lesson takes about 45-60 minutes to complete.

Programming 1B is a course for students in grades 1-2 who are new to programming. The puzzles and projects engage students in developing computational thinking skills, as listed below from the CSTA Standards and Illinois CS Computing standards. The Common Core State Standards for Mathematics and English Language Arts that students develop are also listed here.

	Lesson 9 - Make Geometric Patterns	Lesson 10 - Use Arrow Keys to Move	Lesson 11 - Build a Game	Lesson 12 - Sequencing Review	Lesson 13 - Loops Review	Lesson 14 - Patterns Review		
Key Skills and Concepts	• Sequence blocks of code • Draw geometric shapes using repetition and loops	• Use sequencing concepts • Animate characters using motion, sound, and events	• Use simple events and loops • Animate characters using motion, sound, and events	• Use sequencing concepts • Use simple loops • Recognize patterns	• Use simple loops • Sequence code blocks to program algorithms	• Recognize patterns • Sequence code blocks to program algorithms		
CCSS-Math Standards	1.OA.B.3 1.GA.1, 1.GA.2 2.GA.1, 2.GA.2 2.OA.B.2 2.NBT.A.1.A MP.1	1.OA.B.3 1.NBT.B.2 2.OA.B.2 MP.1	1.OA.B.3 1.NBT.B.2 MP.1	1.OA.B.3 2.OA.B.2 MP.1	1.OA.B.3 2.OA.B.2 MP.1	1.OA.B.3 2.OA.B.2 MP.1		
CCSS-ELA Standards	RI.1.1, RI.2.1 RI.1.6, RI.2.6 RI.1.10, RF.1.4,RF.2.4 RF.1.4.A, RF.2.4.A RF.1.1, SL.1.1, SL.2.1 SL.1.2, SL.2.2 SL.1.3, SL.2.3	RI.1.1, RI.2.1 RI.1.6, RI.2.6 RI.1.10, RF.1.4,RF.2.4 RF.1.4.A, RF.2.4.A RF.1.1, SL.1.1, SL.2.1 SL.1.2, SL.2.2 SL.1.3, SL.2.3	RI.1.1, RI.2.1 RI.1.6, RI.2.6 RI.1.10, RF.1.4,RF.2.4 RF.1.4.A, RF.2.4.A RF.1.1, SL.1.1, SL.2.1 SL.1.2, SL.2.2 SL.1.3, SL.2.3	RI.1.1, RI.2.1 RI.1.6, RI.2.6 RI.1.10, RF.1.4,RF.2.4 RF.1.4.A, RF.2.4.A RF.1.1, SL.1.1, SL.2.1, SL.1.2, SL.2.2 SL.1.3, SL.2.3	RI.1.1, RI.2.1 RI.1.6, RI.2.6 RI.1.10, RF.1.4,RF.2.4 RF.1.4.A, RF.2.4.A RF.1.1, SL.1.1, SL.2.1 SL.1.2, SL.2.2 SL.1.3, SL.2.3	RI.1.1, RI.2.1 RI.1.6, RI.2.6 RI.1.10, RF.1.4,RF.2.4 RF.1.4.A, RF.2.4.A RF.1.1, SL.1.1, SL.2.1 SL.1.2, SL.2.2 SL.1.3, SL.2.3		
CSTA Standards	1A-AP-08 1A-AP-09 1A-AP-10 1A-AP-11 1A-AP-14	1A-AP-09 1A-AP-11 1A-AP-15	1A-AP-09 1A-AP-10 1A-AP-11 1A-AP-14 1A-AP-15	1A-AP-08 1A-AP-09 1A-AP-10 1A-AP-11 1A-AP-14	1A-AP-08 1A-AP-09 1A-AP-10 1A-AP-11 1A-AP-14	1A-AP-08 1A-AP-09 1A-AP-10 1A-AP-11 1A-AP-14		
Illinois CS Standards	K-2.CS.1, K-2.AP.08 K-2.AP.09, K-2.AP.10 K-2.AP.11, K-2.AP.12 K-2.AP.14 K-2.AP.15	K-2.CS.1, K-2.AP.08 K-2.AP.09, K-2.AP.10 K-2.AP.11, K-2.AP.12 K-2.AP.14 K-2.AP.15	K-2.CS.1, K-2.AP.08 K-2.AP.09, K-2.AP.10 K-2.AP.11, K-2.AP.12 K-2.AP.14 K-2.AP.15	K-2.CS.1, K-2.AP.08 K-2.AP.09, K-2.AP.10 K-2.AP.11, K-2.AP.14 K-2.AP.15	K-2.CS.1, K-2.AP.08 K-2.AP.09, K-2.AP.10 K-2.AP.11, K-2.AP.14 K-2.AP.15	K-2.CS.1, K-2.AP.08 K-2.AP.09, K-2.AP.10 K-2.AP.11, K-2.AP.14 K-2.AP.15		
ISTE Standards	1.1.c, 1.1.d, 1.4.d, 1.5.c, 1.5.d, 1.7.c	1.1.c, 1.1.d, 1.4.d, 1.5.c, 1.5.d, 1.7.c	1.1.c, 1.1.d, 1.4.d, 1.5.c, 1.5.d, 1.7.c	1.1.c, 1.1.d, 1.4.d, 1.5.c, 1.5.d, 1.7.c	1.1.c, 1.1.d, 1.4.d, 1.5.c, 1.5.d, 1.7.c	1.1.c, 1.1.d, 1.4.d, 1.5.c, 1.5.d, 1.7.c		
UK National Curriculum	Key stage 1 & 2 Computing*	Key stage 1 & 2 Computing*	Key stage 1 & 2 Computing*	Key stage 1 & 2 Computing*	Key stage 1 & 2 Computing*	Key stage 1 & 2 Computing*		
Sample Application of Skills	Draw various shapes using sequencing, repetition and loops.	Create an animation of a rocket moving through outer space.	Create a game with moving characters interacting with one another.	Use sequencing and repetition to solve puzzles.	Use sequencing, repetition, and loops to solve puzzles.	Use sequencing, repetition, patterns, and loops to solve puzzles.		

*See individual lesson guides for details on UK Computer standards

All About Computers II

Scope and Sequence

Grades 3-5

Each lesson takes about 45-60 minutes to complete.

In this course, students familiarize themselves with computing concepts as they watch entertaining and educational videos about how computers are used, how the Internet works, data collection and visualization, cybersecurity, the history of computing, and more. All related videos are grouped together in a lesson. Students then follow along with their instructor in an extended discussion about the key topics of the videos. By watching the videos and discussing, students develop their background knowledge of computing and society as listed below from the CSTA Level 1B Computer Science standards and UK Computing standards. The Common Core State Standards for Mathematics and English Language Arts that students develop are also listed here. Note: This is the second course of the "All About Computers" video series, which both courses combined have **100% CSTA compliance**.

	Lesson 1 - What is a Computer?	Lesson 2 - How Computers are Used	Lesson 3 - Troubleshooting	Lesson 4 - The Internet	Lesson 5 - Algorithms and Programming	Lesson 6 - Digital Citizenship	Lesson 7 - Past, Present, and Future
Key Skills and Concepts	• Definition of a computer • Input, output and processing • Hardware • Software	• Applications of computing • Software engineering • Data collection and analysis	• Strategies for troubleshooting computer problems • Common hardware and software problems	• Definition of computer networks and the internet • Routing and IP addresses • Data storage	• Algorithms • Decomposition • Reusing code and attribution	• Online safety and etiquette • Cybersecurity • Passwords and encryption • Copyright law	• History of computing • Modern computers • Accessibility and usability • Use feedback to improve creative work
CCSS-Math Standards	--	3.MD.3, 4.MD.4,5.MD.2, MP.1, MP.2, MP.3, MP.4, MP.5, MP.6, MP.7	MP.1	MP.4, MP.7	MP.1, MP.2, MP.4, MP.5, MP.6, MP.7, MP.8	MP.3	--
CCSS-ELA Standards	SL.3.1, SL.3.2, SL.3.3 SL.4.1, SL.4.2, SL.4.3 SL.5.1, SL.5.2, SL.5.3 L.3.6, L.4.6, L.5.6	SL.3.1, SL.3.2, SL.3.3 SL.4.1, SL.4.2, SL.4.3 SL.5.1, SL.5.2, SL.5.3 L.3.6, L.4.6, L.5.6	SL.3.1, SL.3.2, SL.3.3 SL.4.1, SL.4.2, SL.4.3 SL.5.1, SL.5.2, SL.5.3 L.3.6, L.4.6, L.5.6	SL.3.1, SL.3.2, SL.3.3 SL.4.1, SL.4.2, SL.4.3 SL.5.1, SL.5.2, SL.5.3 L.3.6, L.4.6, L.5.6	SL.3.1, SL.3.2, SL.3.3 SL.4.1, SL.4.2, SL.4.3 SL.5.1, SL.5.2, SL.5.3 L.3.6, L.4.6, L.5.6	SL.3.1, SL.3.2, SL.3.3 SL.4.1, SL.4.2, SL.4.3 SL.5.1, SL.5.2, SL.5.3 L.3.6, L.4.6, L.5.6	SL.3.1, SL.3.2, SL.3.3 SL.4.1, SL.4.2, SL.4.3 SL.5.1, SL.5.2, SL.5.3 L.3.6, L.4.6, L.5.6
CSTA Standards	1B-CS-01 1B-CS-02	1B-CS-01 1B-DA-06 1B-DA-07 1B-IC-18	1B-CS-03	1B-NI-04	1B-AP-08 1B-AP-11 1B-AP-12, 1B-AP-13 1B-AP-14, 1B-AP-15	1B-NI-05 1B-IC-21	1B-IC-18 1B-IC-19 1B-IC-20
Illinois CS Standards	3-5.CS.01 3-5.CS.02	3-5.CS.01 3-5.DA.06 3-5.DA.07 3-5.DA.08 3-5.IC.18 3-5.ET.A	3-5.CS.03	3-5.NI.04	3-5.AP.08 , 3-5.AP.11 3-5.AP.12, 3-5.AP.13 3-5.AP.14, 3-5.AP.15	3-5.NI.05 3-5.IC.21 3-5.ET.D	3-5.IC.18 3-5.IC.19 3-5.IC.20 3-5.ET.A 3-5.ET.B
ISTE Standards	1.1.d, 1.3.b, 1.3.d	1.1.d, 1.3.b, 1.3.d, 1.5.a, 1.5.b, 1.5.c, 1.6.c	1.1.d, 1.3.b, 1.3.d	1.1.d, 1.3.b, 1.3.d	1.1.c, 1.1.d, 1.2.c, 1.3.b, 1.3.d, 1.4.a, 1.4.c, 1.5.a, 1.5.c, 1.5.d, 1.6.b	1.1.d, 1.2.a, 1.2.b, 1.2.c, 1.2.d, 1.3.b,, 1.3.d	1.1.c, 1.1.d, 1.3.b, 1.3.d, 1.4.a, 1.4.c, 1.6.d
UK National Curriculum	Key stage 2*	Key stage 2*	Key stage 2*	Key stage 2*	Key stage 2*	Key stage 2*	Key stage 2*
Sample Application of Skills	Identify some of the basic parts of a computer.	Explain how professionals in different fields use computers.	Discuss common computer troubleshooting strategies.	Describe how data is sent over the internet.	Give an example of an algorithm for an everyday task.	Explain some steps that can be taken to stay safe while online.	Compare what computers looked like in the past to what they look like now.

*See individual lesson guides for details on UK Computer standards

Programming 100 Grades 3-5

Scope and Sequence

Each lesson takes about 45-60 minutes to complete.

Programming 100 is a course for students in grades 3-5 who are new to programming. In this course, students are introduced to basic programming as they create interactive stories, design animations, and make mini-games. The puzzles and projects engage students in developing computational thinking skills, as listed below from the CSTA and Illinois CS Standards. The Common Core State Standards for Mathematics and English Language Arts that students develop are also listed here.

	Lesson 1 - Welcome to Tynker	Lesson 2 - Candy Quest	Lesson 3 - Animated Card Creator	Lesson 4 - Dragon Dash	Lesson 5 - Comic Creator	Lesson 6 - Pattern Maker	
Key Skills and Concepts	• Learn about Tynker and what you can build with code • Use loops • Identify and order steps to solve puzzles	• Use conditional statements • Recognize and describe patterns • Identify patterns in a sequence	• Program an animated greeting card	• Apply sequencing logic • Use conditional logic	• Send and receive messages to Actors • Create a digital comic	• Use loops • Create drawings • Apply knowledge of angles	
CCSS-Math Standards	3.NBT.A.2 MP.1	3.NBT.A.2 MP.1	MP.1	3.NBT.A.2 MP.1	3.NBT.A.2 5.G.A.1 MP.1	3.NBT.A.2 5.G.A.1 MP.1	
Standards	SL.3.1, SL.3.3, RF.3.4.A, SL.4.1, SL.4.1.C, RF.4.4.A SL.5.1, RF.5.4.A	SL.3.1, SL.3.3, RF.3.4.A, SL.4.1, SL.4.1.C, RF.4.4.A SL.5.1, RF.5.4.A	SL.3.1, SL.3.3, RF.3.4.A, SL.4.1, SL.4.1.C, RF.4.4.A SL.5.1, RF.5.4.A	SL.3.1, SL.3.3, RF.3.4.A, SL.4.1, SL.4.1.C, RF.4.4.A SL.5.1, RF.5.4.A	SL.3.1, SL.3.3, RF.3.4.A, SL.4.1, SL.4.1.C, RF.4.4.A SL.5.1, RF.5.4.A	SL.3.1, SL.3.3, RF.3.4.A, SL.4.1, SL.4.1.C, RF.4.4.A SL.5.1, RF.5.4.A	
CSTA Standards	1B-AP-10 1B-AP-11 1B-AP-12 1B-AP-15	1B-AP-08 1B-AP-10 1B-AP-11 1B-AP-12 1B-AP-15	1B-AP-10 1B-AP-11 1B-AP-12 1B-AP-15	1B-AP-08 1B-AP-10 1B-AP-11 1B-AP-12 1B-AP-15	1B-AP-10 1B-AP-11 1B-AP-12 1B-AP-15 1B-AP-17	1B-AP-10 1B-AP-11 1B-AP-12 1B-AP-15	
Illinois CS Standards	3-5.AP.08 3-5.AP.11 3-5.AP.12 3-5.AP.15 3-5.AP.17	3-5.AP.08 3-5.AP.10 3-5.AP.11 3-5.AP.15 3-5.AP.17	3-5.AP.08 3-5.AP.11 3-5.AP.12 3-5.AP.15	3-5.AP.08 3-5.AP.10 3-5.AP.11 3-5.AP.15	3-5.AP.08 3-5.AP.10 3-5.AP.11 3-5.AP.12 3-5.AP.15 3-5.AP.17	3-5.AP.08 3-5.AP.10 3-5.AP.11 3-5.AP.12 3-5.AP.15 3-5.AP.17	
ISTE Standards	1.1.c, 1.1.d, 1.4.d, 1.5.c, 1.5.d, 1.6.b, 1.7.c	1.1.c, 1.1.d, 1.4.d, 1.5.c, 1.5.d, 1.6.b, 1.7.c	1.1.c, 1.1.d, 1.4.d, 1.5.c, 1.5.d, 1.6.b, 1.7.c	1.1.c, 1.1.d, 1.4.d, 1.5.c, 1.5.d, 1.6.b, 1.7.c	1.1.c, 1.1.d, 1.4.d, 1.5.c, 1.5.d, 1.6.b, 1.7.c	1.1.c, 1.1.d, 1.4.d, 1.5.c, 1.5.d, 1.6.b, 1.7.c	
UK National Curriculum	Key stage 2*	Key stage 2*	Key stage 2*	Key stage 2*	Key stage 2*	Key stage 2*	
Sample Application of Skills	Create an animated project that uses sequencing and loops.	Use sequencing, loops, and conditional statements to solve puzzle modules.	Create a greeting card with music, animation, and Actors.	Use sequencing and conditional logic to solve puzzle modules.	Create an animated comic strip with a background, comic frame, speech bubbles, animated scenes, and Actors.	Navigate a spaceship Actor on a gridded plane while solving drawing puzzles.	

*See individual lesson guides for details on UK Computer standards

Programming 300

Grades 6-8

Scope and Sequence

Each lesson takes about 45-60 minutes to complete.

Programming 300 is a course for students in grades 6-8 who are new to programming. In this course, students get started with visual block coding, then move on to solving text-based coding problems in JavaScript and Python. The puzzles and projects engage students in developing computational thinking skills, as listed below from the CSTA and Illinois CS Standards. The Common Core State Standards for Mathematics and English Language Arts that students develop are also listed here.

	Lesson 1 - Intro to Tynker	Lesson 2 - Intro to Game Design	Lesson 3 - STEM	Lesson 4 - Intro to JavaScript	Lesson 5 - Intro to Python			
Key Skills and Concepts	• Learn about Tynker and what you can build with code • Use conditional loops • Create custom sequences	• Use physics blocks to program Actors to move and bounce around the Stage	• Create a multiplication game • Create a project that illustrates how a bill becomes a law	• Identify patterns • Use "for" loops to reduce lines of code	• Identify patterns • Use comments • Use "for" loops to reduce lines of code			
CCSS-Math Standards	MP.1	MP.1	MP.1	MP.1 MP.2 MP.4	MP.1 MP.4			
CCSS-ELA Standards	RI.6.4 RI.6.7 SL.6.1, SL.7.1, SL.8.1	RI.6.4 RI.6.7 SL.6.1, SL.7.1, SL.8.1	RI.6.4 RI.6.7 SL.6.1, SL.7.1, SL.8.1	RI.6.4 RI.6.7 SL.6.1, SL.7.1, SL.8.1	RI.6.4 RI.6.7 SL.6.1, SL.7.1, SL.8.1			
CSTA Computer Science Standards	2-AP-12 2-AP-13 2-AP-15 2-AP-16	2-AP-12 2-AP-13 2-AP-15 2-AP-16 2-AP-17	2-AP-12 2-AP-13 2-AP-15 2-AP-16 2-AP-17	2-AP-12 2-AP-13 2-AP-15 2-AP-17 2-AP-19	2-AP-12 2-AP-13 2-AP-15 2-AP-17 2-AP-19			
Illinois CS Standards	6-8.AP.13 6-8.AP.14 6-8.AP.16 6-8.AP.17	6-8.AP.13 6-8.AP.14 6-8.AP.16 6-8.AP.17 6-8.AP.18	6-8.AP.13 6-8.AP.14 6-8.AP.16 6-8.AP.17 6-8.AP.18	6-8.AP.13 6-8.AP.14 6-8.AP.16 6-8.AP.18 6-8.AP.20	6-8.AP.13 6-8.AP.14 6-8.AP.16 6-8.AP.18 6-8.AP.20			
ISTE Standards	1.c, 1.d, 4.d, 5.c, 5.d, 7.c	1.c, 1.d, 4.d, 5.c, 5.d, 7.c	1.c, 1.d, 4.d, 5.c, 5.d, 7.c	1.c, 1.d, 4.d, 5.c, 5.d, 7.c	1.c, 1.d, 4.d, 5.c, 5.d, 7.c			
UK National Curriculum	Key stage 2 & 3 Computing*	Key stage 2 & 3 Computing*	Key stage 2 & 3 Computing*	Key stage 2 & 3 Computing*	Key stage 2 & 3 Computing*			
Sample Application of Skills	Demonstrate understanding of sequencing and loops.	Create a two-player game.	Use sequencing, loops, and conditional statements to create a quiz game.	Use JavaScript commands to solve puzzle modules.	Use Python commands to solve puzzle modules.			

*See individual lesson guides for details on UK Computer standards

Programming 101 — Grades 3-4

Scope and Sequence

Each lesson takes about 45-60 minutes to complete.

Programming 101 is a course for students in grades 3-4 who are new to programming. The stories, games, puzzles, and projects engage students in developing computational thinking skills, as listed below from the CSTA Standards and Illinois CS Computing standards. The Common Core State Standards for Mathematics and English Language Arts that students develop are also listed here.

	Lesson 1 - Introduction	Lesson 2 - Tynker Workshop	Lesson 3 - Animation	Lesson 4 - Storytelling	Lesson 5 - Input Events	Lesson 6 - Slideshow	Lesson 7 - Character Creator	Lesson 8 - Make a Birthday Card
Key Skills and Concepts	• Use visual code blocks to create a program • Sequence steps • Use loops for repetition • Use conditional statements and branching logic	• Use characters, sounds, and scenes from the Media Library • Use simple loops • Use delays	• Use Tynker drawing tools	• Use speech bubbles to make characters have a conversation • Use different kinds of speech bubbles and delays to convey meaning and emotion	• Use keyboard or tilt controls to turn, point, or move characters	• Create slideshow presentations in Tynker	• Build and customize an animated character • Set character parts and use advanced animation	• Make characters and objects appear and disappear • Apply special graphics effects
CCSS-Math Standards	3.NBT.A.2 MP.1	MP.1	MP.1	3.NBT.A.2 MP.1	3.NBT.A.2 MP.1	3.NBT.A.2 MP.1	3.NBT.A.2 MP.1	3.NBT.A.2 MP.1
CCSS-ELA Standards	RF.3.4.A RF.4.4.A	RF.3.4.A RF.4.4.A	RF.3.4.A RF.4.4.A	RF.3.4.A RF.4.4.A	RF.3.4.A RF.4.4.A	RF.3.4.A RF.4.4.A	RF.3.4.A RF.4.4.A	RF.3.4.A RF.4.4.A
CSTA Standards	1B-AP-10 1B-AP-11 1B-AP-15	1B-AP-11 1B-AP-12 1B-AP-15	1B-AP-11 1B-AP-12 1B-AP-15	1B-AP-11 1B-AP-12 1B-AP-15	1B-AP-11 1B-AP-12 1B-AP-13, 1B-AP-15	1B-AP-11 1B-AP-12 1B-AP-13, 1B-AP-15	1B-AP-11 1B-AP-12 1B-AP-15	1B-AP-11 1B-AP-12 1B-AP-15
Illinois CS Standards	3-5.AP.08 3-5.AP.10 3-5.AP.11 3-5.AP.12 3-5.AP.15 3-5.AP.17	3-5.AP.08 3-5.AP.11 3-5.AP.12 3-5.AP.15 3-5.AP.17	3-5.AP.08 3-5.AP.11 3-5.AP.12 3-5.AP.15 3-5.AP.17	3-5.AP.08 3-5.AP.11 3-5.AP.12 3-5.AP.13 3-5.AP.15 3-5.AP.17	3-5.AP.08 3-5.AP.11 3-5.AP.12 3-5.AP.15 3-5.AP.17	3-5.AP.08 3-5.AP.11 3-5.AP.12 3-5.AP.15 3-5.AP.17	3-5.AP.08 3-5.AP.11 3-5.AP.12 3-5.AP.15 3-5.AP.17	3-5.AP.08 3-5.AP.11 3-5.AP.12 3-5.AP.15 3-5.AP.17
ISTE Standards	1.1.c, 1.1.d, 1.4.d, 1.5.c, 1.5.d, 1.7.c	1.1.c, 1.1.d, 1.4.d, 1.5.c, 1.5.d, 1.7.c	1.1.c, 1.1.d, 1.4.d, 1.5.c, 1.5.d, 1.7.c	1.1.c, 1.1.d, 1.4.d, 1.5.c, 1.5.d, 1.7.c	1.1.c, 1.1.d, 1.4.d, 1.5.c, 1.5.d, 1.7.c	1.1.c, 1.1.d, 1.4.d, 1.5.c, 1.5.d, 1.7.c	1.1.c, 1.1.d, 1.4.d, 1.5.c, 1.5.d, 1.7.c	1.1.c, 1.1.d, 1.4.d, 1.5.c, 1.5.d, 1.7.c
UK National Curriculum	Key stage 1 & 2 Computing*	Key stage 1 & 2 Computing*	Key stage 1 & 2 Computing*	Key stage 1 & 2 Computing*	Key stage 1 & 2 Computing*	Key stage 1 & 2 Computing*	Key stage 1 & 2 Computing*	Key stage 1 & 2 Computing*
Sample Application of Skills	Create a program using loops and simple conditionals to move a character through an obstacle course.	Create a scene and a character and sounds to accompany them.	Use drawing tools to draw a scene and some characters.	Create a comic-book style conversation between characters and have them tell jokes and stories.	Create unique controls to guide a robot through a maze or a car through city streets.	Create a slideshow presentation with pictures and captions.	Create an Epic Quest game, with a Hero that can animate to obtain a reward and avoid an enemy.	Create an animated birthday card with special effects.

*See individual lesson guides for details on UK Computer standards

Programming 101

Grades 3-4

Scope and Sequence

Each lesson takes about 45-60 minutes to complete.

Programming 101 is a course for students in grades 3-4 who are new to programming. The stories, games, puzzles, and projects engage students in developing computational thinking skills, as listed below from the CSTA Standards and Illinois CS Computing standards. The Common Core State Standards for Mathematics and English Language Arts that students develop are also listed here.

	Lesson 9 - The Music Machine	Lesson 10 - Positioning Actors	Lesson 11 - Pen Drawing	Lesson 12 - Keeping Score	Lesson 13 - Adding Logic	Lesson 14 - Quiz Game	Lesson 15 - Color Sensing	
Key Skills and Concepts	• Generate music using musical notes, various instruments, and changing tempos	• Move characters and objects to specific screen locations using x- and v-values • Move characters left and right using x-values, and up and down using y-values	• Make characters draw using the Pen commands • Make multiple copies of characters and objects	• Use a special TynkerBlock to keep track of score • Generate a random number from a range of numbers • Make characters respond to messages they receive	• Use conditional statements and comparison operators	• Use more advanced conditional statements and branching logic	• Make characters respond to touching certain colors	
CCSS-Math Standards	MP.1	3.NBT.A.2 MP.1	3.NBT.A.2 MP.1	3.NBT.A.2 MP.1	3.NBT.A.2 4.NBT.A.2 MP.1, MP.2, MP.4	3.NBT.A.2 4.NBT.A.2 MP.1, MP.2, MP.4	3.NBT.A.2 MP.1	
CCSS-ELA Standards	RF.3.4.A RF.4.4.A	RF.3.4.A RF.4.4.A	RF.3.4.A RF.4.4.A	RF.3.4.A RF.4.4.A	RF.3.4.A RF.4.4.A	RF.3.4.A RF.4.4.A	RF.3.4.A RF.4.4.A	
CSTA Standards	1B-AP-11 1B-AP-12 1B-AP-15	1B-AP-11 1B-AP-12 1B-AP-15	1B-AP-11 1B-AP-12 1B-AP-15	1B-AP-11 1B-AP-12 1B-AP-15	1B-AP-10 1B-AP-11 1B-AP-12 1B-AP-15	1B-AP-10 1B-AP-11 1B-AP-12 1B-AP-13 1B-AP-15	1B-AP-10 1B-AP-11 1B-AP-12 1B-AP-15	
Illinois CS Standards	3-5.AP.08 3-5.AP.11 3-5.AP.12 3-5.AP.15 3-5.AP.17	3-5.AP.08 3-5.AP.11 3-5.AP.12 3-5.AP.15 3-5.AP.17	3-5.AP.08 3-5.AP.11 3-5.AP.12 3-5.AP.15 3-5.AP.17	3-5.AP.08 3-5.AP.11 3-5.AP.12 3-5.AP.15 3-5.AP.17	3-5.AP.08 3-5.AP.11 3-5.AP.12 3-5.AP.15 3-5.AP.17	3-5.AP.08 3-5.AP.10 3-5.AP.11 3-5.AP.12 3-5.AP.13 3-5.AP.15 3-5.AP.16 3-5.AP.17	3-5.AP.08 3-5.AP.11 3-5.AP.12 3-5.AP.15 3-5.AP.17	
ISTE Standards	1.1.c, 1.1.d, 1.4.d, 1.5.c, 1.5.d, 1.7.c	1.1.c, 1.1.d, 1.4.d, 1.5.c, 1.5.d, 1.7.c	1.1.c, 1.1.d, 1.4.d, 1.5.c, 1.5.d, 1.7.c	1.1.c, 1.1.d, 1.4.d, 1.5.c, 1.5.d, 1.7.c	1.1.c, 1.1.d, 1.4.d, 1.5.c, 1.5.d, 1.7.c	1.1.c, 1.1.d, 1.4.d, 1.5.c, 1.5.d, 1.7.c	1.1.c, 1.1.d, 1.4.d, 1.5.c, 1.5.d, 1.7.c	
UK National Curriculum	Key stage 1 & 2 Computing*	Key stage 1 & 2 Computing*	Key stage 1 & 2 Computing*	Key stage 1 & 2 Computing*	Key stage 1 & 2 Computing*	Key stage 1 & 2 Computing*	Key stage 1 & 2 Computing*	
Sample Application of Skills	Create a piano and a drum machine.	Create a game with falling characters that need to be caught.	Create an Etch-a-Sketch© style drawing machine.	Create a game where characters appear and disappear in random places, and score is kept.	Create an Actor who makes different comments and changes costumes depending on the scene.	Develop an interactive story where the user provides input on which path the story will take.	Create a game where characters need to navigate through a maze and avoid enemies.	

*See individual lesson guides for details on UK Computer standards

Programming 102

Grades 3-4

Scope and Sequence

Each lesson takes about 45-60 minutes to complete.

Programming 102 is a course for students in grades 3-4 who have completed Tynker's Programming 101 course. The stories, games, puzzles, and projects engage students in developing computational thinking skills, as listed below from the CSTA Level 1 Computer Science standards and UK Computing standards. The Common Core State Standards for Mathematics and English Language Arts that students develop are also listed here.

	Lesson 1 - Review: Interactive Animation	Lesson 2 - Review: Pen Drawing	Lesson 3 - Review: Ghost-Catcher	Lesson 4 - Review: Character Creator	Lesson 5 - Show and Hide	Lesson 6 - Layers	Lesson 7 - Motion	Lesson 8 - Snowball Siege
Key Skills and Concepts	• Review how to add Actors, add Costumes, animate, move, handle key-press events, use loops for repetition, use delays, and play sounds	• Review messaging techniques and usage of the Pen drawing tools	• Review detection of color and touch • Review making characters appear and disappear	• Review basic and advanced animation methods • Review usage of conditional statements	• Review moving characters and objects to random screen locations using random number generators	• Layer characters and objects in front of or behind each other on the Stage	• Make a character follow the cursor around the stage • Use math operators in conditional statements	• Glide smoothly to a specific location • Control script flow • Broadcast and receive messages
CCSS-Math Standards	3.NBT.A.2 MP.1	4.NBT.A.2 MP.1, MP.2, MP.4	3.NBT.A.2 MP.1	3.NBT.A.2 MP.1	3.NBT.A.2 MP.1	3.NBT.A.2 MP.1	3.NBT.A.2 4.NBT.A.2 MP.1	3.NBT.A.2 MP.1
CCSS-ELA Standards	RF.3.4.A RF.4.4.A	RF.3.4.A RF.4.4.A	RF.3.4.A RF.4.4.A	RF.3.4.A RF.4.4.A	RF.3.4.A RF.4.4.A	RF.3.4.A RF.4.4.A	RF.3.4.A RF.4.4.A	RF.3.4.A RF.4.4.A
CSTA Computer Science Standards	1B-AP-10 1B-AP-11 1B-AP-12 1B-AP-15	1B-AP-10 1B-AP-11 1B-AP-12 1B-AP-15	1B-AP-10 1B-AP-11 1B-AP-12 1B-AP-15	1B-AP-10 1B-AP-11 1B-AP-12 1B-AP-15	1B-AP-11 1B-AP-12 1B-AP-15	1B-AP-10 1B-AP-11 1B-AP-12 1B-AP-15	1B-AP-10 1B-AP-11 1B-AP-12 1B-AP-15	1B-AP-10 1B-AP-11 1B-AP-12 1B-AP-15
Illinois CS Standards	3-5.AP.10 3-5.AP.11 3-5.AP.12 3-5.AP.15	3-5.AP.10 3-5.AP.11 3-5.AP.12 3-5.AP.15	3-5.AP.10 3-5.AP.11 3-5.AP.12 3-5.AP.15	3-5.AP.10 3-5.AP.11 3-5.AP.12 3-5.AP.15	3-5.AP.11 3-5.AP.12 3-5.AP.15	3-5.AP.10 3-5.AP.11 3-5.AP.12 3-5.AP.15	3-5.AP.10 3-5.AP.11 3-5.AP.12 3-5.AP.15	3-5.AP.10 3-5.AP.11 3-5.AP.12 3-5.AP.15
ISTE Standards	1.c, 1.d, 4.d, 5.c, 5.d, 6.b, 7.c	1.c, 1.d, 4.d, 5.c, 5.d, 6.b, 7.c	1.c, 1.d, 4.d, 5.c, 5.d, 6.b, 7.c	1.c, 1.d, 4.d, 5.c, 5.d, 6.b, 7.c	1.c, 1.d, 4.d, 5.c, 5.d, 6.b, 7.c	1.c, 1.d, 4.d, 5.c, 5.d, 6.b, 7.c	1.c, 1.d, 4.d, 5.c, 5.d, 6.b, 7.c	1.c, 1.d, 4.d, 5.c, 5.d, 6.b, 7.c
UK National Curriculum	Key stage 1 & 2 Computing*	Key stage 1 & 2 Computing*	Key stage 1 & 2 Computing*	Key stage 1 & 2 Computing*	Key stage 1 & 2 Computing*	Key stage 1 & 2 Computing*	Key stage 1 & 2 Computing*	Key stage 1 & 2 Computing*
Sample Application of Skills	Create an underwater adventure game involving animating and moving fish, collecting treasure, and avoiding enemies.	Create a painting program that lets the user change the colors, shades, and sizes of the brush strokes.	Create a ghost-catcher game where ghosts respond to touching certain colors.	Create an adventure game where a Hero must animate to earn power-ups while avoiding enemies.	Create a Whack-a-Mole style of game where characters appear in random locations quickly.	Build a "Where's Waldo?" style game with multiple characters overlapping and hiding.	Create an obstacle course game.	Create a snowball fight game, with different characters hiding, appearing, and disappearing when hit.

*See individual lesson guides for details on UK Computer standards

Programming 102

Scope and Sequence

Grades 3-4

Each lesson takes about 45-60 minutes to complete.

Programming 102 is a course for students in grades 3-4 who have completed Tynker's Programming 101 course. The stories, games, puzzles, and projects engage students in developing computational thinking skills, as listed below from the CSTA Level 1 Computer Science standards and UK Computing standards. The Common Core State Standards for Mathematics and English Language Arts that students develop are also listed here.

	Lesson 9 - Drawing Patterns	Lesson 10 - Color Effects	Lesson 11 - Stamping	Lesson 12 - Star Runner	Lesson 13 - Space Breaker	Lesson 14 - 2-Player Battle	Lesson 15 - Sky Train	Lesson 16 - Final Lesson
Key Skills and Concepts	• Use keyboard controls to point and turn characters, and have them use various drawing effects.	• Apply a variety of graphic effects to objects and characters. • Use functions to re-use groups of code blocks.	• Make multiple copies of characters and objects • Change sizes of characters and objects by a percentage • Draw text on the screen	• Draw lines on the screen using a new method	• Make a simple timer to control a game, and reset timer	• Use nested loops • Use conditional loops • Use "or" in a conditional statement	• Use advanced motion techniques • Call functions • Use more math operators	• Open-ended projects
CCSS-Math Standards	3.NBT.A.2 MP.1	3.NBT.A.2 MP.1	3.NBT.A.2 MP.1	3.NBT.A.2 MP.1	4.NBT.A.2 MP.1	3.NBT.A.2 MP.1	3.NBT.A.2 4.NBT.A.2 MP.1	3.NBT.A.2 4.NBT.A.2 MP.1, MP.2, MP.4
CCSS-ELA Standards	RF.3.4.A RF.4.4.A	RF.3.4.A RF.4.4.A	RF.3.4.A RF.4.4.A	RF.3.4.A RF.4.4.A	RF.3.4.A RF.4.4.A	RF.3.4.A RF.4.4.A	RF.3.4.A RF.4.4.A	RF.3.4.A RF.4.4.A
CSTA Computer Science Standards	1B-AP-11 1B-AP-12 1B-AP-15	1B-AP-10 1B-AP-11 1B-AP-12 1B-AP-15	1B-AP-11 1B-AP-12 1B-AP-15	1B-AP-11 1B-AP-12 1B-AP-15	1B-AP-10 1B-AP-11 1B-AP-12 1B-AP-15	1B-AP-10 1B-AP-11 1B-AP-12 1B-AP-13 1B-AP-15	1B-AP-10 1B-AP-11 1B-AP-12 1B-AP-15	1B-AP-10 1B-AP-11 1B-AP-12 1B-AP-15
Illinois CS Standards	3-5.AP.11 3-5.AP.12 3-5.AP.15	3-5.AP.10 3-5.AP.11 3-5.AP.12 3-5.AP.15	3-5.AP.11 3-5.AP.12 3-5.AP.15	3-5.AP.11 3-5.AP.12 3-5.AP.15	3-5.AP.10 3-5.AP.11 3-5.AP.12 3-5.AP.15	3-5.AP.10 3-5.AP.11 3-5.AP.12 3-5.AP.13 3-5.AP.15	3-5.AP.10 3-5.AP.11 3-5.AP.12 3-5.AP.15	3-5.AP.10 3-5.AP.11 3-5.AP.12 3-5.AP.15
ISTE Standards	1.c, 1.d, 4.d, 5.c, 5.d, 6.b, 7.c	1.c, 1.d, 4.d, 5.c, 5.d, 6.b, 7.c	1.c, 1.d, 4.d, 5.c, 5.d, 6.b, 7.c	1.c, 1.d, 4.d, 5.c, 5.d, 6.b, 7.c	1.c, 1.d, 4.d, 5.c, 5.d, 6.b, 7.c	1.c, 1.d, 4.d, 5.c, 5.d, 6.b, 7.c	1.c, 1.d, 4.d, 5.c, 5.d, 6.b, 7.c	1.c, 1.d, 4.d, 5.c, 5.d, 6.b, 7.c
UK National Curriculum	Key stage 1 & 2 Computing*	Key stage 1 & 2 Computing*	Key stage 1 & 2 Computing*	Key stage 1 & 2 Computing*	Key stage 1 & 2 Computing*	Key stage 1 & 2 Computing*	Key stage 1 & 2 Computing*	Key stage 1 & 2 Computing*
Sample Application of Skills	Create interesting circular patterns among the stars by making starships turn and change colors.	Create a constellation maker that draws lines between draggable stars and uses a variety of graphic effects.	Fill a scene with multiple copies of characters and objects with different costumes.	Create a game where a starship can shoot lasers at stars and enemy ships.	Build a Space Breaker game with a ball, paddles, and bricks.	Develop a battle game with lasers, characters, scenes, and music.	Create a Sky Rider with train cars that follow along one after the other, and collect treasures.	Five open-ended projects allow students to use their creativity and apply all of the concepts they've learned.

*See individual lesson guides for details on UK Computer standards

Programming 201

Grades 5-6

Scope and Sequence

Each lesson takes about 45-60 minutes to complete.

Programming 201 is a course for students in grades 5-6 who are new to Tynker. The stories, games, puzzle and projects engage students in developing computational thinking skills, as listed below from the CSTA Level 1 Computer Science standards and UK Computing standards. The Common Core State Standards for Mathematics and English Language Arts are also listed here.

	Lesson 1 - Introduction	Lesson 2 - Loops and Animation	Lesson 3 - Creating a Scene	Lesson 4 - Jumping over Obstacles	Lesson 5 - Storytelling	Lesson 6 - User Interaction	Lesson 7 - Guessing Game	Lesson 8 - Rotation
Key Skills and Concepts	• Use blocks to create a program • Sequencing of steps • Use simple animation • Use sounds • Use loops for repetition	• Create and animate characters • Add background and sounds to a scene	• Add sounds to characters • Handle key-press events • Animate character when clicked	• Move characters up and down using changes in y-values	• Use speech bubbles to make characters have a conversation • Use different kinds of speech bubbles to convey emotion • Use a delay to control timing	• Move characters using keyboard controls and changes in x- and y-values	• Use conditional statements and branching logic • Use some math operators • Wait for a signal	• Use direction and turning
CCSS-Math Standards	MP.1	MP.1	MP.1	5.G.A.1 MP.1	5.G.A.1 5.G.A.2 MP.1	5.G.A.1 5.G.A.2 6.NS.C.5 MP.1	5.G.A.1 5.G.A.2 MP.1 MP.2	5.G.1 5.G.2 6.NS.6 MP.1
CCSS-ELA Standards	RF.5.4.A 6-8.RST.3 6-8.RST.4 6-8.RST.7	RF.5.4.A 6-8.RST.3 6-8.RST.4 6-8.RST.7	RF.5.4.A 6-8.RST.3 6-8.RST.4 6-8.RST.7	RF.5.4.A 6-8.RST.3 6-8.RST.4 6-8.RST.7	5.W.3, 6.W.3 5.W.4, 6.W.4 5.L.1, 6.L.1 5.L.2, 6.L.2 5.L.3, 6.L.3 RF.5.4.A, 6-8.RST.3 6-8.RST.4, 6-8.RST.7	RF.5.4.A 6-8.RST.3 6-8.RST.4 6-8.RST.7	5.W.3, 6.W.3 5.W.4, 6.W.4 5.L.1, 6.L.1 5.L.2, 6.L.2 5.L.3, 6.L.3 RF.5.4.A, 6-8.RST.3 6-8.RST.4, 6-8.RST.7	RF.5.4.A 6-8.RST.3 6-8.RST.4 6-8.RST.7
CSTA Computer Science Standards	1B-AP-10 1B-AP-11 1B-AP-12 1B-AP-15 2-AP-12 2-AP-13, 2-AP-15 2-AP-16, 2-AP-17	1B-AP-11 1B-AP-12 1B-AP-15 2-AP-13 2-AP-16 2-AP-17	1B-AP-11 1B-AP-12 1B-AP-15 2-AP-13 2-AP-16 2-AP-17	1B-AP-10 1B-AP-11 1B-AP-12 1B-AP-15 2-AP-12 2-AP-13 2-AP-16, 2-AP-17	1B-AP-11 1B-AP-12 1B-AP-15 1B-AP-16 1B-AP-17 2-AP-13 2-AP-16, 2-AP-17	1B-AP-11 1B-AP-12 1B-AP-15 2-AP-13 2-AP-16 2-AP-17	1B-AP-10 1B-AP-11 1B-AP-12 1B-AP-15 1B-AP-16, IB-AP-17 2-AP-12, 2-AP-13 2-AP-16, 2-AP-17	1B-AP-11 1B-AP-12 1B-AP-15 2-AP-13 2-AP-16 2-AP-17
Illinois CS Standards	3-5.AP.10 3-5.AP.11 3-5.AP.12 3-5.AP.15 6-8.AP.13, 6-8.AP.14 6-8.AP.16, 6-8.AP.17 6-8.AP.18	3-5.AP.11 3-5.AP.12 3-5.AP.15 6-8.AP.14 6-8.AP.17 6-8.AP.18	3-5.AP.11 3-5.AP.12 3-5.AP.15 6-8.AP.14 6-8.AP.17 6-8.AP.18	3-5.AP.10 3-5.AP.11 3-5.AP.12 3-5.AP.15 6-8.AP.13, 6-8.AP.14 6-8.AP.17, 6-8.AP.18	3-5.AP.11 3-5.AP.12 3-5.AP.15 3-5.AP.16 3-5.AP.17 6-8.AP.14 6-8.AP.17, 6-8.AP.18	3-5.AP.11 3-5.AP.12 3-5.AP.15 6-8.AP.14 6-8.AP.17 6-8.AP.18	3-5.AP.10 3-5.AP.11 3-5.AP.12 3-5.AP.15 3-5.AP.16, 3-5.AP.17 6-8.AP.13, 6-8.AP.14 6-8.AP.17, 6-8.AP.18	3-5.AP.11 3-5.AP.12 3-5.AP.15 6-8.AP.14 6-8.AP.17 6-8.AP.18
ISTE Standards	1.c, 1.d, 4.d, 5.c, 5.d, 6.b	1.c, 1.d, 4.d, 5.c, 5.d, 6.b	1.c, 1.d, 4.d, 5.c, 5.d, 6.b	1.c, 1.d, 4.d, 5.c, 5.d, 6.b	1.c, 1.d, 4.d, 5.c, 5.d, 6.b	1.c, 1.d, 4.d, 5.c, 5.d, 6.b	1.c, 1.d, 4.d, 5.c, 5.d, 6.b	1.c, 1.d, 4.d, 5.c, 5.d, 6.b
UK National Curriculum	Key stage 2 & 3 Computing*	Key stage 2 & 3 Computing*	Key stage 2 & 3 Computing*	Key stage 2 & 3 Computing*	Key stage 2 & 3 Computing*	Key stage 2 & 3 Computing*	Key stage 2 & 3 Computing*	Key stage 2 & 3 Computing*
Sample Application of Skills	Use loops to create a basic stop-motion animation.	Create a natural environment scene with sounds from that habitat.	Create a slideshow on a historical event. Add actors and record your own voice for narration.	Create a scene with multiple characters that animate and jump up and down when clicked.	Create a dialogue that tackles a digital citizenship issue such as cyber bullying.	Update the natural environment scene to make various animals move and speak.	Create an interactive quiz game to assess knowledge about any subject.	Create a scene with multiple characters that can animate, move, flip and rotate.

Programming 201 — Grades 5-6

Scope and Sequence

Each lesson takes about 45-60 minutes to complete.

Programming 201 is a course for students in grade 5 or 6 who are new to Tynker. The stories, games, puzzle and projects engage students in developing computational thinking skills, as listed below from the CSTA Level 1 Computer Science standards and UK Computing standards. The Common Core State Standards for Mathematics and English Language Arts that students develop are also listed here.

	Lesson 9 - Alien Invaders	Lesson 10 - Music and Animation	Lesson 11 - Instruments and Tempo	Lesson 12 - Broadcasting Messages	Lesson 13 - Time Limits	Lesson 14 - Message Driven Programming	Lesson 15 - Pop the Balloon	Lesson 16 - Animation with Movement
Key Skills and Concepts	• Use screen bounds to make characters bounce at screen edge • Move characters and objects to random screen locations using random numbers • Make characters and objects appear and disappear	• Add background music for a character	• Generate music using musical notes, various instruments, and changing tempos	• Send and receive messages between characters	• Use properties of other characters • Make a simple timer to control a game • Troubleshoot and debug a program	• Make characters perform different animations based on the messages they receive	• Receive a message to run a program • Use animation techniques to simulate explosions	• Send a message to make a character move, animate and make sounds at the same time
CCSS-Math Standards	MP.1 5.G.A.1 5.G.A.2 6.NS.C.6	MP.1	MP.1	MP.1	5.G.A.1 5.G.A.2 6.NS.C.6 MP.1	MP.1	5.G.A.1 5.G.A.2 6.NS.C.6 MP.1	5.G.A.1 5.G.A.2 6.NS.C.5, 6.NS.C.6 MP.1
CCSS-ELA Standards	5.RF.4.A 6-8.RST.3 6-8.RST.4 6-8.RST.7	5.RF.4.A 6-8.RST.3 6-8.RST.4 6-8.RST.7	5.RF.4.A 6-8.RST.3 6-8.RST.4 6-8.RST.7	5.RF.4.A 6-8.RST.3 6-8.RST.4 6-8.RST.7	5.RF.4.A 6-8.RST.3 6-8.RST.4 6-8.RST.7	5.RF.4.A 6-8.RST.3 6-8.RST.4 6-8.RST.7	5.RF.4.A 6-8.RST.3 6-8.RST.4 6-8.RST.7	5.RF.4.A 6-8.RST.3 6-8.RST.4 6-8.RST.7
CSTA Computer Science Standards	1B-AP-10 1B-AP-11 1B-AP-12 1B-AP-15 2-AP-12 2-AP-13 2-AP-16, 2-AP-17	1B-AP-11 1B-AP-12 1B-AP-15 2-AP-13 2-AP-16 2-AP-17	1B-AP-11 1B-AP-12 1B-AP-15 2-AP-13 2-AP-16 2-AP-17	1B-AP-11 1B-AP-12 1B-AP-15 2-AP-13 2-AP-16 2-AP-17	1B-AP-11 1B-AP-12 1B-AP-15 2-AP-13 2-AP-16 2-AP-17	1B-AP-11 1B-AP-12 1B-AP-15 2-AP-13 2-AP-16 2-AP-17	1B-AP-11 1B-AP-12 1B-AP-15 2-AP-13 2-AP-16 2-AP-17	1B-AP-10 1B-AP-11 1B-AP-12 1B-AP-15 2-AP-11 2-AP-12 , 2-AP-13 2-AP-16 , 2-AP-17
Illinois CS Standards	3-5.AP.10 3-5.AP.11 3-5.AP.12 3-5.AP.15 6-8.AP.13 6-8.AP.14 6-8.AP.17, 6-8.AP.18	3-5.AP.11 3-5.AP.12 3-5.AP.15 6-8.AP.14 6-8.AP.17 6-8.AP.18	3-5.AP.11 3-5.AP.12 3-5.AP.15 6-8.AP.14 6-8.AP.17 6-8.AP.18	3-5.AP.11 3-5.AP.12 3-5.AP.15 6-8.AP.14 6-8.AP.17 6-8.AP.18	3-5.AP.11 3-5.AP.12 3-5.AP.15 6-8.AP.14 6-8.AP.17 6-8.AP.18	3-5.AP.11 3-5.AP.12 3-5.AP.15 6-8.AP.14 6-8.AP.17 6-8.AP.18	3-5.AP.11 3-5.AP.12 3-5.AP.15 6-8.AP.13 6-8.AP.14 6-8.AP.17 6-8.AP.18	3-5.AP.10 3-5.AP.11 3-5.AP.12 3-5.AP.15 6-8.AP.12 6-8.AP.13 6-8.AP.14 6-8.AP.17, 6-8.AP.18
ISTE Standards	1.c, 1.d, 4.d, 5.c, 5.d, 6.b	1.c, 1.d, 4.d, 5.c, 5.d, 6.b	1.c, 1.d, 4.d, 5.c, 5.d, 6.b	1.c, 1.d, 4.d, 5.c, 5.d, 6.b	1.c, 1.d, 4.d, 5.c, 5.d, 6.b	1.c, 1.d, 4.d, 5.c, 5.d, 6.b	1.c, 1.d, 4.d, 5.c, 5.d, 6.b	1.c, 1.d, 4.d, 5.c, 5.d, 6.b
UK National Curriculum	Key stage 2 & 3 Computing*	Key stage 2 & 3 Computing*	Key stage 2 & 3 Computing*	Key stage 2 & 3 Computing*	Key stage 2 & 3 Computing*	Key stage 2 & 3 Computing*	Key stage 2 & 3 Computing*	Key stage 2 & 3 Computing*
Sample Application of Skills	Create a two-player space shooter game.	Use music to create a game where robots battle to mimic the sound sequence.	Build a traditional piano and a unique piano.	Create an interactive musical activity involving multiple characters.	Create a timed two-player game.	Program a BeatBot to perform dance moves.	Create a balloon-popping game with explosion effects.	Combine animation with music and movement to create a music video.

Programming 201

Scope and Sequence

Grades 5-6

Each lesson takes about 45-60 minutes to complete.

Programming 201 is a course for students in grade 5-6 who are new to Tynker. The stories, games, puzzle and projects engage students in developing computational thinking skills, as listed below from the CSTA Level 1 Computer Science standards and UK Computing standards. The Common Core State Standards for Mathematics and English Language Arts that students develop are also listed here.

	Lesson 17 - Obstacle Course							
Key Skills and Concepts	• Use nested loops to repeat specific actions • Make characters follow other characters and cursor • Make characters bounce when they reach screen edge							
CCSS-Math Standards	5.G.A.1 5.G.A.2 6.NS.C.6 MP.1							
CCSS-ELA Standards	5.RF.4.A 6-8.RST.3 6-8.RST.4 6-8.RST.7							
CSTA Computer Science Standards	1B-AP-11 1B-AP-12 1B-AP-15 2-AP-13 2-AP-16 2-AP-17							
Illinois CS Standards	3-5.AP.11 3-5.AP.12 3-5.AP.15 6-8.AP.14 6-8.AP.17 6-8.AP.18							
ISTE Standards	1.c, 1.d, 4.d, 5.c, 5.d, 6.b							
UK National Curriculum	Key stage 2 & 3 Computing*							
Sample Application of Skills	Create an obstacle course or a parade featuring animated characters and objects. Apply all concepts to build a highly interactive project.							

*See individual lesson guides for details on UK Computer standards

Programming 202 — Grades 5-6

Scope and Sequence

Each lesson takes about 45-60 minutes to complete.

Programming 202 is a course for students in grades 5-6 who have completed Tynker's Programming 201 course. The stories, games, puzzles, and projects engage students in developing computational thinking skills, as listed below from the CSTA Level 1 Computer Science standards and UK Computing standards. The Common Core State Standards for Mathematics and English Language Arts that students develop are also listed here.

	Lesson 1 - Pen Drawing	Lesson 2 - Following the Mouse	Lesson 3 - Changing Size	Lesson 4 - Changing Pen Color	Lesson 5 - Detecting Colors	Lesson 6 - Avoiding Obstacles	Lesson 7 - Geometry	Lesson 8 - Game Effects and Rules
Key Skills and Concepts	• Use the pen drawing tool and change pen settings • Point toward the mouse pointer	• Make characters follow other characters and cursor • Move characters and objects to random screen locations using random number generators • Make objects appear and disappear	• Make characters change their size, and create the illusion of perspective	• Change the color and size of pen for drawing	• Detect colors, touches, and screen bounds	• Use keyboard controls to point and turn characters • Apply a variety of graphic effects to objects and characters.	• Draw geometric shapes	• Handle advanced events • Use conditional statements to trigger special graphic and sound effects
CCSS-Math Standards	MP.1	5.G.A.1 5.G.A.2 6.NS.C.6, MP.1	MP.1	5.G.A.1 MP.1 MP.2	MP.1	5.G.A.1 6.NS.C.5 MP.1, MP.2	MP.1	MP.1
CCSS-ELA Standards	5.RF.4.A 6-8.RST.3 6-8.RST.4 6-8.RST.7	5.RF.4.A 6-8.RST.3 6-8.RST.4 6-8.RST.7	5.RF.4.A 6-8.RST.3 6-8.RST.4 6-8.RST.7	5.RF.4.A 6-8.RST.3 6-8.RST.4 6-8.RST.7	5.RF.4.A 6-8.RST.3 6-8.RST.4 6-8.RST.7	5.RF.4.A 6-8.RST.3 6-8.RST.4 6-8.RST.7	5.RF.4.A 6-8.RST.3 6-8.RST.4 6-8.RST.7	5.RF.4.A 6-8.RST.3 6-8.RST.4 6-8.RST.7
CSTA Computer Science Standards	1B-AP-10 1B-AP-11 1B-AP-12 1B-AP-15 2-AP-13 2-AP-16, 2-AP-17	1B-AP-10 1B-AP-11 1B-AP-12 1B-AP-15 2-AP-13 2-AP-16, 2-AP-17	1B-AP-10 1B-AP-11 1B-AP-12 1B-AP-15 2-AP-13 2-AP-16, 2-AP-17	1B-AP-11 1B-AP-12 1B-AP-15 2-AP-13 2-AP-16 2-AP-17	1B-AP-10 1B-AP-11 1B-AP-12 1B-AP-15 2-AP-13 2-AP-16, 2-AP-17	1B-AP-10 1B-AP-11 1B-AP-12 1B-AP-15 2-AP-13 2-AP-16, 2-AP-17	1B-AP-11 1B-AP-15 2-AP-13 2-AP-16 2-AP-17	1B-AP-10 1B-AP-11 1B-AP-12 1B-AP-15 2-AP-13 2-AP-16, 2-AP-17
Illinois CS Standards	3-5.AP.10 3-5.AP.11 3-5.AP.12 3-5.AP.15 6-8.AP.14 6-8.AP.17 6-8.AP.18	3-5.AP.10 3-5.AP.11 3-5.AP.12 3-5.AP.15 6-8.AP.14 6-8.AP.17 6-8.AP.18	3-5.AP.10 3-5.AP.11 3-5.AP.12 3-5.AP.15 6-8.AP.14 6-8.AP.17 6-8.AP.18	3-5.AP.11 3-5.AP.12 3-5.AP.15 6-8.AP.14 6-8.AP.17 6-8.AP.18	3-5.AP.10 3-5.AP.11 3-5.AP.12 3-5.AP.15 6-8.AP.14 6-8.AP.17 6-8.AP.18	3-5.AP.10 3-5.AP.11 3-5.AP.12 3-5.AP.15 6-8.AP.14 6-8.AP.17 6-8.AP.18	3-5.AP.11 3-5.AP.15 6-8.AP.14 6-8.AP.17 6-8.AP.18	3-5.AP.10 3-5.AP.11 3-5.AP.12 3-5.AP.15 6-8.AP.14 6-8.AP.17 6-8.AP.18
ISTE Standards	1.c, 1.d, 4.d, 5.c, 5.d 6.b	1.c, 1.d, 4.d, 5.c, 5.d 6.b	1.c, 1.d, 4.d, 5.c, 5.d 6.b	1.c, 1.d, 4.d, 5.c, 5.d 6.b	1.c, 1.d, 4.d, 5.c, 5.d 6.b	1.c, 1.d, 4.d, 5.c, 5.d 6.b	1.c, 1.d, 4.d, 5.c, 5.d 6.b	1.c, 1.d, 4.d, 5.c, 5.d 6.b
UK National Curriculum	Key stage 2 & 3 Computing*	Key stage 2 & 3 Computing*	Key stage 2 & 3 Computing*	Key stage 2 & 3 Computing*	Key stage 2 & 3 Computing*	Key stage 2 & 3 Computing*	Key stage 2 & 3 Computing*	Key stage 2 & 3 Computing*
Sample Application of Skills	Draw shapes and patterns using pen drawing commands.	Build a chase game where creatures or vehicles chase after each other.	Program a racer to jump over enemy lines to reach its goal.	Create an Etch-a-Sketch© style drawing machine.	Make characters and objects interact with each other by detecting touches and colors.	Create an obstacle course	Draw a variety of geometric shapes using a racer.	Create a game using ghosting, portals, sound effects, and advanced rules.

Programming 202 — Grades 5-6

Scope and Sequence

Each lesson takes about 45-60 minutes to complete.

Programming 202 is a course for students in grades 5-6 who have completed Tynker's Programming 201 course. The stories, games, puzzles, and projects engage students in developing computational thinking skills, as listed below from the CSTA Level 1 Computer Science standards and UK Computing standards. The Common Core State Standards for Mathematics and English Language Arts that students develop are also listed here.

	Lesson 9 - The Physics Engine	Lesson 10 - Gravity and Bouncing	Lesson 11 - Static Platforms	Lesson 12 - Basketball	Lesson 13 - Impulses	Lesson 14 - Projectiles	Lesson 15 - Timers	Lesson 16 - Asteroid Pong
Key Skills and Concepts	• Activate and use the physics engine	• Apply gravity and restitution to characters and objects	• Apply active and static properties to characters and objects	• Apply physics and animation skills and concepts	• Apply impulses to projectiles to affect how fast they move	• Apply expert physics commands to shoot projectiles at multiple targets	• Use timers and keyboard controls to increase interactivity and control over actors • Apply mathematical operators in conditional statements	• Use multiplayer animations that switch from one animation to another • Broadcast messages to all characters
CCSS-Math Standards	5.G.A.1 6.NS.C.6 MP.1	MP.1	MP.1 MP.2	MP.1	MP.1	MP.1	MP.1 MP.2	5.G.A.1 6.NS.C.6 MP.1 MP.2
CCSS-ELA Standards	5.RF.4 6-8.RST.3 6-8.RST.4 6-8.RST.7	5.RF.4 6-8.RST.3 6-8.RST.4 6-8.RST.7	5.RF.4 6-8.RST.3 6-8.RST.4 6-8.RST.7	5.RF.4 6-8.RST.3 6-8.RST.4 6-8.RST.7	5.RF.4 6-8.RST.3 6-8.RST.4 6-8.RST.7	5.RF.4 6-8.RST.3 6-8.RST.4 6-8.RST.7	5.RF.4 6-8.RST.3 6-8.RST.4 6-8.RST.7	5.RF.4 6-8.RST.3 6-8.RST.4 6-8.RST.7
CSTA Computer Science Standards	1B-AP-11 1B-AP-15 2-AP-13 2-AP-16 2-AP-17	1B-AP-11 1B-AP-15 2-AP-13 2-AP-16 2-AP-17	1B-AP-11 1B-AP-15 2-AP-13 2-AP-16 2-AP-17	1B-AP-10 1B-AP-11 1B-AP-15 2-AP-13 2-AP-16 2-AP-17	1B-AP-10 1B-AP-11 1B-AP-15 2-AP-13 2-AP-16 2-AP-17	1B-AP-10 1B-AP-11 1B-AP-15 2-AP-13 2-AP-16 2-AP-17	1B-AP-11 1B-AP-15 2-AP-13 2-AP-16 2-AP-17	1B-AP-10 1B-AP-11 1B-AP-12 1B-AP-15 2-AP-13 2-AP-16 2-AP-17
Illinois CS Standards	3-5.AP.11 3-5.AP.15 6-8.AP.14 6-8.AP.17 6-8.AP.18	3-5.AP.11 3-5.AP.15 6-8.AP.14 6-8.AP.17 6-8.AP.18	3-5.AP.11 3-5.AP.15 6-8.AP.14 6-8.AP.17 6-8.AP.18	3-5.AP.10 3-5.AP.11 3-5.AP.15 6-8.AP.14 6-8.AP.17 6-8.AP.18	3-5.AP.10 3-5.AP.11 3-5.AP.15 6-8.AP.14 6-8.AP.17 6-8.AP.18	3-5.AP.10 3-5.AP.11 3-5.AP.15 6-8.AP.14 6-8.AP.17 6-8.AP.18	3-5.AP.11 3-5.AP.15 6-8.AP.14 6-8.AP.17 6-8.AP.18	3-5.AP.10 3-5.AP.11 3-5.AP.15 6-8.AP.14 6-8.AP.17 6-8.AP.18
ISTE Standards	1.c, 1.d, 4.d, 5.c, 5.d 6.b	1.c, 1.d, 4.d, 5.c, 5.d 6.b	1.c, 1.d, 4.d, 5.c, 5.d 6.b	1.c, 1.d, 4.d, 5.c, 5.d 6.b	1.c, 1.d, 4.d, 5.c, 5.d 6.b	1.c, 1.d, 4.d, 5.c, 5.d 6.b	1.c, 1.d, 4.d, 5.c, 5.d 6.b	1.c, 1.d, 4.d, 5.c, 5.d 6.b
UK National Curriculum	Key stage 2 & 3 Computing*	Key stage 2 & 3 Computing*	Key stage 2 & 3 Computing*	Key stage 2 & 3 Computing*	Key stage 2 & 3 Computing*	Key stage 2 & 3 Computing*	Key stage 2 & 3 Computing*	Key stage 2 & 3 Computing*
Sample Application of Skills	Create a structure using multiple platforms and blocks, where the laws of physics apply.	Create a simulation where the direction of gravity can be changed with keyboard controls. Create a bug volleyball game.	Build a game with balls or winged creatures that can be shot out of a cannon to knock down a structure that might have animals in it.	Make a fully-functional basketball game using the physics engine.	Create a game involving shooting cannonballs at moving targets.	Develop a cannon simulation where a variety of projectiles can be shot at multiple targets.	Create a cannonball shooting game with more finely-tuned controls.	Create a timed multiplayer game involving collisions and other physics concepts.

Programming 301 — Grades 7-8

Scope and Sequence

Each lesson takes about 45-60 minutes to complete.

Programming 301 is a course for students in grades 7-8 who are new to Tynker. The stories, games, puzzles, and projects engage students in developing computational thinking skills, as listed below from the CSTA Level 2 Computer Science standards and UK Computing standards. The Common Core State Standards for Mathematics and English Language Arts that students develop are also listed here.

	Lesson 1 - Introduction	Lesson 2 - Animated Motion	Lesson 3 - Actor Positioning	Lesson 4 - Motion and Tracking	Lesson 5 - Conditional Loops	Lesson 6 - Show and Hide	Lesson 7 - Actor Properties	Lesson 8 - Nested Loops
Key Skills and Concepts	• Use blocks to create a program • Sequencing of steps • Use simple animation • Use sounds • Use loops for repetition	• Add a background and characters to a scene • Add sounds to a background and to characters	• Show/hide characters, and make them appear in a new position using x- and y-coordinates	• Move characters using keyboard • Detect conditions • Handle key-press events • Make Actors perform specific actions when they touch others	• Use functions to handle sub-tasks • Use conditional loops • Use animation	• Handle advanced events • Use advanced motion techniques	• Use direction and turning • Use properties of characters • Use math operators • Use conditional statements and branching logic	• Use nested loops to give multiple lives to characters • Move characters and objects to various screen locations using random number generators
CCSS-Math Standards	MP.1	MP.1	6.NS.C.6 MP.1	MP.1	MP.1	6.NS.C.6 MP.1 MP.2	MP.1 MP.2 MP.4	6.NS.C.6 MP.1 MP.2 MP.4
CCSS-ELA Standards	RI.7.4, RI.8.4 6-8.RST.3 6-8.RST.4 6-8.RST.7	RI.7.4, RI.8.4 6-8.RST.3 6-8.RST.4 6-8.RST.7	RI.7.4, RI.8.4 6-8.RST.3 6-8.RST.4 6-8.RST.7	RI.7.4, RI.8.4 6-8.RST.3 6-8.RST.4 6-8.RST.7	RI.7.4, RI.8.4 6-8.RST.3 6-8.RST.4 6-8.RST.7	RI.7.4, RI.8.4 6-8.RST.3 6-8.RST.4 6-8.RST.7	RI.7.4, RI.8.4 6-8.RST.3 6-8.RST.4 6-8.RST.7	RI.7.4, RI.8.4 6-8.RST.3 6-8.RST.4 6-8.RST.7
CSTA Computer Science Standards	2-AP-10 2-AP-12 2-AP-13 2-AP-15 2-AP-16 2-AP-17	2-AP-10 2-AP-13 2-AP-15 2-AP-16 2-AP-17	2-AP-10 2-AP-13 2-AP-15 2-AP-16 2-AP-17	2-AP-10 2-AP-12 2-AP-13 2-AP-15 2-AP-16 2-AP-17	2-AP-10 2-AP-12 2-AP-13 2-AP-15 2-AP-16 2-AP-17	2-AP-10 2-AP-12 2-AP-13 2-AP-15 2-AP-16 2-AP-17	2-AP-10 2-AP-12 2-AP-13 2-AP-15 2-AP-16 2-AP-17	2-AP-10 2-AP-12 2-AP-13 2-AP-15 2-AP-16 2-AP-17
Illinois CS Standards	6-8.AP.11 6-8.AP.13 6-8.AP.14 6-8.AP.16 6-8.AP.17 6-8.AP.18	6-8.AP.11 6-8.AP.14 6-8.AP.16 6-8.AP.17 6-8.AP.18	6-8.AP.11 6-8.AP.14 6-8.AP.16 6-8.AP.17 6-8.AP.18	6-8.AP.11 6-8.AP.13 6-8.AP.14 6-8.AP.16 6-8.AP.17 6-8.AP.18	6-8.AP.11 6-8.AP.13 6-8.AP.14 6-8.AP.16 6-8.AP.17 6-8.AP.18	6-8.AP.11 6-8.AP.13 6-8.AP.14 6-8.AP.16 6-8.AP.17 6-8.AP.18	6-8.AP.11 6-8.AP.13 6-8.AP.14 6-8.AP.16 6-8.AP.17 6-8.AP.18	6-8.AP.11 6-8.AP.13 6-8.AP.14 6-8.AP.16 6-8.AP.17 6-8.AP.18
ISTE Standards	1.c, 1.d, 4.d, 5.c, 5.d, 6.b	1.c, 1.d, 4.d, 5.c, 5.d, 6.b	1.c, 1.d, 4.d, 5.c, 5.d, 6.b	1.c, 1.d, 4.d, 5.c, 5.d, 6.b	1.c, 1.d, 4.d, 5.c, 5.d, 6.b	1.c, 1.d, 4.d, 5.c, 5.d, 6.b	1.c, 1.d, 4.d, 5.c, 5.d, 6.b	1.c, 1.d, 4.d, 5.c, 5.d, 6.b
UK National Curriculum	Key stage 2 & 3 Computing*	Key stage 2 & 3 Computing*	Key stage 2 & 3 Computing*	Key stage 2 & 3 Computing*	Key stage 2 & 3 Computing*	Key stage 2 & 3 Computing*	Key stage 2 & 3 Computing*	Key stage 2 & 3 Computing*
Sample Application of Skills	Create a game with a character, a background, music, motion, enemies and treasures.	Create a monster mash dance party.	Create a hide and seek game.	Create a castle maze.	Create game with new animation techniques.	Create wizards vs. zombies game.	Create a fireball tennis game.	Create a hero vs. enemy game.

*See individual lesson guides for details on UK Computer standards

Scope and Sequence

Each lesson takes about 45-60 minutes to complete.

Programming 301 is a course for students in grades 7-8 who are new to Tynker. The stories, games, puzzles, and projects engage students in developing computational thinking skills, as listed below from the CSTA Level 2 Computer Science standards and UK Computing standards. The Common Core State Standards for Mathematics and English Language Arts that students develop are also listed here.

	Lesson 9 - Messaging	Lesson 10 - Start Screen and Controls	Lesson 11 - Shoot Projectiles	Lesson 12 - Parallax Scrolling	Lesson 13 - Cloning	Lesson 14 - Variables	Lesson 15 - Power-Ups and Effects	Lesson 16 - Boss Battle
Key Skills and Concepts	• Send, receive, and broadcast messages • Use conditional wait • Create Win and Game Over screens	• Create a start screen with a start button and a broadcasted message • Create button using Art Studio • Set the rotation style of characters	• Use further types of conditional loops • Use screen bounds • Make characters bounce when they reach screen edge	• Use and change layers • Send character/object to front or back • Use two characters to create a scrolling background with parallax effect • Use advanced animation techniques	• Cloning characters/objects • Make clones behave in specific ways	• Add and change variables • Use local and global variables, like health and score	• Use graphic effects like changing color • Use true/false variables • Use a variable timer	• Use more advanced motion techniques
CCSS-Math Standards	MP.1	MP.1 MP.7	6.NS.C MP.1, MP.2, MP.4	MP.1, MP.2 MP.4, MP.7	MP.1 MP.4 MP.7	MP.1 MP.2	6.NS.C MP.1 MP.7	6.NS.C MP.1, MP.2 MP.4, MP.7
CCSS-ELA Standards	RI.7.4, RI.8.4 6-8.RST.3 6-8.RST.4 6-8.RST.7	7.RI.4, 8.RI.4 6-8.RST.3 6-8.RST.4 6-8.RST.7	7.RI.4, 8.RI.4 6-8.RST.3 6-8.RST.4 6-8.RST.7	7.RI.4, 8.RI.4 6-8.RST.3 6-8.RST.4 6-8.RST.7	7.RI.4, 8.RI.4 6-8.RST.3 6-8.RST.4 6-8.RST.7	7.RI.4, 8.RI.4 6-8.RST.3 6-8.RST.4 6-8.RST.7	7.RI.4, 8.RI.4 6-8.RST.3 6-8.RST.4 6-8.RST.7	7.RI.4, 8.RI.4 6-8.RST.3 6-8.RST.4 6-8.RST.7
CSTA Computer Science Standards	2-AP-10 2-AP-12 2-AP-13 2-AP-15 2-AP-16 2-AP-17	2-AP-10 2-AP-12 2-AP-13 2-AP-15 2-AP-16 2-AP-17	2-AP-10 2-AP-12 2-AP-13 2-AP-15 2-AP-16 2-AP-17	2-AP-10 2-AP-12 2-AP-13 2-AP-15 2-AP-16 2-AP-17	2-AP-10 2-AP-12 2-AP-13 2-AP-15 2-AP-16 2-AP-17	2-AP-10 2-AP-11 2-AP-13 2-AP-15 2-AP-16 2-AP-17	2-AP-10 2-AP-11 2-AP-12 2-AP-13 2-AP-14 2-AP-15 2-AP-16 2-AP-17	2-AP-10 2-AP-11 2-AP-12 2-AP-13 2-AP-14 2-AP-15 2-AP-16 2-AP-17
Illinois CS Standards	6-8.AP.11 6-8.AP.13 6-8.AP.14 6-8.AP.16 6-8.AP.17 6-8.AP.18	6-8.AP.11 6-8.AP.13 6-8.AP.14 6-8.AP.16 6-8.AP.17 6-8.AP.18	6-8.AP.11 6-8.AP.13 6-8.AP.14 6-8.AP.16 6-8.AP.17 6-8.AP.18	6-8.AP.11 6-8.AP.13 6-8.AP.14 6-8.AP.16 6-8.AP.17 6-8.AP.18	6-8.AP.11 6-8.AP.13 6-8.AP.14 6-8.AP.16 6-8.AP.17 6-8.AP.18	6-8.AP.11 6-8.AP.13 6-8.AP.14 6-8.AP.16 6-8.AP.17 6-8.AP.18	6-8.AP.11 6-8.AP.12 6-8.AP.13 6-8.AP.14 6-8.AP.15 6-8.AP.16 6-8.AP.17 6-8.AP.18	6-8.AP.11 6-8.AP.12 6-8.AP.13 6-8.AP.14 6-8.AP.15 6-8.AP.16 6-8.AP.17 6-8.AP.18
ISTE Standards	1.c, 1.d, 4.d, 5.c, 5.d, 6.b	1.c, 1.d, 4.d, 5.c, 5.d, 6.b	1.c, 1.d, 4.d, 5.c, 5.d, 6.b	1.c, 1.d, 4.d, 5.c, 5.d, 6.b	1.c, 1.d, 4.d, 5.c, 5.d, 6.b	1.c, 1.d, 4.d, 5.c, 5.d, 6.b	1.c, 1.d, 4.d, 5.c, 5.d, 6.b	1.c, 1.d, 4.d, 5.c, 5.d, 6.b
UK National Curriculum	Key stage 2 & 3 Computing*	Key stage 2 & 3 Computing*	Key stage 2 & 3 Computing*	Key stage 2 & 3 Computing*	Key stage 2 & 3 Computing*	Key stage 2 & 3 Computing*	Key stage 2 & 3 Computing*	Key stage 2 & 3 Computing*
Sample Application of Skills	Build an adventure game.	Create a top-down arcade game.	Create a game where heroes avoid enemies.	Create a game with a scrolling background with the parallax effect.	Create a 2-player airplane battle game.	Create a snowball fight game.	Create a game involving character health and a power-up.	Create a hero vs. enemy game with advanced motion techniques.

Programming 301
Scope and Sequence

Grades 7-8

Each lesson takes about 45-60 minutes to complete.

Programming 301 is a course for students in grades 7-8 who are new to Tynker. The stories, games, puzzle and projects engage students in developing computational thinking skills, as listed below from the CSTA Level 1 Computer Science standards and UK Computing standards. The Common Core State Standards for Mathematics and English Language Arts that students develop are also listed here.

	Lesson 17 - Finishing Touch							
Key Skills and Concepts	• Store letters or words as value of a variable							
CCSS-Math Standards	6.NS.C MP.1, MP.2 MP.4, MP.7							
CCSS-ELA Standards	7.RI.4, 8.RI.4 6-8.RST.3 6-8.RST.4 6-8.RST.7							
CSTA Computer Science Standards	2-AP-10 2-AP-11 2-AP-12 2-AP-13 2-AP-15 2-AP-14 2-AP-16 2-AP-17							
Illinois CS Standards	6-8.AP.11 6-8.AP.12 6-8.AP.13 6-8.AP.14 6-8.AP.15 6-8.AP.16 6-8.AP.17 6-8.AP.18							
ISTE Standards	1.c, 1.d, 4.d, 5.c, 5.d, 6.b							
UK National Curriculum	Key stage 2 & 3 Computing*							
Sample Application of Skills	Finish top-down arcade game with advanced variable and motion techniques.							

*See individual lesson guides for details on UK Computer standards

Programming 302 — Grades 7+

Scope and Sequence

Each lesson takes about 45-60 minutes to complete.

Programming 302 is a course for students in grades 7+ who have completed Tynker's Programming 301 course. The stories, games, puzzles, and projects engage students in developing computational thinking skills, as listed below from the CSTA Level 2 Computer Science standards and UK Computing standards. The Common Core State Standards for Mathematics and English Language Arts that students develop are also listed here.

	Lesson 1 - Object Stacking	Lesson 2 - Applying Impulses	Lesson 3 - Line Animation	Lesson 4 - Physics Properties	Lesson 5 - Ricochet	Lesson 6 - Explosions	Lesson 7 - Changing Direction	Lesson 8 - Gravity Sling
Key Skills and Concepts	• Activate the physics engine and use expert physics commands • Apply gravity to characters and objects	• Apply impulses to projectiles to affect how fast they move	• Draw geometric shapes, using positions of the cursor, characters, and objects	• Create moving targets • Control behavior and graphic effects for objects after they've been hit by projectiles	• Apply density and restitution to characters and objects	• Use simple variables • Use conditional loops	• Change direction of projectiles after launch	• Apply gravity and special visual effects to simulate the behavior of a black hole
CCSS-Math Standards	6.NS.C MP.1	MP.1 MP.4 MP.7	MP.1 MP.2 MP.7	MP.1 MP.2 MP.7	MP.1 MP.7	6.NS.C MP.1, MP.2 MP.4, MP.7	6.NS.C MP.1, MP.2 MP.4, MP.7	MP.1, MP.2 MP.4, MP.7
CCSS-ELA Standards	6-8.RST.3 6-8.RST.4 6-8.RST.7 RI.9-10.3, RI.11-12.3	6-8.RST.3 6-8.RST.4 6-8.RST.7 RI.9-10.3, RI.11-12.3	6-8.RST.3 6-8.RST.4 6-8.RST.7 RI.9-10.3, RI.11-12.3	6-8.RST.3 6-8.RST.4 6-8.RST.7 RI.9-10.3, RI.11-12.3	6-8.RST.3 6-8.RST.4 6-8.RST.7 RI.9-10.3, RI.11-12.3	7.RI.4, 8.RI.4 6-8.RST.3 6-8.RST.4, 6-8.RST.7 RI.9-10.3, RI.11-12.3	7.RI.4, 8.RI.4 6-8.RST.3 6-8.RST.4, 6-8.RST.7 RI.9-10.3, RI.11-12.3	7.RI.4, 8.RI.4 6-8.RST.3 6-8.RST.4, 6-8.RST.7 RI.9-10.3, RI.11-12.3
CSTA Computer Science Standards	2-AP-10 2-AP-11 2-AP-13 2-AP-15 2-AP-16 2-AP-17 3A-AP-17, 3A-AP-22	2-AP-10 2-AP-12 2-AP-13 2-AP-15 2-AP-16 2-AP-17 3A-AP-17, 3A-AP-22	2-AP-10 2-AP-12 2-AP-13 2-AP-15 2-AP-16 2-AP-17 3A-AP-17, 3A-AP-22	2-AP-10 2-AP-12 2-AP-13 2-AP-15 2-AP-16 2-AP-17 3A-AP-17, 3A-AP-22	2-AP-10 2-AP-12 2-AP-13 2-AP-15 2-AP-16 2-AP-17 3A-AP-17, 3A-AP-22	2-AP-10 2-AP-11 2-AP-12 2-AP-13 2-AP-15 2-AP-16 2-AP-17 3A-AP-17, 3A-AP-22	2-AP-10 2-AP-11 2-AP-12 2-AP-13 2-AP-15 2-AP-16 2-AP-17 3A-AP-17, 3A-AP-22	2-AP-10 2-AP-11 2-AP-13 2-AP-15 2-AP-16 2-AP-17 3A-AP-17, 3A-AP-22
Illinois CS Standards	6-8.AP.11 6-8.AP.12 6-8.AP.14 6-8.AP.16 6-8.AP.17 6-8.AP.18 9-10.AP.17 9-10.AP.22	6-8.AP.11 6-8.AP.13 6-8.AP.14 6-8.AP.16 6-8.AP.17 6-8.AP.18 9-10.AP.17 9-10.AP.22	6-8.AP.11 6-8.AP.13 6-8.AP.14 6-8.AP.16 6-8.AP.17 6-8.AP.18 9-10.AP.17 9-10.AP.22	6-8.AP.11 6-8.AP.13 6-8.AP.14 6-8.AP.16 6-8.AP.17 6-8.AP.18 9-10.AP.17 9-10.AP.22	6-8.AP.11 6-8.AP.13 6-8.AP.14 6-8.AP.16 6-8.AP.17 6-8.AP.18 9-10.AP.17 9-10.AP.22	6-8.AP.11 6-8.AP.12 6-8.AP.13 6-8.AP.14 6-8.AP.16 6-8.AP.17 6-8.AP.18 9-10.AP.17, 9-10.AP.22	6-8.AP.11 6-8.AP.12 6-8.AP.13 6-8.AP.14 6-8.AP.16 6-8.AP.17 6-8.AP.18 9-10.AP.17, 9-10.AP.22	6-8.AP.11 6-8.AP.12 6-8.AP.14 6-8.AP.16 6-8.AP.17 6-8.AP.18 9-10.AP.17 9-10.AP.22
ISTE Standards	1.c, 1.d, 4.d, 5.c, 5.d, 6.b	1.c, 1.d, 4.d, 5.c, 5.d, 6.b	1.c, 1.d, 4.d, 5.c, 5.d, 6.b	1.c, 1.d, 4.d, 5.c, 5.d, 6.b	1.c, 1.d, 4.d, 5.c, 5.d, 6.b	1.c, 1.d, 4.d, 5.c, 5.d, 6.b	1.c, 1.d, 4.d, 5.c, 5.d, 6.b	1.c, 1.d, 4.d, 5.c, 5.d, 6.b
UK National Curriculum	Key stage 2 & 3 Computing*	Key stage 2 & 3 Computing*	Key stage 2 & 3 Computing*	Key stage 2 & 3 Computing*	Key stage 2 & 3 Computing*	Key stage 2 & 3 Computing*	Key stage 2 & 3 Computing*	Key stage 2 & 3 Computing*
Sample Application of Skills	Create a skyscraper with multiple platforms.	Develop a game where characters and objects can knock a structure over.	Create a Gravity Drawing Tool and Gravity Sling.	Build a shooting gallery game with asteroids and aliens.	Create a gravity maze where balls bounce off walls and gravity can be changed.	Build a Bug Soccer game where insects kick an object around. Create an explosion that can knock out a space platform.	Design a space slingshot game with specially programmable projectiles.	Create a black hole that sucks up objects that stray too near.

*See individual lesson guides for details on UK Computer standards

Programming 302

Scope and Sequence

Grades 7+

Each lesson takes about 45-60 minutes to complete.

Programming 302 is a course for students in grades 7+ who have completed Tynker's Programming 301 course. The stories, games, puzzles, and projects engage students in developing computational thinking skills, as listed below from the CSTA Level 2 Computer Science standards and UK Computing standards. The Common Core State Standards for Mathematics and English Language Arts that students develop are also listed here.

	Lesson 9 - Linear Velocity	Lesson 10 - Double Jump	Lesson 11 - Receiving Values	Lesson 12 - Lists	Lesson 13 - Laser Tennis	Lesson 14 - Enemy AI	Lesson 15 - Leaderboards	Lesson 16 - Platform Movement
Key Skills and Concepts	• Add and use functions to simplify programming • Apply linear velocity	• Detect collisions, apply impulses, and run pre-programmed animation sequences so a character will jump twice	• Check and change property values of a character or object	• Add and manage lists	• Check and use list inventory	• Apply list operations	• Interact with user to collect name data • Program a leaderboard to track high scores in a game	• Apply velocity vectors to make platforms move • Apply further list operations
CCSS-Math Standards	7.EE.B.4 MP.1, MP.2 MP.4, MP.7	7.EE.B.4 MP.1, MP.2 MP.4, MP.7	7.EE.B.4 MP.1, MP.2 MP.4, MP.7	6.NS.C MP.1	7.EE.B.4 MP.1, MP.2 MP.4, MP.7	6.NS.C MP.1 MP.2	6.NS.C 7.EE.4 MP.1, MP.2, MP.4	MP.1, MP.2 MP.4, MP.7
CCSS-ELA Standards	7.RI.4, 8.RI.4 6-8.RST.3 6-8.RST.4 6-8.RST.7 RI.9-10.3, RI.11-12.3	7.RI.4, 8.RI.4 6-8.RST.3 6-8.RST.4 6-8.RST.7 RI.9-10.3, RI.11-12.3	7.RI.4, 8.RI.4 6-8.RST.3 6-8.RST.4 6-8.RST.7 RI.9-10.3, RI.11-12.3	6-8.RST.3 6-8.RST.4 6-8.RST.7 RI.9-10.3, RI.11-12.3	7.RI.4, 8.RI.4 6-8.RST.3 6-8.RST.4 6-8.RST.7 RI.9-10.3, RI.11-12.3	7.RI.4, 8.RI.4 6-8.RST.3 6-8.RST.4 6-8.RST.7 RI.9-10.3, RI.11-12.3	7.RI.4, 8.RI.4 6-8.RST.3 6-8.RST.4 6-8.RST.7 RI.9-10.3, RI.11-12.3	7.RI.4, 8.RI.4 6-8.RST.3 6-8.RST.4 6-8.RST.7 RI.9-10.3, RI.11-12.3
CSTA Computer Science Standards	2-AP-11 2-AP-12 2-AP-13 2-AP-15 2-AP-16, 2-AP-17 3A-AP-17, 3A-AP-22	2-AP-11 2-AP-12 2-AP-13 2-AP-15 2-AP-16, 2-AP-17 3A-AP-17, 3A-AP-22	2-AP-11 2-AP-12 2-AP-13 2-AP-15 2-AP-16, 2-AP-17 3A-AP-17, 3A-AP-22	2-AP-10 2-AP-11 2-AP-13 2-AP-14 2-AP-15 2-AP-16, 2-AP-17 3A-AP-17, 3A-AP-22	2-AP-11 2-AP-12 2-AP-13 2-AP-15 2-AP-16, 2-AP-17 3A-AP-17, 3A-AP-22	2-AP-11 2-AP-13 2-AP-15 2-AP-16, 2-AP-17 3A-AP-17, 3A-AP-22	2-AP-11 2-AP-13 2-AP-15 2-AP-16, 2-AP-17 3A-AP-17, 3A-AP-22	2-AP-11 2-AP-12 2-AP-13 2-AP-15 2-AP-16, 2-AP-17 3A-AP-17, 3A-AP-22
Illinois CS Standards	6-8.AP.12 6-8.AP.13 6-8.AP.14 6-8.AP.16 6-8.AP.17 6-8.AP.18 9-10.AP.17 9-10.AP.22	6-8.AP.12 6-8.AP.13 6-8.AP.14 6-8.AP.16 6-8.AP.17 6-8.AP.18 9-10.AP.17 9-10.AP.22	6-8.AP.12 6-8.AP.13 6-8.AP.14 6-8.AP.16 6-8.AP.17 6-8.AP.18 9-10.AP.17 9-10.AP.22	6-8.AP.11 6-8.AP.12 6-8.AP.14 6-8.AP.15 6-8.AP.17 6-8.AP.18 9-10.AP.17 9-10.AP.22	6-8.AP.12 6-8.AP.13 6-8.AP.14 6-8.AP.16 6-8.AP.17 6-8.AP.18 9-10.AP.17 9-10.AP.22	6-8.AP.12 6-8.AP.14 6-8.AP.16 6-8.AP.17 6-8.AP.18 9-10.AP.17 9-10.AP.22	6-8.AP.12 6-8.AP.14 6-8.AP.16 6-8.AP.17 6-8.AP.18 9-10.AP.17 9-10.AP.22	6-8.AP.12 6-8.AP.13 6-8.AP.14 6-8.AP.16 6-8.AP.17 6-8.AP.18 9-10.AP.17 9-10.AP.22
ISTE Standards	1.c, 1.d, 4.d, 5.c, 5.d, 6.b	1.c, 1.d, 4.d, 5.c, 5.d, 6.b	1.c, 1.d, 4.d, 5.c, 5.d, 6.b	1.c, 1.d, 4.d, 5.c, 5.d, 6.b	1.c, 1.d, 4.d, 5.c, 5.d, 6.b	1.c, 1.d, 4.d, 5.c, 5.d, 6.b	1.c, 1.d, 4.d, 5.c, 5.d, 6.b	1.c, 1.d, 4.d, 5.c, 5.d, 6.b
UK National Curriculum	Key stage 2 & 3 Computing*	Key stage 2 & 3 Computing*	Key stage 2 & 3 Computing*	Key stage 2 & 3 Computing*	Key stage 2 & 3 Computing*	Key stage 2 & 3 Computing*	Key stage 2 & 3 Computing*	Key stage 2 & 3 Computing*
Sample Application of Skills	Develop the physics in a platformer game so a character can run off a platform and drop down.	Create a side-scroller game with moving platforms and double-jumping characters.	Program the "health" and "damage" properties for characters in a game where robots are attacking.	Create a game where the hero collects power-ups while avoiding laser-shooting enemies.	Make a laser tennis game using a list data structure.	Create an enemy robot that changes position based on data stored in a randomized list of values.	Use global variables to implement a leaderboard for high scores in a game.	Build a more complex platform game with power-ups, special hero moves, and platforms that appear to fly by the screen.

*See individual lesson guides for details on UK Computer standards

STEM: Life Science 101 — Grades 3-5

Scope and Sequence

Each lesson takes about 45-60 minutes to complete.

Life Science 101 is a course for students in grades 3-5 who are ready to embark on a journey that reinforces programming skills while incorporating science topics such as biology, anatomy, and genetics. The Next Generation Science Standards (NGSS) and Common Core State Standards (CCSS) that students develop are also listed here.

	Life Cycle of a Frog	Ocean Food Chain Pyramid	Life Cycle of a Dragonfly	Butterfly Life Cycle	Silkworm Life Cycle	Deep Sea	Parts of a Bee	Parts of Corn	Insect Anatomy
Key Skills and Concepts	• Use simple events, simple loops, simple sound playing, text handling, input/output	• Use advanced costume handling, drawing editor, simple events, input/output	• Use simple events, advanced messaging, simple messaging, input/output, text handling	• Use simple sound playing, text handling, simple messaging, simple variables, simple loops, graphic effects	• Use input/output and basic math	• Use input/output and simple events	• Use pen color, simple events, input/output	• Use simple events, conditional loops, simple motion, advanced motion, input/output	• Use simple loops, simple conditionals, input/output, simple events, simple messaging
NGSS-Science Standards	3.LS1.1	LS1.C	3.LS1.1	3.LS1.1	3.LS1.1	3.SS2.B	LS1.A	LS1.A	LS1.A
CCSS-Math Standards	MP.1	MP.1	MP.1	MP.1	MP.1	MP.1	MP.1	MP.1	MP.1
CCSS-ELA Standards	L.RF.3.4.A, SL.3.1 L.RF.4.4.A, SL.4.1 L.RF.5.4.A, SL.5.1	L.RF.3.4.A, SL.3.1 L.RF.4.4.A, SL.4.1 L.RF.5.4.A, SL.5.1	L.RF.3.4.A, SL.3.1 L.RF.4.4.A, SL.4.1 L.RF.5.4.A, SL.5.1	L.RF.3.4.A, SL.3.1 L.RF.4.4.A, SL.4.1 L.RF.5.4.A, SL.5.1	L.RF.3.4.A, SL.3.1 L.RF.4.4.A, SL.4.1 L.RF.5.4.A, SL.5.1	L.RF.3.4.A, SL.3.1 L.RF.4.4.A, SL.4.1 L.RF.5.4.A, SL.5.1	L.RF.3.4.A, SL.3.1 L.RF.4.4.A, SL.4.1 L.RF.5.4.A, SL.5.1	L.RF.3.4.A, SL.3.1 L.RF.4.4.A, SL.4.1 L.RF.5.4.A, SL.5.1	L.RF.3.4.A, SL.3.1 L.RF.4.4.A, SL.4.1 L.RF.5.4.A, SL.5.1
CSTA Standards	1B-AP-08 1B-AP-11 1B-AP-12 1B-AP-15	1B-AP-11 1B-AP-12 1B-AP-13 1B-AP-15	1B-AP-10 1B-AP-11 1B-AP-12 1B-AP-15	1B-AP-09 1B-AP-11 1B-AP-12 1B-AP-15	1B-AP-11 1B-AP-12 1B-AP-15	1B-AP-11 1B-AP-12 1B-AP-15	1B-AP-11 1B-AP-12 1B-AP-15	1B-AP-10 1B-AP-11 1B-AP-12 1B-AP-15	1B-AP-10 1B-AP-11 1B-AP-12 1B-AP-15
Illinois CS Standards	3-5.AP.08 3-5.AP.10 3-5.AP.11 3-5.AP.12 3-5.AP.15 3-5.AP.17	3-5.DA.06 3-5.AP.08 3-5.AP.11 3-5.AP.12 3-5.AP.13 3-5.AP.15 3-5.AP.17	3-5.AP.08 3-5.AP.10 3-5.AP.11 3-5.AP.12 3-5.AP.15 3-5.AP.17	3-5.AP.08 3-5.AP.09 3-5.AP.11 3-5.AP.12 3-5.AP.15 3-5.AP.17	3-5.AP.08 3-5.AP.11 3-5.AP.12 3-5.AP.15 3-5.AP.17	3-5.AP.08 3-5.AP.11 3-5.AP.12 3-5.AP.13 3-5.AP.15 3-5.AP.17	3-5.AP.08 3-5.AP.11 3-5.AP.12 3-5.AP.13 3-5.AP.15 3-5.AP.17	3-5.AP.08 3-5.AP.10 3-5.AP.11 3-5.AP.12 3-5.AP.13 3-5.AP.15 3-5.AP.17	3-5.AP.08 3-5.AP.09 3-5.AP.10 3-5.AP.11 3-5.AP.12 3-5.AP.13 3-5.AP.15 3-5.AP.17
ISTE Standards	1.1.c, 1.1.d, 1.4.d, 1.5.c, 1.5.d, 1.6.b	1.1.c, 1.1.d, 1.4.d, 1.5.c, 1.5.d, 1.6.b	1.1.c, 1.1.d, 1.4.d, 1.5.c, 1.5.d, 1.6.b	1.1.c, 1.1.d, 1.4.d, 1.5.c, 1.5.d, 1.6.b	1.1.c, 1.1.d, 1.4.d, 1.5.c, 1.5.d, 1.6.b	1.1.c, 1.1.d, 1.4.d, 1.5.c, 1.5.d, 1.6.b	1.1.c, 1.1.d, 1.4.d, 1.5.c, 1.5.d, 1.6.b	1.1.c, 1.1.d, 1.4.d, 1.5.c, 1.5.d, 1.6.b	1.1.c, 1.1.d, 1.4.d, 1.5.c, 1.5.d, 1.6.b
UK National Curriculum	Key stage 1 & 2 Computing*	Key stage 1 & 2 Computing*	Key stage 1 & 2 Computing*	Key stage 1 & 2 Computing*	Key stage 1 & 2 Computing*	Key stage 1 & 2 Computing*	Key stage 1 & 2 Computing*	Key stage 1 & 2 Computing*	Key stage 1 & 2 Computing*
Sample Application of Skills	Create an interactive project that demonstrates the life cycle of a frog.	Create a project about the ocean food chain pyramid.	Create a project that demonstrates the life cycle of a dragonfly.	Create a project that demonstrates the life cycle of a butterfly.	Create a project about the life cycle of a silkworm.	Create a project about the life in the deep sea.	Create a project about different parts of a bee.	Create a project about different parts of a corn plant.	Create a project about the anatomy of an insect.

*See individual lesson guides for details on UK Computer standards

STEM: Life Science 101 — Grades 3-5

Scope and Sequence

Each lesson takes about 45-60 minutes to complete.

Life Science 101 is a course for students in grades 3-5 who are ready to embark on a journey that reinforces programming skills while incorporating science topics such as biology, anatomy, and genetics. The Next Generation Science Standards (NGSS) and Common Core State Standards (CCSS) that students develop are also listed here.

	Food Web	Types of Trees	Teeth	Adaptation and Survival	Dispersion of Seeds	What Do Plants Need?	Uses of Sunlight	The Five Senses	
Key Skills and Concepts	• Use drawing editor, input/output, basic math, simple conditionals, messaging, delays	• Use simple events, simple messaging, conditionals, basic math, costume handling	• Use simple events, simple messaging, conditionals, basic math, input/output	• Use simple events, advanced costume handling, conditionals, input/output, messaging, loops	• Use simple messaging, input/output, simple events, advanced motion, delays, sound playing	• Use simple messaging, resize actor, input/output	• Use simple events, text handling, simple animation, input/output	• Use simple motion, visibility, simple messaging, input/output, program control	
NGSS-Science Standards	LS2.B	K.ESS2.2	3.LS3.1	3.LS4.3	2.LS2.2	K.LS1.1	K.LS1.1	4.LS1.2	
CCSS-Math Standards	MP.1	MP.1	MP.1	MP.1	MP.1	MP.1	MP.1	MP.1	
CCSS-ELA Standards	L.RF.3.4.A, SL.3.1 L.RF.4.4.A, SL.4.1 L.RF.5.4.A, SL.5.1	L.RF.3.4.A, SL.3.1 L.RF.4.4.A, SL.4.1 L.RF.5.4.A, SL.5.1	L.RF.3.4.A, SL.3.1 L.RF.4.4.A, SL.4.1 L.RF.5.4.A, SL.5.1	L.RF.3.4.A, SL.3.1 L.RF.4.4.A, SL.4.1 L.RF.5.4.A, SL.5.1	L.RF.3.4.A, SL.3.1 L.RF.4.4.A, SL.4.1 L.RF.5.4.A, SL.5.1	L.RF.3.4.A, SL.3.1 L.RF.4.4.A, SL.4.1 L.RF.5.4.A, SL.5.1	L.RF.3.4.A, SL.3.1 L.RF.4.4.A, SL.4.1 L.RF.5.4.A, SL.5.1	L.RF.3.4.A, SL.3.1 L.RF.4.4.A, SL.4.1 L.RF.5.4.A, SL.5.1	
CSTA Standards	1B-AP-11 1B-AP-12 1B-AP-15	1B-AP-11 1B-AP-12 1B-AP-15	1B-AP-11 1B-AP-12 1B-AP-15	1B-AP-10 1B-AP-11 1B-AP-12 1B-AP-15	1B-AP-11 1B-AP-12 1B-AP-15	1B-AP-11 1B-AP-12 1B-AP-15	1B-AP-11 1B-AP-12 1B-AP-15	1B-AP-11 1B-AP-12 1B-AP-15	
Illinois CS Standards	3-5.AP.08 3-5.AP.10 3-5.AP.11 3-5.AP.12 3-5.AP.13 3-5.AP.15 3-5.AP.17	3-5.AP.08 3-5.AP.10 3-5.AP.11 3-5.AP.12 3-5.AP.13 3-5.AP.15 3-5.AP.17	3-5.AP.08 3-5.AP.10 3-5.AP.11 3-5.AP.12 3-5.AP.13 3-5.AP.15 3-5.AP.17	3-5.AP.08 3-5.AP.10 3-5.AP.11 3-5.AP.12 3-5.AP.13 3-5.AP.15 3-5.AP.17	3-5.AP.08 3-5.AP.11 3-5.AP.12 3-5.AP.13 3-5.AP.15 3-5.AP.17	3-5.AP.08 3-5.AP.11 3-5.AP.12 3-5.AP.13 3-5.AP.15 3-5.AP.17	3-5.AP.08 3-5.AP.11 3-5.AP.12 3-5.AP.13 3-5.AP.15 3-5.AP.17	3-5.AP.08 3-5.AP.11 3-5.AP.12 3-5.AP.13 3-5.AP.15 3-5.AP.17	
ISTE Standards	1.1.c, 1.1.d, 1.4.d, 1.5.c, 1.5.d, 1.6.b	1.1.c, 1.1.d, 1.4.d, 1.5.c, 1.5.d, 1.6.b	1.1.c, 1.1.d, 1.4.d, 1.5.c, 1.5.d, 1.6.b	1.1.c, 1.1.d, 1.4.d, 1.5.c, 1.5.d, 1.6.b	1.1.c, 1.1.d, 1.4.d, 1.5.c, 1.5.d, 1.6.b	1.1.c, 1.1.d, 1.4.d, 1.5.c, 1.5.d, 1.6.b	1.1.c, 1.1.d, 1.4.d, 1.5.c, 1.5.d, 1.6.b	1.1.c, 1.1.d, 1.4.d, 1.5.c, 1.5.d, 1.6.b	
UK National Curriculum	Key stage 1 & 2 Computing*	Key stage 1 & 2 Computing*	Key stage 1 & 2 Computing*	Key stage 1 & 2 Computing*	Key stage 1 & 2 Computing*	Key stage 1 & 2 Computing*	Key stage 1 & 2 Computing*	Key stage 1 & 2 Computing*	
Sample Application of Skills	Create a project about the food web.	Create a project about different types of trees.	Create a project about different types of teeth.	Create a project about different adaptations.	Create a project about the different methods of seed dispersal.	Create an interactive diagram about a plant.	Create a project that demonstrates the different uses of sunlight.	Create a quiz game about the five senses.	

*See individual lesson guides for details on UK Computer standards

STEM: Life Science 201

Grades 6-8

Scope and Sequence

Each lesson takes about 45-60 minutes to complete.

Life Science 201 is a course for students in grades 6-8 who are ready to embark on a journey that reinforces programming skills while incorporating science topics such as biology, anatomy, and genetics. The Next Generation Science Standards (NGSS) and Common Core State Standards (CCSS) that students develop are also listed here.

	Parts of an Animal Cell	Animal Cell Presentation	Animal Cell Structure	Animal Cell Quiz	Plant Cell Model	Plant Cell Presentation	Plant Cell Structure	Plant Cell Quiz	Heart
Key Skills and Concepts	• Use simple events, input/output, loops, graphic effects, delays	• Use advanced costume handling, drawing editor, simple events, input/output	• Use simple costume handling, sound playing, conditional wait, advanced math	• Use simple events, simple loops, graphic effects, advanced messaging, input/output, conditionals, basic math	• Use simple events, conditional loops, simple motion, input/output	• Use simple messaging and input/output	• Use simple costume handling, simple sound playing, simple events, input/output	• Use simple events, advanced messaging, costume handling, basic math, visibility	• Use costume handling, simple sound playing, layers, messaging, graphic effects, input/output, text handling
NGSS-Science Standards	MS.LS1.2	LS1.C	MS.LS1.2	MS.LS1.2	MS.LS1.2	MS.LS1.2	MS.LS1.2	MS.LS1.2	MS.LS1.3
CCSS-Math Standards	MP.1	MP.1	MP.1	MP.1	MP.1	MP.1	MP.1	MP.1	MP.1
CCSS-ELA Standards	SL.6.1 SL.7.1 SL.8.1	SL.6.1 SL.7.1 SL.8.1	SL.6.1 SL.7.1 SL.8.1	SL.6.1 SL.7.1 SL.8.1	SL.6.1 SL.7.1 SL.8.1	SL.6.1 SL.7.1 SL.8.1	SL.6.1 SL.7.1 SL.8.1	SL.6.1 SL.7.1 SL.8.1	SL.6.1 SL.7.1 SL.8.1
CSTA Computer Science Standards	2-AP-13 2-AP-16 2-AP-17	2-AP-13 2-AP-16 2-AP-17	2-AP-13 2-AP-16 2-AP-17	2-AP-12 2-AP-13 2-AP-16 2-AP-17	2-AP-12 2-AP-13 2-AP-16 2-AP-17	2-AP-13 2-AP-16 2-AP-17	2-AP-13 2-AP-16 2-AP-17	2-AP-13 2-AP-16 2-AP-17	2-AP-13 2-AP-16 2-AP-17
Illinois CS Standards	6-8.AP.14 6-8.AP.17 6-8.AP.18	6-8.AP.14 6-8.AP.17 6-8.AP.18	6-8.AP.14 6-8.AP.17 6-8.AP.18	6-8.AP.13 6-8.AP.14 6-8.AP.17 6-8.AP.18	6-8.AP.13 6-8.AP.14 6-8.AP.17 6-8.AP.18	6-8.AP.14 6-8.AP.17 6-8.AP.18	6-8.AP.14 6-8.AP.17 6-8.AP.18	6-8.AP.14 6-8.AP.17 6-8.AP.18	6-8.AP.14 6-8.AP.17 6-8.AP.18
ISTE Standards	1.c, 1.d, 4.d, 5.c, 5.d, 6.b	1.c, 1.d, 4.d, 5.c, 5.d, 6.b	1.c, 1.d, 4.d, 5.c, 5.d, 6.b	1.c, 1.d, 4.d, 5.c, 5.d, 6.b	1.c, 1.d, 4.d, 5.c, 5.d, 6.b	1.c, 1.d, 4.d, 5.c, 5.d, 6.b	1.c, 1.d, 4.d, 5.c, 5.d, 6.b	1.c, 1.d, 4.d, 5.c, 5.d, 6.b	1.c, 1.d, 4.d, 5.c, 5.d, 6.b
UK National Curriculum	Key stage 3 Computing*	Key stage 3 Computing*	Key stage 3 Computing*	Key stage 3 Computing*	Key stage 3 Computing*	Key stage 3 Computing*	Key stage 3 Computing*	Key stage 3 Computing*	Key stage 3 Computing*
Sample Application of Skills	Create a project about different parts of the animal cell.	Create a slideshow presentation about the animal cell.	Create a project that names the parts of an animal cell.	Create an animal cell quiz game.	Create a project that shows the plant cell model.	Create a presentation about the plant cell.	Create a project about different parts of a plant cell.	Create a plant cell quiz game.	Create a project about different parts of the heart.

*See individual lesson guides for details on UK Computer standards

STEM: Life Science 201

Grades 6-8

Scope and Sequence

Each lesson takes about 45-60 minutes to complete.

Life Science 201 is a course for students in grades 6-8 who are ready to embark on a journey that reinforces programming skills while incorporating science topics such as biology, anatomy, and genetics. The Next Generation Science Standards (NGSS) and Common Core State Standards (CCSS) that students develop are also listed here.

	Heart Quiz	Nose	Nose Structure	Digestive System	Digestive System Quiz	Brain	Brain Anatomy	Identify Parts of the Pancreas	Pancreas Quiz
Key Skills and Concepts	• Use simple events, advanced messaging, functions	• Use simple events, layers, resize actor, delays, messaging, simple loops, graphic effects	• Use simple messaging, advanced motion, resize actor, advanced messaging, delays	• Use simple events and input/output	• Use simple loops, simple motion, variables, input/output	• Use simple sound playing, input/output, simple events, conditional loops, simple motion	• Use input/output, simple events, conditional loops, simple motion, detect conditions	• Use simple events, cloning, advance loops, simple messaging, input/output	• Use simple sound playing, input/output, conditionals, basic math
NGSS-Science Standards	MS.LS1.3	MS.LS1.3	MS.LS1.3	MS.LS1.3	MS.LS1.3	MS.LS1.8	MS.LS1.8	MS.LS1.3	MS.LS1.3
CCSS-Math Standards	MP.1	MP.1	MP.1	MP.1	MP.1	MP.1	MP.1	MP.1	MP.1
CCSS-ELA Standards	SL.6.1 SL.7.1 SL.8.1	SL.6.1 SL.7.1 SL.8.1	SL.6.1 SL.7.1 SL.8.1	SL.6.1 SL.7.1 SL.8.1	SL.6.1 SL.7.1 SL.8.1	SL.6.1 SL.7.1 SL.8.1	SL.6.1 SL.7.1 SL.8.1	SL.6.1 SL.7.1 SL.8.1	SL.6.1 SL.7.1 SL.8.1
CSTA Computer Science Standards	2-AP-13 2-AP-16 2-AP-17	2-AP-13 2-AP-16 2-AP-17	2-AP-13 2-AP-16 2-AP-17	2-AP-13 2-AP-16 2-AP-17	2-AP-11 2-AP-13 2-AP-16 2-AP-17	2-AP-12 2-AP-13 2-AP-16 2-AP-17	2-AP-12 2-AP-13 2-AP-16 2-AP-17	2-AP-13 2-AP-16 2-AP-17	2-AP-13 2-AP-16 2-AP-17
Illinois CS Standards	6-8.AP.14 6-8.AP.17 6-8.AP.18	6-8.AP.13 6-8.AP.16 6-8.AP.17	6-8.AP.13 6-8.AP.16 6-8.AP.17	6-8.AP.14 6-8.AP.17 6-8.AP.18	6-8.AP.12 6-8.AP.14 6-8.AP.17 6-8.AP.18	6-8.AP.12 6-8.AP.14 6-8.AP.17 6-8.AP.18	6-8.AP.12 6-8.AP.14 6-8.AP.17 6-8.AP.18	6-8.AP.14 6-8.AP.17 6-8.AP.18	6-8.AP.14 6-8.AP.17 6-8.AP.18
ISTE Standards	1.c, 1.d, 4.d, 5.c, 5.d, 6.b	1.c, 1.d, 4.d, 5.c, 5.d, 6.b	1.c, 1.d, 4.d, 5.c, 5.d, 6.b	1.c, 1.d, 4.d, 5.c, 5.d, 6.b	1.c, 1.d, 4.d, 5.c, 5.d, 6.b	1.c, 1.d, 4.d, 5.c, 5.d, 6.b	1.c, 1.d, 4.d, 5.c, 5.d, 6.b	1.c, 1.d, 4.d, 5.c, 5.d, 6.b	1.c, 1.d, 4.d, 5.c, 5.d, 6.b
UK National Curriculum	Key stage 3 Computing*	Key stage 3 Computing*	Key stage 3 Computing*	Key stage 3 Computing*	Key stage 3 Computing*	Key stage 3 Computing*	Key stage 3 Computing*	Key stage 3 Computing*	Key stage 3 Computing*
Sample Application of Skills	Create a heart quiz game.	Create a project about the nose.	Create a project about different parts of the nose.	Create a project about different parts of the digestive system.	Create a digestive system quiz game.	Create a project about different parts of the brain.	Create an interactive project about a brain.	Create a project about the pancreas.	Create a pancreas quiz game.

*See individual lesson guides for details on UK Computer standards

STEM: Life Science 201

Grades 6-8

Scope and Sequence

Each lesson takes about 45-60 minutes to complete.

Life Science 201 is a course for students in grades 6-8 who are ready to embark on a journey that reinforces programming skills while incorporating science topics such as biology, anatomy, and genetics. The Next Generation Science Standards (NGSS) and Common Core State Standards (CCSS) that students develop are also listed here.

	Photosynthesis	Natural Selection	Animal Speeds	Mitosis VS Meiosis	Ocean Food Chain Pyramid	Food Planner	DNA or RNA Strand	Plant Reproductive Parts	Virus, Bacteria, Protists, and Fungi
Key Skills and Concepts	• Use advanced costume handling, advanced events, detect conditions, input/output	• Use cloning, visibility, basic math, loops, motion, screen bounds, advanced events, simple conditionals, variables, messaging	• Use input/output, simple messaging, advanced motion	• Use advanced costume handling, simple events, input/output, motion, messaging, visibility	• Use advanced costume handling, drawing editor, simple events, input/output	• Use advanced costume handling, drawing editor, simple events, input/output	• Use simple events, cloning, direction and turning, conditional loops, motion, input/output, drawing	• Use simple events, simple messaging, advanced motion, input/output	• Use simple messaging, input/output, conditional loops, simple motion, advanced math, basic math
NGSS-Science Standards	MS.LS1.6	LS4.B	None	HS.LS1.4	LS1.C	None	LS3.B	LS3.A	LS1.C
CCSS-Math Standards	MP.1	MP.1	MP.1	MP.1	MP.1	MP.1	MP.1	MP.1	MP.1
CCSS-ELA Standards	SL.6.1 SL.7.1 SL.8.1	SL.6.1 SL.7.1 SL.8.1	SL.6.1 SL.7.1 SL.8.1	SL.6.1 SL.7.1 SL.8.1	SL.6.1 SL.7.1 SL.8.1	SL.6.1 SL.7.1 SL.8.1	SL.6.1 SL.7.1 SL.8.1	SL.6.1 SL.7.1 SL.8.1	SL.6.1 SL.7.1 SL.8.1
CSTA Computer Science Standards	2-AP-13 2-AP-16 2-AP-17	2-AP-12 2-AP-13 2-AP-16 2-AP-17	2-AP-13 2-AP-16 2-AP-17	2-AP-13 2-AP-16 2-AP-17	2-AP-13 2-AP-16 2-AP-17	2-AP-13 2-AP-16 2-AP-17	2-AP-12 2-AP-13 2-AP-16 2-AP-17	2-AP-13 2-AP-16 2-AP-17	2-AP-12 2-AP-13 2-AP-16 2-AP-17
Illinois CS Standards	6-8.AP.14 6-8.AP.17 6-8.AP.18	6-8.AP.13 6-8.AP.14 6-8.AP.17 6-8.AP.18	6-8.AP.14 6-8.AP.17 6-8.AP.18	6-8.AP.14 6-8.AP.17 6-8.AP.18	6-8.AP.14 6-8.AP.17 6-8.AP.18	6-8.AP.14 6-8.AP.17 6-8.AP.18	6-8.AP.13 6-8.AP.14 6-8.AP.17 6-8.AP.18	6-8.AP.14 6-8.AP.17 6-8.AP.18	6-8.AP.13 6-8.AP.14 6-8.AP.17 6-8.AP.18
ISTE Standards	1.c, 1.d, 4.d, 5.c, 5.d, 6.b	1.c, 1.d, 4.d, 5.c, 5.d, 6.b	1.c, 1.d, 4.d, 5.c, 5.d, 6.b	1.c, 1.d, 4.d, 5.c, 5.d, 6.b	1.c, 1.d, 4.d, 5.c, 5.d, 6.b	1.c, 1.d, 4.d, 5.c, 5.d, 6.b	1.c, 1.d, 4.d, 5.c, 5.d, 6.b	1.c, 1.d, 4.d, 5.c, 5.d, 6.b	1.c, 1.d, 4.d, 5.c, 5.d, 6.b
UK National Curriculum	Key stage 3 Computing*	Key stage 3 Computing*	Key stage 3 Computing*	Key stage 3 Computing*	Key stage 3 Computing*	Key stage 3 Computing*	Key stage 3 Computing*	Key stage 3 Computing*	Key stage 3 Computing*
Sample Application of Skills	Create a project about photosynthesis.	Create a game about natural selection.	Create a project about the different animal speeds.	Create a project about mitosis and meiosis.	Create a project about the ocean food chain.	Create a project about food and nutrition information.	Create an interactive game where users can create their own DNA and RNA strands.	Create an interactive diagram about plant reproductive parts.	Create an interactive module.

*See individual lesson guides for details on UK Computer standards

STEM: Life Science 201

Grades 6-8

Scope and Sequence

Each lesson takes about 45-60 minutes to complete.

Life Science 201 is a course for students in grades 6-8 who are ready to embark on a journey that reinforces programming skills while incorporating science topics such as biology, anatomy, and genetics. The Next Generation Science Standards (NGSS) and Common Core State Standards (CCSS) that students develop are also listed here.

	Genetic Traits	Energy Flow in Ecosystems	Punnett Square	Mammal or Reptile?				
Key Skills and Concepts	• Use simple messaging, costume handling, variables, basic math, motion, simple conditionals	• Use advanced costume handling, simple events, loops, motion, conditionals, messaging, debugging	• Use simple events, costume handling, simple conditionals, simple variables, basic math, conditional lops, motion, input/output	• Use advanced costume handling, text handling, input/output, simple costume handing, basic math, conditionals				
NGSS-Science Standards	LS3.A	5.PS3.1	LS3.A	None				
CCSS-Math Standards	MP.1	MP.1	MP.1	MP.1				
CCSS-ELA Standards	SL.6.1 SL.7.1 SL.8.1	SL.6.1 SL.7.1 SL.8.1	SL.6.1 SL.7.1 SL.8.1	SL.6.1 SL.7.1 SL.8.1				
CSTA Computer Science Standards	2-AP-10 2-AP-13 2-AP-16 2-AP-17	2-AP-10 2-AP-11 2-AP-13 2-AP-15 2-AP-16 2-AP-17	2-AP-10 2-AP-11 2-AP-13 2-AP-16 2-AP-17	2-AP-13 2-AP-16 2-AP-17				
Illinois CS Standards	6-8.AP.11 6-8.AP.15 6-8.AP.17 6-8.AP.18	6-8.AP.11 6-8.AP.12 6-8.AP.14 6-8.AP.16 6-8.AP.17 6-8.AP.18	6-8.AP.11 6-8.AP.12 6-8.AP.14 6-8.AP.17 6-8.AP.18	6-8.AP.14 6-8.AP.17 6-8.AP.18				
ISTE Standards	1.c, 1.d, 4.d, 5.c, 5.d, 6.b	1.c, 1.d, 4.d, 5.c, 5.d, 6.b	1.c, 1.d, 4.d, 5.c, 5.d, 6.b	1.c, 1.d, 4.d, 5.c, 5.d, 6.b				
UK National Curriculum	Key stage 3 Computing*	Key stage 3 Computing*	Key stage 3 Computing*	Key stage 3 Computing*				
Sample Application of Skills	Build a pea plant that demonstrates how traits are passed on.	Create an interactive game that demonstrates how energy flows in an ecosystem.	Create a drag-and-drop game about the Punnett square.	Create a quiz game about mammals and reptiles.				

*See individual lesson guides for details on UK Computer standards

STEM: Earth Science 101 Grades 3-5

Scope and Sequence

Each lesson takes about 45-60 minutes to complete.

Earth Science 101 is a course for students in grades 3-5 who are ready to embark on a journey that reinforces programming skills while incorporating science topics such as geology, meteorology, oceanography, and astronomy. The Next Generation Science Standards (NGSS) and Common Core State Standards (CCSS) that students develop are also listed here.

	Solar System	Space Traveler	Water Cycle	Litter Bug!	Types of Clouds	Rock Properties	Biomes	Seasons	Tides
Key Skills and Concepts	• Use simple sound playing, loops, costume handling, delays, motion, direction and turning, simple drawing	• Use simple events, input/output, conditional loops, advanced motion, messaging	• Use input/output, advanced events, delays, basic math, loops, conditionals, advanced motion	• Use simple events, advanced costume handling, text handling, graphic effects, conditional loops, advanced motion	• Use advanced events, detect conditions, input/output, advanced motion, simple sound playing, shape drawing	• Use input/output, conditional loops, basic math, messaging, motion, costume handling	• Use simple messaging, input/output, loops, simple conditionals, basic math, visibility	• Use simple messaging, input/output, simple motion, direction and turning, conditional loops	• Use simple events, layers, simple loops, motion, direction and turning, delays
NGSS-Science Standards	ESS1.B	ESS1.B	MS-ESS2-4	K-ESS3-3	5-ESS2-1	MS-ESS2	K-ESS3-1	MS-ESS3-1	5-ESS2-1
CCSS-Math Standards	MP.1	MP.1	MP.1	MP.1	MP.1	MP.1	MP.1	MP.1	MP.1
CCSS-ELA Standards	L.RF.3.4.A, SL.3.1 L.RF.4.4.A, SL.4.1 L.RF.5.4.A, SL.5.1	L.RF.3.4.A, SL.3.1 L.RF.4.4.A, SL.4.1 L.RF.5.4.A, SL.5.1	L.RF.3.4.A, SL.3.1 L.RF.4.4.A, SL.4.1 L.RF.5.4.A, SL.5.1	L.RF.3.4.A, SL.3.1 L.RF.4.4.A, SL.4.1 L.RF.5.4.A, SL.5.1	L.RF.3.4.A, SL.3.1 L.RF.4.4.A, SL.4.1 L.RF.5.4.A, SL.5.1	L.RF.3.4.A, SL.3.1 L.RF.4.4.A, SL.4.1 L.RF.5.4.A, SL.5.1	L.RF.3.4.A, SL.3.1 L.RF.4.4.A, SL.4.1 L.RF.5.4.A, SL.5.1	L.RF.3.4.A, SL.3.1 L.RF.4.4.A, SL.4.1 L.RF.5.4.A, SL.5.1	L.RF.3.4.A, SL.3.1 L.RF.4.4.A, SL.4.1 L.RF.5.4.A, SL.5.1
CSTA Standards	1B-AP-10 1B-AP-11 1B-AP-12 1B-AP-15	1B-AP-10 1B-AP-11 1B-AP-12 1B-AP-15	1B-AP-10 1B-AP-11 1B-AP-12 1B-AP-15	1B-AP-10 1B-AP-11 1B-AP-12 1B-AP-13 1B-AP-15	1B-AP-11 1B-AP-12 1B-AP-15	1B-AP-10 1B-AP-11 1B-AP-12 1B-AP-15	1B-AP-11 1B-AP-12 1B-AP-15	1B-AP-10 1B-AP-11 1B-AP-12 1B-AP-15	1B-AP-11 1B-AP-12 1B-AP-15
Illinois CS Standards	3-5.AP.08 3-5.AP.11 3-5.AP.12 3-5.AP.13 3-5.AP.15 3-5.AP.17	3-5.AP.08 3-5.AP.10 3-5.AP.11 3-5.AP.12 3-5.AP.13 3-5.AP.15 3-5.AP.17	3-5.AP.08 3-5.AP.10 3-5.AP.11 3-5.AP.12 3-5.AP.13 3-5.AP.15 3-5.AP.17	3-5.AP.08 3-5.AP.10 3-5.AP.11 3-5.AP.12 3-5.AP.13 3-5.AP.15 3-5.AP.17	3-5.AP.08 3-5.AP.10 3-5.AP.11 3-5.AP.12 3-5.AP.13 3-5.AP.15 3-5.AP.17	3-5.AP.08 3-5.AP.10 3-5.AP.11 3-5.AP.12 3-5.AP.13 3-5.AP.15 3-5.AP.17	3-5.AP.08 3-5.AP.10 3-5.AP.11 3-5.AP.12 3-5.AP.13 3-5.AP.15 3-5.AP.17	3-5.AP.08 3-5.AP.10 3-5.AP.11 3-5.AP.12 3-5.AP.13 3-5.AP.15 3-5.AP.17	3-5.AP.08 3-5.AP.11 3-5.AP.12 3-5.AP.13 3-5.AP.15 3-5.AP.17
ISTE Standards	1.1.c, 1.1.d, 1.4.d, 1.5.c, 1.5.d, 1.6.b	1.1.c, 1.1.d, 1.4.d, 1.5.c, 1.5.d, 1.6.b	1.1.c, 1.1.d, 1.4.d, 1.5.c, 1.5.d, 1.6.b	1.1.c, 1.1.d, 1.4.d, 1.5.c, 1.5.d, 1.6.b	1.1.c, 1.1.d, 1.4.d, 1.5.c, 1.5.d, 1.6.b	1.1.c, 1.1.d, 1.4.d, 1.5.c, 1.5.d, 1.6.b	1.1.c, 1.1.d, 1.4.d, 1.5.c, 1.5.d, 1.6.b	1.1.c, 1.1.d, 1.4.d, 1.5.c, 1.5.d, 1.6.b	1.1.c, 1.1.d, 1.4.d, 1.5.c, 1.5.d, 1.6.b
UK National Curriculum	Key stage 1 & 2 Computing*	Key stage 1 & 2 Computing*	Key stage 1 & 2 Computing*	Key stage 1 & 2 Computing*	Key stage 1 & 2 Computing*	Key stage 1 & 2 Computing*	Key stage 1 & 2 Computing*	Key stage 1 & 2 Computing*	Key stage 1 & 2 Computing*
Sample Application of Skills	Create an interactive project about planets in our solar system.	Create a space traveling game about the different planets.	Create a project that demonstrates the water cycle.	Create a project that demonstrates different ways to dispose of trash.	Create a project that explains different types of clouds.	Create a project that demonstrates different properties of rocks.	Create a project that describes different biomes.	Create a project about various seasons.	Create a project that describes tides.

*See individual lesson guides for details on UK Computer standards

STEM: Earth Science 101 — Grades 3-5

Scope and Sequence

Each lesson takes about 45-60 minutes to complete.

Earth Science 101 is a course for students in grades 3-5 who are ready to embark on a journey that reinforces programming skills while incorporating science topics such as geology, meteorology, oceanography, and astronomy. The Next Generation Science Standards (NGSS) and Common Core State Standards (CCSS) that students develop are also listed here.

	How Fossils are Made	Natural Disasters	Pangea	Continents	Earth's Weather	Earth's 4 Spheres	Earth's Rotation and Revolution	Renewable and Nonrenewable Energy	Water Erosion
Key Skills and Concepts	• Use input/output, advanced messaging, costume handling, advanced motion	• Use simple events, simple messaging, visibility, simple loops, motion, delays	• Use advanced motion, direction and turning	• Use simple events and input/output	• Use advanced costume handling, simple messaging, animation	• Use advanced costume handling, simple events, input/output, conditional loops, basic math, motion	• Use advanced costume handling, simple events, input/output, simple loops, direction and turning	• Use advanced costume handling, visibility, simple loops, motion, detect conditions, simple messaging, conditionals	• Use simple events, simple messaging, advanced costume handling, visibility, sound playing
NGSS-Science Standards	3.LS4.1	4-ESS3	MS-ESS2	4-ESS2-2	3-ESS2-1	5-ESS2-1	1-ESS1-1	4-PS3	4-ESS2-1
CCSS-Math Standards	MP.1	MP.1	MP.1	MP.1	MP.1	MP.1	MP.1	MP.1	MP.1
CCSS-ELA Standards	L.RF.3.4.A, SL.3.1 L.RF.4.4.A, SL.4.1 L.RF.5.4.A, SL.5.1	L.RF.3.4.A, SL.3.1 L.RF.4.4.A, SL.4.1 L.RF.5.4.A, SL.5.1	L.RF.3.4.A, SL.3.1 L.RF.4.4.A, SL.4.1 L.RF.5.4.A, SL.5.1	L.RF.3.4.A, SL.3.1 L.RF.4.4.A, SL.4.1 L.RF.5.4.A, SL.5.1	L.RF.3.4.A, SL.3.1 L.RF.4.4.A, SL.4.1 L.RF.5.4.A, SL.5.1	L.RF.3.4.A, SL.3.1 L.RF.4.4.A, SL.4.1 L.RF.5.4.A, SL.5.1	L.RF.3.4.A, SL.3.1 L.RF.4.4.A, SL.4.1 L.RF.5.4.A, SL.5.1	L.RF.3.4.A, SL.3.1 L.RF.4.4.A, SL.4.1 L.RF.5.4.A, SL.5.1	L.RF.3.4.A, SL.3.1 L.RF.4.4.A, SL.4.1 L.RF.5.4.A, SL.5.1
CSTA Standards	1B-AP-11 1B-AP-12 1B-AP-15	1B-AP-11 1B-AP-12 1B-AP-15	1B-AP-11 1B-AP-12 1B-AP-15	1B-AP-11 1B-AP-12 1B-AP-15	1B-AP-11 1B-AP-12 1B-AP-15	1B-AP-10 1B-AP-11 1B-AP-12 1B-AP-15	1B-AP-11 1B-AP-12 1B-AP-15	1B-AP-11 1B-AP-12 1B-AP-15	1B-AP-11 1B-AP-12 1B-AP-15
Illinois CS Standards	3-5.AP.08 3-5.AP.11 3-5.AP.12 3-5.AP.13 3-5.AP.15 3-5.AP.17	3-5.AP.08 3-5.AP.11 3-5.AP.12 3-5.AP.13 3-5.AP.15 3-5.AP.17	3-5.AP.08 3-5.AP.11 3-5.AP.12 3-5.AP.13 3-5.AP.15 3-5.AP.17	3-5.AP.08 3-5.AP.11 3-5.AP.12 3-5.AP.13 3-5.AP.15 3-5.AP.17	3-5.AP.08 3-5.AP.11 3-5.AP.12 3-5.AP.13 3-5.AP.15 3-5.AP.17	3-5.AP.08 3-5.AP.10 3-5.AP.11 3-5.AP.12 3-5.AP.13 3-5.AP.15, 3-5.AP.17	3-5.AP.08 3-5.AP.11 3-5.AP.12 3-5.AP.13 3-5.AP.15 3-5.AP.17	3-5.AP.08 3-5.AP.10 3-5.AP.11 3-5.AP.12 3-5.AP.13 3-5.AP.15, 3-5.AP.17	3-5.AP.08 3-5.AP.11 3-5.AP.12 3-5.AP.13 3-5.AP.15 3-5.AP.17
ISTE Standards	1.1.c, 1.1.d, 1.4.d, 1.5.c, 1.5.d, 1.6.b	1.1.c, 1.1.d, 1.4.d, 1.5.c, 1.5.d, 1.6.b	1.1.c, 1.1.d, 1.4.d, 1.5.c, 1.5.d, 1.6.b	1.1.c, 1.1.d, 1.4.d, 1.5.c, 1.5.d, 1.6.b	1.1.c, 1.1.d, 1.4.d, 1.5.c, 1.5.d, 1.6.b	1.1.c, 1.1.d, 1.4.d, 1.5.c, 1.5.d, 1.6.b	1.1.c, 1.1.d, 1.4.d, 1.5.c, 1.5.d, 1.6.b	1.1.c, 1.1.d, 1.4.d, 1.5.c, 1.5.d, 1.6.b	1.1.c, 1.1.d, 1.4.d, 1.5.c, 1.5.d, 1.6.b
UK National Curriculum	Key stage 1 & 2 Computing*	Key stage 1 & 2 Computing*	Key stage 1 & 2 Computing*	Key stage 1 & 2 Computing*	Key stage 1 & 2 Computing*	Key stage 1 & 2 Computing*	Key stage 1 & 2 Computing*	Key stage 1 & 2 Computing*	Key stage 1 & 2 Computing*
Sample Application of Skills	Create a project that demonstrates how fossils are formed.	Create an interactive project that demonstrates natural disasters.	Create a project about Pangea.	Create a project about continents	Create a project about weather.	Create a project that demonstrates how the Earth's 4 spheres interact with one another.	Create a project about the Earth's rotation on its axis and revolution around the sun.	Create a project about renewable and nonrenewable energy resources.	Create a project about a rain cloud that erodes a cliff.

*See individual lesson guides for details on UK Computer standards

STEM: Earth Science 101

Grades 3-5

Scope and Sequence

Each lesson takes about 45-60 minutes to complete.

Earth Science 101 is a course for students in grades 3-5 who are ready to embark on a journey that reinforces programming skills while incorporating science topics such as geology, meteorology, oceanography, and astronomy. The Next Generation Science Standards (NGSS) and Common Core State Standards (CCSS) that students develop are also listed here.

	Freshwater Quest	What Happens in Recycling Center							
Key Skills and Concepts	• Use drawing editor, advanced events, simple sound playing, conditionals, input/output, basic math	• Use advanced events, simple motion, layers, input/output, messaging, costume handling, delays, visibility							
NGSS-Science Standards	5-ESS2	K-ESS3-3							
CCSS-Math Standards	MP.1	MP.1							
CCSS-ELA Standards	L.RF.3.4.A, SL.3.1 L.RF.4.4.A, SL.4.1 L.RF.5.4.A, SL.5.1	L.RF.3.4.A, SL.3.1 L.RF.4.4.A, SL.4.1 L.RF.5.4.A, SL.5.1							
CSTA Standards	1B-AP-11 1B-AP-12 1B-AP-15	1B-AP-11 1B-AP-12 1B-AP-15							
Illinois CS Standards	3-5.AP.08 3-5.AP.10 3-5.AP.11 3-5.AP.12, 3-5.AP.13 3-5.AP.15, 3-5.AP.17	3-5.AP.08 3-5.AP.11 3-5.AP.12, 3-5.AP.13 3-5.AP.15, 3-5.AP.17							
ISTE Standards	1.1.c, 1.1.d, 1.4.d, 1.5.c, 1.5.d, 1.6.b	1.1.c, 1.1.d, 1.4.d, 1.5.c, 1.5.d, 1.6.b							
UK National Curriculum	Key stage 1 & 2 Computing*	Key stage 1 & 2 Computing*							
Sample Application of Skills	Create a project about freshwater.	Create a project about items in a recycling center.							

*See individual lesson guides for details on UK Computer standards

STEM: Earth Science 201

Grades 6-8

Scope and Sequence

Each lesson takes about 45-60 minutes to complete.

Earth Science 201 is a course for students in grades 6-8 who are ready to embark on a journey that reinforces programming skills while incorporating science topics such as geology, meteorology, oceanography, and astronomy. The Next Generation Science Standards (NGSS) and Common Core State Standards (CCSS) that students develop are also listed here.

	Phases of the Moon	Earth's Composition	Rock Cycle	Layers of the Ocean	Earth's Atmosphere	Spring Tides	Build an Ecosystem	Weather
Key Skills and Concepts	• Use simple events, conditional loops, advanced motion, basic math, advanced costume handling	• Use simple messaging, input/output, graphic effects	• Use drawing editor, input/output, conditionals, simple messaging, visibility	• Use advanced math, simple conditionals, visibility	• Use simple events, loops, conditionals, conditional loops, text handling, input/output	• Use simple events, simple loops, direction and turning, basic math, input/output, conditionals, messaging	• Use simple events, simple conditionals, cloning, conditional loops, motion, costume handling	• Use simple events, conditional loops, motion, messaging, visibility, conditionals, cloning
NGSS-Science Standards	MS-ESS1-1	HS-ESS2-3	HS-ESS2-5	MS-ESS2-3	5-ESS2-1	5-ESS2-1	MS-ESS3-1	MS-ESS2-5
CCSS-Math Standards	MP.1	MP.1	MP.1	MP.1	MP.1	MP.1	MP.1	MP.1
CCSS-ELA Standards	SL.6.1 SL.7.1 SL.8.1	SL.6.1 SL.7.1 SL.8.1	SL.6.1 SL.7.1 SL.8.1	SL.6.1 SL.7.1 SL.8.1	SL.6.1 SL.7.1 SL.8.1	SL.6.1 SL.7.1 SL.8.1	SL.6.1 SL.7.1 SL.8.1	SL.6.1 SL.7.1 SL.8.1
CSTA Computer Science Standards	2-AP-10 2-AP-12 2-AP-13 2-AP-16 2-AP-17	2-AP-13 2-AP-16 2-AP-17	2-AP-13 2-AP-16 2-AP-17	2-AP-13 2-AP-16 2-AP-17	2-AP-12 2-AP-13 2-AP-16 2-AP-17	2-AP-13 2-AP-16 2-AP-17	2-AP-12 2-AP-13 2-AP-16 2-AP-17	2-AP-13 2-AP-16 2-AP-17
Illinois CS Standards	6-8.AP.11 6-8.AP.13 6-8.AP.14 6-8.AP.17 6-8.AP.18	6-8.AP.14 6-8.AP.17 6-8.AP.18	6-8.AP.14 6-8.AP.17 6-8.AP.18	6-8.AP.14 6-8.AP.17 6-8.AP.18	6-8.AP.13 6-8.AP.14 6-8.AP.17 6-8.AP.18	6-8.AP.14 6-8.AP.17 6-8.AP.18	6-8.AP.13 6-8.AP.14 6-8.AP.17 6-8.AP.18	6-8.AP.14 6-8.AP.17 6-8.AP.18
ISTE Standards	1.c, 1.d, 4.d, 5.c, 5.d, 6.b	1.c, 1.d, 4.d, 5.c, 5.d, 6.b	1.c, 1.d, 4.d, 5.c, 5.d, 6.b	1.c, 1.d, 4.d, 5.c, 5.d, 6.b	1.c, 1.d, 4.d, 5.c, 5.d, 6.b	1.c, 1.d, 4.d, 5.c, 5.d, 6.b	1.c, 1.d, 4.d, 5.c, 5.d, 6.b	1.c, 1.d, 4.d, 5.c, 5.d, 6.b
UK National Curriculum	Key stage 3 Computing*	Key stage 3 Computing*	Key stage 3 Computing*	Key stage 3 Computing*	Key stage 3 Computing*	Key stage 3 Computing*	Key stage 3 Computing*	Key stage 3 Computing*
Sample Application of Skills	Create a project that illustrates the different phases of the moon.	Create a project that illustrates Earth's composition.	Create a project that demonstrates the rock cycle.	Create a project that demonstrates the different layers of the ocean.	Create an interactive project that illustrates the Earth's atmosphere.	Create a project about spring tides.	Create an interactive project about different forms of life in an ecosystem.	Create an interactive project about different weather conditions.

*See individual lesson guides for details on UK Computer standards

STEM: Earth Science 201

Grades 6-8

Scope and Sequence

Each lesson takes about 45-60 minutes to complete.

Earth Science 201 is a course for students in grades 6-8 who are ready to embark on a journey that reinforces programming skills while incorporating science topics such as geology, meteorology, oceanography, and astronomy. The Next Generation Science Standards (NGSS) and Common Core State Standards (CCSS) that students develop are also listed here.

	Greenhouse Effect	Carbon Cycle	Zodiac Stars	Gravity on the Moon	Ocean Currents	Hurricanes	Earthquakes and Tsunamis	Volcanoes
Key Skills and Concepts	• Use simple events, input/output, simple messaging, delays, variables, visibility, loops, costume handling	• Use drawing editor, text handling, input/output, simple events, loops, conditionals, messaging, visibility	• Use advanced motion, simple drawing, delays, advanced messaging	• Use expert physics and simple events	• Use simple events, costume handling, messaging, loops, basic math, input/output	• Use advanced motion, basic math, simple loops, costume handling, input/output, simple messaging, delays	• Use advanced animation, motion, essaging, input/output, costume handling, simple conditionals, basic math	• Use simple messaging, input/output, simple animation, costume handling, simple conditionals, delays
NGSS-Science Standards	ESS3.D	LS2.B	None	MS-ESS1-1	MS-ESS2	4-ESS3	4-ESS3	4-ESS3
CCSS-Math Standards	MP.1	MP.1	MP.1	MP.1	MP.1	MP.1	MP.1	MP.1
CCSS-ELA Standards	SL.6.1 SL.7.1 SL.8.1	SL.6.1 SL.7.1 SL.8.1	SL.6.1 SL.7.1 SL.8.1	SL.6.1 SL.7.1 SL.8.1	SL.6.1 SL.7.1 SL.8.1	SL.6.1 SL.7.1 SL.8.1	SL.6.1 SL.7.1 SL.8.1	SL.6.1 SL.7.1 SL.8.1
CSTA Computer Science Standards	2-AP-13 2-AP-16 2-AP-17	2-AP-13 2-AP-15 2-AP-16 2-AP-17	2-AP-13 2-AP-16 2-AP-17	2-AP-13 2-AP-14 2-AP-16 2-AP-17	2-AP-13 2-AP-16 2-AP-17	2-AP-13 2-AP-16 2-AP-17	2-AP-13 2-AP-16 2-AP-17	2-AP-13 2-AP-16 2-AP-17
Illinois CS Standards	6-8.AP.14 6-8.AP.17 6-8.AP.18	6-8.AP.14 6-8.AP.16 6-8.AP.17 6-8.AP.18	6-8.AP.14 6-8.AP.17 6-8.AP.18	6-8.AP.14 6-8.AP.15 6-8.AP.17 6-8.AP.18	6-8.AP.14 6-8.AP.17 6-8.AP.18	6-8.AP.14 6-8.AP.17 6-8.AP.18	6-8.AP.14 6-8.AP.17 6-8.AP.18	6-8.AP.14 6-8.AP.17 6-8.AP.18
ISTE Standards	1.c, 1.d, 4.d, 5.c, 5.d, 6.b	1.c, 1.d, 4.d, 5.c, 5.d, 6.b	1.c, 1.d, 4.d, 5.c, 5.d, 6.b	1.c, 1.d, 4.d, 5.c, 5.d, 6.b	1.c, 1.d, 4.d, 5.c, 5.d, 6.b	1.c, 1.d, 4.d, 5.c, 5.d, 6.b	1.c, 1.d, 4.d, 5.c, 5.d, 6.b	1.c, 1.d, 4.d, 5.c, 5.d, 6.b
UK National Curriculum	Key stage 3 Computing*	Key stage 3 Computing*	Key stage 3 Computing*	Key stage 3 Computing*	Key stage 3 Computing*	Key stage 3 Computing*	Key stage 3 Computing*	Key stage 3 Computing*
Sample Application of Skills	Create a project that demonstrates the greenhouse effect.	Create a project that demonstrates the carbon cycle.	Create a project about zodiac stars.	Create a project that demonstrates gravity on the moon.	Create a project that demonstrates ocean currents.	Create an animation that demonstrates the formation of a hurricane.	Create an animation that illustrates the formation of tsunamis.	Create an animation that demonstrates how volcanoes form.

*See individual lesson guides for details on UK Computer standards

STEM: Earth Science 201

Grades 6-8

Scope and Sequence

Each lesson takes about 45-60 minutes to complete.

Earth Science 201 is a course for students in grades 6-8 who are ready to embark on a journey that reinforces programming skills while incorporating science topics such as geology, meteorology, oceanography, and astronomy. The Next Generation Science Standards (NGSS) and Common Core State Standards (CCSS) that students develop are also listed here.

	Land and Sea Breeze	Earth's Land and Water	Eclipses					
Key Skills and Concepts	• Use simple events, costume handling, messaging, input/output, visibility, motion, conditional loops, basic math	• Use simple events, advanced costume handling, input/output, function, simple messaging, visibility	• Use simple events, costume handling, conditional loops, advanced math, messaging, delays, input/output, graphic effects, visibility					
NGSS-Science Standards	3-ESS2, MS-ESS2	4-ESS2-2	MS-ESS1-1					
CCSS-Math Standards	MP.1	MP.1	MP.1					
CCSS-ELA Standards	SL.6.1 SL.7.1 SL.8.1	SL.6.1 SL.7.1 SL.8.1	SL.6.1 SL.7.1 SL.8.1					
CSTA Computer Science Standards	2-AP-12 2-AP-13 2-AP-16 2-AP-17	2-AP-13 2-AP-16 2-AP-17	2-AP-12 2-AP-13 2-AP-16 2-AP-17					
Illinois CS Standards	6-8.AP.13 6-8.AP.14 6-8.AP.17 6-8.AP.18	6-8.AP.14 6-8.AP.17 6-8.AP.18	6-8.AP.13 6-8.AP.14 6-8.AP.17 6-8.AP.18					
ISTE Standards	1.c, 1.d, 4.d, 5.c, 5.d, 6.b	1.c, 1.d, 4.d, 5.c, 5.d, 6.b	1.c, 1.d, 4.d, 5.c, 5.d, 6.b					
UK National Curriculum	Key stage 3 Computing*	Key stage 3 Computing*	Key stage 3 Computing*					
Sample Application of Skills	Create an interactive slideshow that demonstrates the workings of land and sea breeze.	Create an interactive slideshow about major landmasses and bodies of water.	Create an interactive project about the solar and lunar eclipses.					

*See individual lesson guides for details on UK Computer standards

STEM: Physical Science 101 — Grades 3-5

Scope and Sequence

Each lesson takes about 45-60 minutes to complete.

Physical Science 101 is a course for students in grades 3-5 who are ready to embark on a journey that reinforces programming skills while incorporating science topics such as physics and chemistry. The Next Generation Science Standards (NGSS) and Common Core State Standards (CCSS) that students develop are also listed here.

	Light Bulb	What Do Magnets Attract?	Solid, Liquid, or Gas?	Scientist Report	Simple Circuit
Key Skills and Concepts	• Use simple events, text handling, input/output, conditionals, simple loops, motion, delays	• Use simple loops, simple motion, basic math, advanced events, detect conditions, input/output	• Use simple events, conditional loops, detect conditions, simple motion, advanced math, advanced events	• Use advanced costume handling, simple events, graphic effects, input/output	• Use simple events, conditional loops, simple motion, input/output, costume handling
NGSS-Science Standards	4-PS3-4	3-PS2-3	PS1.A	None	4-PS3-4
CCSS-Math Standards	MP.1	MP.1	MP.1	MP.1	MP.1
CCSS-ELA Standards	L.RF.3.4.A, SL.3.1 L.RF.4.4.A, SL.4.1 L.RF.5.4.A, SL.5.1	L.RF.3.4.A, SL.3.1 L.RF.4.4.A, SL.4.1 L.RF.5.4.A, SL.5.1	L.RF.3.4.A, SL.3.1 L.RF.4.4.A, SL.4.1 L.RF.5.4.A, SL.5.1	L.RF.3.4.A, SL.3.1 L.RF.4.4.A, SL.4.1 L.RF.5.4.A, SL.5.1	L.RF.3.4.A, SL.3.1 L.RF.4.4.A, SL.4.1 L.RF.5.4.A, SL.5.1
CSTA Standards	1B-AP-11 1B-AP-12 1B-AP-15	1B-AP-11 1B-AP-12 1B-AP-15	1B-AP-10 1B-AP-11 1B-AP-12 1B-AP-15	1B-AP-11 1B-AP-12 1B-AP-13 1B-AP-15	1B-AP-10 1B-AP-11 1B-AP-12 1B-AP-15
Illinois CS Standards	3-5.AP.08 3-5.AP.10 3-5.AP.11 3-5.AP.12 3-5.AP.13 3-5.AP.15 3-5.AP.17	3-5.AP.08 3-5.AP.10 3-5.AP.11 3-5.AP.12 3-5.AP.13 3-5.AP.15 3-5.AP.17	3-5.AP.08 3-5.AP.10 3-5.AP.11 3-5.AP.12 3-5.AP.13 3-5.AP.15 3-5.AP.17	3-5.AP.08 3-5.AP.11 3-5.AP.12 3-5.AP.13 3-5.AP.15 3-5.AP.17	3-5.AP.08 3-5.AP.10 3-5.AP.11 3-5.AP.12 3-5.AP.13 3-5.AP.15 3-5.AP.17
ISTE Standards	1.1.c, 1.1.d, 1.4.d, 1.5.c, 1.5.d, 1.6.b	1.1.c, 1.1.d, 1.4.d, 1.5.c, 1.5.d, 1.6.b	1.1.c, 1.1.d, 1.4.d, 1.5.c, 1.5.d, 1.6.b	1.1.c, 1.1.d, 1.4.d, 1.5.c, 1.5.d, 1.6.b	1.1.c, 1.1.d, 1.4.d, 1.5.c, 1.5.d, 1.6.b
UK National Curriculum	Key stage 1 & 2 Computing*	Key stage 1 & 2 Computing*	Key stage 1 & 2 Computing*	Key stage 1 & 2 Computing*	Key stage 1 & 2 Computing*
Sample Application of Skills	Create a project that demonstrates how a light bulb works.	Create a project that illustrates how magnets work.	Create a game quiz about solids, liquids, and gasses.	Create a report about a famous scientist.	Create an interactive simple circuit.

	Types of Heat Transfer	Light Refraction	Gravity	Friction
Key Skills and Concepts	• Use simple events, messaging, visibility, simple loops, delays, costume handling, input/output	• Use input/output, simple events, visibility, delays	• Use expert physics and simple events	• Use advanced motion, direction and turning, simple loops, physics, costume handling, messaging
NGSS-Science Standards	4-PS3-2	PS4-3	3-PS2-1	K-PS2-2
CCSS-Math Standards	MP.1	MP.1	MP.1	MP.1
CCSS-ELA Standards	L.RF.3.4.A, SL.3.1 L.RF.4.4.A, SL.4.1 L.RF.5.4.A, SL.5.1	L.RF.3.4.A, SL.3.1 L.RF.4.4.A, SL.4.1 L.RF.5.4.A, SL.5.1	L.RF.3.4.A, SL.3.1 L.RF.4.4.A, SL.4.1 L.RF.5.4.A, SL.5.1	L.RF.3.4.A, SL.3.1 L.RF.4.4.A, SL.4.1 L.RF.5.4.A, SL.5.1
CSTA Standards	1B-AP-11 1B-AP-12 1B-AP-15	1B-AP-11 1B-AP-12 1B-AP-15	1B-AP-11 1B-AP-12 1B-AP-15	1B-AP-11 1B-AP-12 1B-AP-15
Illinois CS Standards	3-5.AP.08 3-5.AP.11 3-5.AP.12 3-5.AP.13 3-5.AP.15 3-5.AP.17	3-5.AP.08 3-5.AP.11 3-5.AP.12 3-5.AP.13 3-5.AP.15 3-5.AP.17	3-5.AP.08 3-5.AP.11 3-5.AP.12 3-5.AP.13 3-5.AP.15 3-5.AP.17	3-5.AP.08 3-5.AP.11 3-5.AP.12 3-5.AP.13 3-5.AP.15 3-5.AP.17
ISTE Standards	1.1.c, 1.1.d, 1.4.d, 1.5.c, 1.5.d, 1.6.b	1.1.c, 1.1.d, 1.4.d, 1.5.c, 1.5.d, 1.6.b	1.1.c, 1.1.d, 1.4.d, 1.5.c, 1.5.d, 1.6.b	1.1.c, 1.1.d, 1.4.d, 1.5.c, 1.5.d, 1.6.b
UK National Curriculum	Key stage 1 & 2 Computing*	Key stage 1 & 2 Computing*	Key stage 1 & 2 Computing*	Key stage 1 & 2 Computing*
Sample Application of Skills	Create a project that illustrates the different types of heat transfer.	Create a project that illustrates light refraction.	Create a project that explains gravity.	Create a project that explains friction.

*See individual lesson guides for details on UK Computer standards

STEM: Physical Science 101 — Grades 3-5

Scope and Sequence

Each lesson takes about 45-60 minutes to complete.

Physical Science 101 is a course for students in grades 3-5 who are ready to embark on a journey that reinforces programming skills while incorporating science topics such as physics and chemistry. The Next Generation Science Standards (NGSS) and Common Core State Standards (CCSS) that students develop are also listed here.

	Types of Forces	How Sound Travels	Light Intensity and Sight	Transparency and Opacity	Forces and Energy				
Key Skills and Concepts	• Use simple events, simple messaging, advanced motion, direction and turning, simple loops, delays	• Use simple messaging, visibility, simple messaging, input/output, simple sound playing	• Use simple messaging, visibility, costume handling, advanced events, basic math, costume handling	• Use simple messaging, advanced costume handling, visibility, simple animation, input/output	• Use simple messaging, advanced motion, basic math, simple loops, direction and turning, delays				
NGSS-Science Standards	K-PS2-2	4-PS3-2	MS-PS4-2	PS-PS4-2	K-PS2-1				
CCSS-Math Standards	MP.1	MP.1	MP.1	MP.1	MP.1				
CCSS-ELA Standards	L.RF.3.4.A, SL.3.1 L.RF.4.4.A, SL.4.1 L.RF.5.4.A, SL.5.1	L.RF.3.4.A, SL.3.1 L.RF.4.4.A, SL.4.1 L.RF.5.4.A, SL.5.1	L.RF.3.4.A, SL.3.1 L.RF.4.4.A, SL.4.1 L.RF.5.4.A, SL.5.1	L.RF.3.4.A, SL.3.1 L.RF.4.4.A, SL.4.1 L.RF.5.4.A, SL.5.1	L.RF.3.4.A, SL.3.1 L.RF.4.4.A, SL.4.1 L.RF.5.4.A, SL.5.1				
CSTA Standards	1B-AP-11 1B-AP-12 1B-AP-15	1B-AP-11 1B-AP-12 1B-AP-15	1B-AP-09 1B-AP-11 1B-AP-12 1B-AP-15	1B-AP-11 1B-AP-12 1B-AP-15	1B-AP-11 1B-AP-12 1B-AP-15				
Illinois CS Standards	3-5.AP.08 3-5.AP.11 3-5.AP.12 3-5.AP.13 3-5.AP.15 3-5.AP.17	3-5.AP.08 3-5.AP.11 3-5.AP.12 3-5.AP.13 3-5.AP.15 3-5.AP.17	3-5.AP.08 3-5.AP.11 3-5.AP.12 3-5.AP.13 3-5.AP.15 3-5.AP.17	3-5.AP.08 3-5.AP.11 3-5.AP.12 3-5.AP.13 3-5.AP.15 3-5.AP.17	3-5.AP.08 3-5.AP.11 3-5.AP.12 3-5.AP.13 3-5.AP.15 3-5.AP.17				
ISTE Standards	1.1.c, 1.1.d, 1.4.d, 1.5.c, 1.5.d, 1.6.b	1.1.c, 1.1.d, 1.4.d, 1.5.c, 1.5.d, 1.6.b	1.1.c, 1.1.d, 1.4.d, 1.5.c, 1.5.d, 1.6.b	1.1.c, 1.1.d, 1.4.d, 1.5.c, 1.5.d, 1.6.b	1.1.c, 1.1.d, 1.4.d, 1.5.c, 1.5.d, 1.6.b				
UK National Curriculum	Key stage 1 & 2 Computing*	Key stage 1 & 2 Computing*	Key stage 1 & 2 Computing*	Key stage 1 & 2 Computing*	Key stage 1 & 2 Computing*				
Sample Application of Skills	Create a project that shows the different types of forces.	Create an interactive project that illustrates how sound travels in air.	Create an interactive slideshow that depicts the importance of light to sight.	Create a quiz game about transparency and its effect on vision.	Create an interactive slideshow about pushes and pulls.				

*See individual lesson guides for details on UK Computer standards

STEM: Physical Science 201

Grades 6-8

Scope and Sequence

Each lesson takes about 45-60 minutes to complete.

Physical Science 201 is a course for students in grades 6-8 who are ready to embark on a journey that reinforces programming skills while incorporating science topics such as physics and chemistry. The Next Generation Science Standards (NGSS) and Common Core State Standards (CCSS) that students develop are also listed here.

	Density	States of Matter (Water)	Elements Quiz	Series and Parallel Circuits	Periodic Table	pH Levels	Electromagnetic Spectrum	Potential VS. Kinetic Energy
Key Skills and Concepts	• Use costume handling, simple events, detect conditions, conditional loops, motion, messaging, input/output	• Use simple events, conditional loops, drawing, conditionals, basic math, messaging, costume handling, input/out	• Use simple messaging, input/output, conditionals	• Use simple events and input/output	• Use sound playing, conditional loops, advanced math, input/output	• Use simple sound playing, conditional loops, simple events, basic motion, advanced math	• Use simple events, conditional loops, basic motion, simple conditionals, input/output	• Use simple loops, simple motion, direction and turning, delays
NGSS-Science Standards	5-PS1-3	PS1.A	HS-PS1-2	4-PS3-4	HS-PS1-1	MS-PS1-2	3-PS2	3-PS2
CCSS-Math Standards	MP.1	MP.1	MP.1	MP.1	MP.1	MP.1	MP.1	MP.1
CCSS-ELA Standards	SL.6.1 SL.7.1 SL.8.1	SL.6.1 SL.7.1 SL.8.1	SL.6.1 SL.7.1 SL.8.1	SL.6.1 SL.7.1 SL.8.1	SL.6.1 SL.7.1 SL.8.1	SL.6.1 SL.7.1 SL.8.1	SL.6.1 SL.7.1 SL.8.1	SL.6.1 SL.7.1 SL.8.1
CSTA Computer Science Standards	2-AP-12 2-AP-13 2-AP-16 2-AP-17	2-AP-12 2-AP-13 2-AP-16 2-AP-17	2-AP-13 2-AP-16 2-AP-17	2-AP-13 2-AP-16 2-AP-17	2-AP-12 2-AP-13 2-AP-16 2-AP-17	2-AP-13 2-AP-16 2-AP-17	2-AP-13 2-AP-16 2-AP-17	2-AP-13 2-AP-16 2-AP-17
Illinois CS Standards	6-8.AP.13 6-8.AP.14 6-8.AP.17 6-8.AP.18	6-8.AP.13 6-8.AP.14 6-8.AP.17 6-8.AP.18	6-8.AP.14 6-8.AP.17 6-8.AP.18	6-8.AP.14 6-8.AP.17 6-8.AP.18	6-8.AP.13 6-8.AP.14 6-8.AP.17 6-8.AP.18	6-8.AP.14 6-8.AP.17 6-8.AP.18	6-8.AP.14 6-8.AP.17 6-8.AP.18	6-8.AP.14 6-8.AP.17 6-8.AP.18
ISTE Standards	1.c, 1.d, 4.d, 5.c, 5.d, 6.b	1.c, 1.d, 4.d, 5.c, 5.d, 6.b	1.c, 1.d, 4.d, 5.c, 5.d, 6.b	1.c, 1.d, 4.d, 5.c, 5.d, 6.b	1.c, 1.d, 4.d, 5.c, 5.d, 6.b	1.c, 1.d, 4.d, 5.c, 5.d, 6.b	1.c, 1.d, 4.d, 5.c, 5.d, 6.b	1.c, 1.d, 4.d, 5.c, 5.d, 6.b
UK National Curriculum	Key stage 3 Computing*	Key stage 3 Computing*	Key stage 3 Computing*	Key stage 3 Computing*	Key stage 3 Computing*	Key stage 3 Computing*	Key stage 3 Computing*	Key stage 3 Computing*
Sample Application of Skills	Create an interactive project that demonstrates whether an item will sink or float.	Create an interactive presentation that demonstrates the different states of matter..	Create a quiz game about different elements.	Create an interactive project that models series and parallel circuits.	Create a project that illustrates elements on the periodic table.	Create an interactive project about the pH levels of foods and objects.	Create a project that illustrates where different objects are located on the electromagnetic spectrum.	Create a project that illustrates the potential and kinetic energy of a car.

*See individual lesson guides for details on UK Computer standards

STEM: Physical Science 201

Grades 6-8

Scope and Sequence

Each lesson takes about 45-60 minutes to complete.

Physical Science 201 is a course for students in grades 6-8 who are ready to embark on a journey that reinforces programming skills while incorporating science topics such as physics and chemistry. The Next Generation Science Standards (NGSS) and Common Core State Standards (CCSS) that students develop are also listed here.

	Chemical VS. Physical Change	Equations	Atom	Helium Atom	Element Categories	Solid, Liquid, Gas, or Plasma	Sum of Forces	Newton's Third Law
Key Skills and Concepts	• Use simple events, input/output, conditionals, basic bath, messaging, visibility	• Use conditionals, advanced math, input/output	• Use advanced costume handling, input/output, sound playing, conditional loops, layers, events, motion, simple variables	• Use input/output, basic math, conditionals	• Use input/output, simple events, simple messaging, advanced costume handling	• Use simple events, messaging, simple conditionals, basic math, visibility	• Use simple events, messaging, conditionals, variables, basic math, delays, input/output	• Use simple messaging, basic math, motion, conditional loops, delays, simple events, input/output
NGSS-Science Standards	1-PS4	PS1.B	HS-PS1	HS-PS1	HS-PS1	PS1.A	K-PS2-1	MS-PS2-1
CCSS-Math Standards	MP.1	MP.1	MP.1	MP.1	MP.1	MP.1	MP.1	MP.1
CCSS-ELA Standards	SL.6.1 SL.7.1 SL.8.1	SL.6.1 SL.7.1 SL.8.1	SL.6.1 SL.7.1 SL.8.1	SL.6.1 SL.7.1 SL.8.1	SL.6.1 SL.7.1 SL.8.1	SL.6.1 SL.7.1 SL.8.1	SL.6.1 SL.7.1 SL.8.1	SL.6.1 SL.7.1 SL.8.1
CSTA Computer Science Standards	2-AP-13 2-AP-16 2-AP-17	2-AP-13 2-AP-16 2-AP-17	2-AP-12 2-AP-13 2-AP-16 2-AP-17	2-AP-13 2-AP-16 2-AP-17	2-AP-13 2-AP-16 2-AP-17	2-AP-13 2-AP-16 2-AP-17	2-AP-13 2-AP-16 2-AP-17	2-AP-12 2-AP-13 2-AP-16 2-AP-17
Illinois CS Standards	6-8.AP.14 6-8.AP.17 6-8.AP.18	6-8.AP.14 6-8.AP.17 6-8.AP.18	6-8.AP.13 6-8.AP.14 6-8.AP.17 6-8.AP.18	6-8.AP.14 6-8.AP.17 6-8.AP.18	6-8.AP.14 6-8.AP.17 6-8.AP.18	6-8.AP.14 6-8.AP.17 6-8.AP.18	6-8.AP.14 6-8.AP.17 6-8.AP.18	6-8.AP.13 6-8.AP.14 6-8.AP.17 6-8.AP.18
ISTE Standards	1.c, 1.d, 4.d, 5.c, 5.d, 6.b	1.c, 1.d, 4.d, 5.c, 5.d, 6.b	1.c, 1.d, 4.d, 5.c, 5.d, 6.b	1.c, 1.d, 4.d, 5.c, 5.d, 6.b	1.c, 1.d, 4.d, 5.c, 5.d, 6.b	1.c, 1.d, 4.d, 5.c, 5.d, 6.b	1.c, 1.d, 4.d, 5.c, 5.d, 6.b	1.c, 1.d, 4.d, 5.c, 5.d, 6.b
UK National Curriculum	Key stage 3 Computing*	Key stage 3 Computing*	Key stage 3 Computing*	Key stage 3 Computing*	Key stage 3 Computing*	Key stage 3 Computing*	Key stage 3 Computing*	Key stage 3 Computing*
Sample Application of Skills	Create an interactive project about chemical and physical changes.	Create a quiz game about different chemical equations.	Create a project that illustrates different parts of an atom.	Create a project that illustrates a helium atom.	Create a project that illustrates the different categories of a periodic table.	Create a project that identifies different states of matter.	Create a project that illustrates the sum of forces on a soccer ball.	Create a project that illustrates Newton's Third Law.

*See individual lesson guides for details on UK Computer standards

STEM: Physical Science 201

Scope and Sequence

Grades 6-8

Each lesson takes about 45-60 minutes to complete.

Physical Science 201 is a course for students in grades 6-8 who are ready to embark on a journey that reinforces programming skills while incorporating science topics such as physics and chemistry. The Next Generation Science Standards (NGSS) and Common Core State Standards (CCSS) that students develop are also listed here.

	Light Absorption and Reflection	Bouncing Egg	See-Saw	Properties of Matter	Properties of Waves				
Key Skills and Concepts	• Use visibility, input/output, simple events, simple messaging	• Use simple events, advanced costume handling, advanced events, physics, input/output	• Use simple events, basic physics, advanced physics, expert physics	• Use events, costume handling, conditionals, messaging, animation, motion, direction and turning, delays	• Use simple events, advanced costume handling, messaging, graphic effects, advanced math, simple conditionals, simple variables				
NGSS-Science Standards	MS-PS4-2	3-PS2-1	3-PS2-1	PS1.A	1-PS4				
CCSS-Math Standards	MP.1	MP.1	MP.1	MP.1	MP.1				
CCSS-ELA Standards	SL.6.1 SL.7.1 SL.8.1	SL.6.1 SL.7.1 SL.8.1	SL.6.1 SL.7.1 SL.8.1	SL.6.1 SL.7.1 SL.8.1	SL.6.1 SL.7.1 SL.8.1				
CSTA Computer Science Standards	2-AP-13 2-AP-16 2-AP-17	2-AP-13 2-AP-16 2-AP-17	2-AP-13 2-AP-16 2-AP-17	2-AP-13 2-AP-16 2-AP-17	2-AP-13 2-AP-16 2-AP-17				
Illinois CS Standards	6-8.AP.14 6-8.AP.17 6-8.AP.18	6-8.AP.14 6-8.AP.17 6-8.AP.18	6-8.AP.14 6-8.AP.17 6-8.AP.18	6-8.AP.14 6-8.AP.17 6-8.AP.18	6-8.AP.14 6-8.AP.17 6-8.AP.18				
ISTE Standards	1.c, 1.d, 4.d, 5.c, 5.d, 6.b	1.c, 1.d, 4.d, 5.c, 5.d, 6.b	1.c, 1.d, 4.d, 5.c, 5.d, 6.b	1.c, 1.d, 4.d, 5.c, 5.d, 6.b	1.c, 1.d, 4.d, 5.c, 5.d, 6.b				
UK National Curriculum	Key stage 3 Computing*	Key stage 3 Computing*	Key stage 3 Computing*	Key stage 3 Computing*	Key stage 3 Computing*				
Sample Application of Skills	Create a project that demonstrates light absorption and reflection.	Create a project that demonstrates a bouncing egg.	Create a project that demonstrates how a see-saw works.	Create a quiz game about different properties of matter.	Create an interactive project that demonstrates the different properties of waves.				

*See individual lesson guides for details on UK Computer standards

STEM: Math 101 — Grades 3-5

Scope and Sequence

Each lesson takes about 45-60 minutes to complete.

Math 101 is a course for students in grades 3-5 who are ready to embark on a journey that reinforces programming skills while solving math problems and modeling math concepts. The Mathematics Common Core State Standards (CCSS) that students develop are listed here in addition to CSTA Standards.

	Multiplication Escape	Identifying Shapes	Finding Area	Multiplication	Division	Ninja Math Tables	Rounding Roundup	Division Duel	Fraction Number Line
Key Skills and Concepts	• Use input/output, basic math, simple conditionals, simple loops, simple motion, delays, direction and turning, advanced events, detect conditions	• Use simple events and advanced costume handling	• Use advanced costume handling, input/output, simple conditionals, simple messaging basic math, visibility	• Use simple events, conditional loops, simple motion, input/output, advanced events, simple loops, direction and turning, costume handling	• Use input/output, messaging, motion, costume handling, simple conditionals, basic math	• Use basic math, advanced math, simple conditionals, text handling, advanced loops	• Use simple loops, simple conditionals, advanced motion, visibility, text handling, input/output, basic math	• Use input/output, basic math, detect conditions, simple conditionals, simple messaging, simple loops, advanced events	• Use simple events, text handling, basic math, input/output
CCSS-Math Standards	MP.1 3.OA.A.2 4.OA.A.2 5.OA.A.2	MP.1 3.G.A.1 5.G.B.3	MP.1 3.MD.C.5 4.MD.C.5	MP.1 3.OA.A.2 4.OA.A.2 5.OA.A.2	MP.1 3.OA.A.2 4.OA.A.2	MP.1 3.OA.A.1 4.OA.A.1 5.OA.A.1	MP.1 3.NBT.A.1 4.NBT.A.3	MP.1 3.OA.A.2 4.OA.A.2	MP.1 3.NF.A.2 4.NF.A.2 5.NF.A.2
CCSS-ELA Standards	L.RF.3.4.A, SL.3.1 L.RF.4.4.A, SL.4.1 L.RF.5.4.A, SL.5.1	L.RF.3.4.A, SL.3.1 L.RF.4.4.A, SL.4.1 L.RF.5.4.A, SL.5.1	L.RF.3.4.A, SL.3.1 L.RF.4.4.A, SL.4.1 L.RF.5.4.A, SL.5.1	L.RF.3.4.A, SL.3.1 L.RF.4.4.A, SL.4.1 L.RF.5.4.A, SL.5.1	L.RF.3.4.A, SL.3.1 L.RF.4.4.A, SL.4.1 L.RF.5.4.A, SL.5.1	L.RF.3.4.A, SL.3.1 L.RF.4.4.A, SL.4.1 L.RF.5.4.A, SL.5.1	L.RF.3.4.A, SL.3.1 L.RF.4.4.A, SL.4.1 L.RF.5.4.A, SL.5.1	L.RF.3.4.A, SL.3.1 L.RF.4.4.A, SL.4.1 L.RF.5.4.A, SL.5.1	L.RF.3.4.A, SL.3.1 L.RF.4.4.A, SL.4.1 L.RF.5.4.A, SL.5.1
CSTA Standards	1B-AP-11 1B-AP-12 1B-AP-15	1B-AP-11 1B-AP-12 1B-AP-15	1B-AP-11 1B-AP-12 1B-AP-15	1B-AP-10 1B-AP-11 1B-AP-12 1B-AP-15	1B-AP-11 1B-AP-12 1B-AP-15	1B-AP-11 1B-AP-12 1B-AP-15	1B-AP-11 1B-AP-12 1B-AP-15	1B-AP-11 1B-AP-12 1B-AP-15	1B-AP-11 1B-AP-12 1B-AP-15
Illinois CS Standards	3-5.AP.08 3-5.AP.10 3-5.AP.11 3-5.AP.12 3-5.AP.13 3-5.AP.15 3-5.AP.17	3-5.AP.08 3-5.AP.11 3-5.AP.12 3-5.AP.13 3-5.AP.15 3-5.AP.17	3-5.AP.08 3-5.AP.10 3-5.AP.11 3-5.AP.12 3-5.AP.13 3-5.AP.15 3-5.AP.17	3-5.AP.08 3-5.AP.10 3-5.AP.11 3-5.AP.12 3-5.AP.13 3-5.AP.15 3-5.AP.17	3-5.AP.08 3-5.AP.10 3-5.AP.11 3-5.AP.12 3-5.AP.13 3-5.AP.15 3-5.AP.17	3-5.AP.08 3-5.AP.10 3-5.AP.11 3-5.AP.12 3-5.AP.13 3-5.AP.15 3-5.AP.17	3-5.AP.08 3-5.AP.10 3-5.AP.11 3-5.AP.12 3-5.AP.13 3-5.AP.15 3-5.AP.17	3-5.AP.08 3-5.AP.10 3-5.AP.11 3-5.AP.12 3-5.AP.13 3-5.AP.15 3-5.AP.17	3-5.AP.08 3-5.AP.11 3-5.AP.12 3-5.AP.13 3-5.AP.15 3-5.AP.17
ISTE Standards	1.1.c, 1.1.d, 1.4.d, 1.5.c, 1.5.d, 1.6.b	1.1.c, 1.1.d, 1.4.d, 1.5.c, 1.5.d, 1.6.b	1.1.c, 1.1.d, 1.4.d, 1.5.c, 1.5.d, 1.6.b	1.1.c, 1.1.d, 1.4.d, 1.5.c, 1.5.d, 1.6.b	1.1.c, 1.1.d, 1.4.d, 1.5.c, 1.5.d, 1.6.b	1.1.c, 1.1.d, 1.4.d, 1.5.c, 1.5.d, 1.6.b	1.1.c, 1.1.d, 1.4.d, 1.5.c, 1.5.d, 1.6.b	1.1.c, 1.1.d, 1.4.d, 1.5.c, 1.5.d, 1.6.b	1.1.c, 1.1.d, 1.4.d, 1.5.c, 1.5.d, 1.6.b
UK National Curriculum	Key stage 1 & 2 Computing*	Key stage 1 & 2 Computing*	Key stage 1 & 2 Computing*	Key stage 1 & 2 Computing*	Key stage 1 & 2 Computing*	Key stage 1 & 2 Computing*	Key stage 1 & 2 Computing*	Key stage 1 & 2 Computing*	Key stage 1 & 2 Computing*
Sample Application of Skills	Create a multiplication quiz game.	Create a shapes quiz game.	Create a “finding area” quiz game.	Create a multiplication matching game.	Create an interactive story about dividing candy.	Create a multiplication table.	Create a rounding game.	Create a division quiz game.	Create an interactive fraction number line.

*See individual lesson guides for details on UK Computer standards

STEM: Math 101 — Grades 3-5

Scope and Sequence

Each lesson takes about 45-60 minutes to complete.

Math 101 is a course for students in grades 3-5 who are ready to embark on a journey that reinforces programming skills while solving math problems and modeling math concepts. The Mathematics Common Core State Standards (CCSS) that students develop are listed here in addition to CSTA Standards.

	Angles	Equal Fractions	Order of Operations	Symmetry	Can I Add These Fractions?	Parallel/ Perpendicular	Making Change	Alien Change	Volume
Key Skills and Concepts	• Use simple events, simple costume handling, input/output, visibility	• Use simple loops, direction and turning, delays, basic math, simple motion, detect conditions, sound playing, input/output	• Use input/output, basic math, simple conditionals, simple messaging, advanced costume handling	• Use simple events, conditional loops, advanced motion, basic math, messaging, input/output, simple loops, costume handling	• Use simple messaging, input/output, conditional loops, basic math, simple sound playing	• Use simple events, simple loops, motion, delays, direction and turning, messaging, input/output	• Use functions, simple messaging, conditional loops, input/output, sound playing	• Use input/output, basic math, conditional loops, advanced messaging, visibility	• Use simple events, advanced costume handling, advanced motion, simple messaging
CCSS-Math Standards	MP.1 4.G.A.2 5.G.B.3	MP.1 3.NF.A.2 4.NF.A.2 5.NF.A.2	MP.1 3.OA.C.7 4.OA.A.3 5.OA.A.1	MP.1 4.G.A.3 5.G.B.4	MP.1 3.NF.A.2 4.NF.A.2 5.NF.A.2	MP.1 4.G.A.2	MP.1 3.NBT.A.2 5.NBT.B.7	MP.1 3.NBT.A.2 5.NBT.B.7	MP.1 5.MD.C.3
CCSS-ELA Standards	L.RF.3.4.A, SL.3.1 L.RF.4.4.A, SL.4.1 L.RF.5.4.A, SL.5.1	L.RF.3.4.A, SL.3.1 L.RF.4.4.A, SL.4.1 L.RF.5.4.A, SL.5.1	L.RF.3.4.A, SL.3.1 L.RF.4.4.A, SL.4.1 L.RF.5.4.A, SL.5.1	L.RF.3.4.A, SL.3.1 L.RF.4.4.A, SL.4.1 L.RF.5.4.A, SL.5.1	L.RF.3.4.A, SL.3.1 L.RF.4.4.A, SL.4.1 L.RF.5.4.A, SL.5.1	L.RF.3.4.A, SL.3.1 L.RF.4.4.A, SL.4.1 L.RF.5.4.A, SL.5.1	L.RF.3.4.A, SL.3.1 L.RF.4.4.A, SL.4.1 L.RF.5.4.A, SL.5.1	L.RF.3.4.A, SL.3.1 L.RF.4.4.A, SL.4.1 L.RF.5.4.A, SL.5.1	L.RF.3.4.A, SL.3.1 L.RF.4.4.A, SL.4.1 L.RF.5.4.A, SL.5.1
CSTA Standards	1B-AP-11 1B-AP-12 1B-AP-15	1B-AP-11 1B-AP-12 1B-AP-15	1B-AP-11 1B-AP-12 1B-AP-15	1B-AP-10 1B-AP-11 1B-AP-12 1B-AP-15	1B-AP-10 1B-AP-11 1B-AP-12 1B-AP-15	1B-AP-11 1B-AP-12 1B-AP-15	1B-AP-10 1B-AP-11 1B-AP-12 1B-AP-15	1B-AP-10 1B-AP-11 1B-AP-12 1B-AP-15	1B-AP-11 1B-AP-12 1B-AP-15
Illinois CS Standards	3-5.AP.08 3-5.AP.11 3-5.AP.12 3-5.AP.13 3-5.AP.15 3-5.AP.17	3-5.AP.08 3-5.AP.10 3-5.AP.11 3-5.AP.12 3-5.AP.13 3-5.AP.15 3-5.AP.17	3-5.AP.08 3-5.AP.10 3-5.AP.11 3-5.AP.12 3-5.AP.13 3-5.AP.15 3-5.AP.17	3-5.AP.08 3-5.AP.10 3-5.AP.11 3-5.AP.12 3-5.AP.13 3-5.AP.15 3-5.AP.17	3-5.AP.08 3-5.AP.10 3-5.AP.11 3-5.AP.12 3-5.AP.13 3-5.AP.15 3-5.AP.17	3-5.AP.08 3-5.AP.11 3-5.AP.12 3-5.AP.13 3-5.AP.15 3-5.AP.17	3-5.AP.08 3-5.AP.10 3-5.AP.11 3-5.AP.12 3-5.AP.13 3-5.AP.15 3-5.AP.17	3-5.AP.08 3-5.AP.10 3-5.AP.11 3-5.AP.12 3-5.AP.13 3-5.AP.15 3-5.AP.17	3-5.AP.08 3-5.AP.11 3-5.AP.12 3-5.AP.13 3-5.AP.15 3-5.AP.17
ISTE Standards	1.1.c, 1.1.d, 1.4.d, 1.5.c, 1.5.d, 1.6.b	1.1.c, 1.1.d, 1.4.d, 1.5.c, 1.5.d, 1.6.b	1.1.c, 1.1.d, 1.4.d, 1.5.c, 1.5.d, 1.6.b	1.1.c, 1.1.d, 1.4.d, 1.5.c, 1.5.d, 1.6.b	1.1.c, 1.1.d, 1.4.d, 1.5.c, 1.5.d, 1.6.b	1.1.c, 1.1.d, 1.4.d, 1.5.c, 1.5.d, 1.6.b	1.1.c, 1.1.d, 1.4.d, 1.5.c, 1.5.d, 1.6.b	1.1.c, 1.1.d, 1.4.d, 1.5.c, 1.5.d, 1.6.b	1.1.c, 1.1.d, 1.4.d, 1.5.c, 1.5.d, 1.6.b
UK National Curriculum	Key stage 1 & 2 Computing*	Key stage 1 & 2 Computing*	Key stage 1 & 2 Computing*	Key stage 1 & 2 Computing*	Key stage 1 & 2 Computing*	Key stage 1 & 2 Computing*	Key stage 1 & 2 Computing*	Key stage 1 & 2 Computing*	Key stage 1 & 2 Computing*
Sample Application of Skills	Create a project about different angles.	Create a fraction collecting game.	Create an order or operations quiz game.	Create a symmetry matching game.	Create a faction quiz game with multiple endings.	Create a parallel and perpendicular shape identification quiz game.	Create an interactive game about making change.	Create a game where players have to figure out if they have enough money to afford a given item.	Create an interactive equation for volume.

*See individual lesson guides for details on UK Computer standards

STEM: Math 101

Scope and Sequence

Grades 3-5

Each lesson takes about 45-60 minutes to complete.

Math 101 is a course for students in grades 3-5 who are ready to embark on a journey that reinforces programming skills while solving math problems and modeling math concepts. The Mathematics Common Core State Standards (CCSS) that students develop are listed here in addition to CSTA Standards.

	Adding Fractions	Unit Conversion	Long Division	Telling Time	Decimal Math Quiz	Decimal Places		
Key Skills and Concepts	• Use simple events, conditional loops, advanced motion, simple loops, basic math, input/output, costume handling, advanced events	• Use simple events, simple variables, conditionals, basic math, input/output,	• Use simple events, input/output, simple messaging, visibility	• Use simple sound playing, costume handling, simple messaging, visibility, basic math, simple conditionals, variables	• Use input/output, simple events, messaging, functions, conditional loops, conditional wait, basic math	• Use simple loops, input/output, messaging, sound playing, delays		
CCSS-Math Standards	MP.1 3.NF.A.2 4.NF.A.2 5.NF.A.2	MP.1 4.MD.A.1 5.MD.A.1	MP.1 4.NBT.B.6	MP.1 3.MD.A.1	MP.1 5.NBT.A.3	MP.1 5.NBT.A.3		
CCSS-ELA Standards	L.RF.3.4.A, SL.3.1 L.RF.4.4.A, SL.4.1 L.RF.5.4.A, SL.5.1	L.RF.3.4.A, SL.3.1 L.RF.4.4.A, SL.4.1 L.RF.5.4.A, SL.5.1	L.RF.3.4.A, SL.3.1 L.RF.4.4.A, SL.4.1 L.RF.5.4.A, SL.5.1	L.RF.3.4.A, SL.3.1 L.RF.4.4.A, SL.4.1 L.RF.5.4.A, SL.5.1	L.RF.3.4.A, SL.3.1 L.RF.4.4.A, SL.4.1 L.RF.5.4.A, SL.5.1	L.RF.3.4.A, SL.3.1 L.RF.4.4.A, SL.4.1 L.RF.5.4.A, SL.5.1		
CSTA Standards	1B-AP-10 1B-AP-11 1B-AP-12 1B-AP-15	1B-AP-11 1B-AP-12 1B-AP-15	1B-AP-11 1B-AP-12 1B-AP-15	1B-AP-11 1B-AP-12 1B-AP-15	1B-AP-10 1B-AP-11 1B-AP-12 1B-AP-15	1B-AP-11 1B-AP-12 1B-AP-15		
Illinois CS Standards	3-5.AP.08 3-5.AP.10 3-5.AP.11 3-5.AP.12 3-5.AP.13 3-5.AP.15 3-5.AP.17	3-5.AP.08 3-5.AP.10 3-5.AP.11 3-5.AP.12 3-5.AP.13 3-5.AP.15 3-5.AP.17	3-5.AP.08 3-5.AP.11 3-5.AP.12 3-5.AP.13 3-5.AP.15 3-5.AP.17	3-5.AP.08 3-5.AP.09 3-5.AP.10 3-5.AP.11 3-5.AP.12 3-5.AP.13 3-5.AP.15 3-5.AP.17	3-5.AP.08 3-5.AP.10 3-5.AP.11 3-5.AP.12 3-5.AP.13 3-5.AP.15 3-5.AP.17	3-5.AP.08 3-5.AP.11 3-5.AP.12 3-5.AP.13 3-5.AP.15 3-5.AP.17		
ISTE Standards	1.1.c, 1.1.d, 1.4.d, 1.5.c, 1.5.d, 1.6.b	1.1.c, 1.1.d, 1.4.d, 1.5.c, 1.5.d, 1.6.b	1.1.c, 1.1.d, 1.4.d, 1.5.c, 1.5.d, 1.6.b	1.1.c, 1.1.d, 1.4.d, 1.5.c, 1.5.d, 1.6.b	1.1.c, 1.1.d, 1.4.d, 1.5.c, 1.5.d, 1.6.b	1.1.c, 1.1.d, 1.4.d, 1.5.c, 1.5.d, 1.6.b		
UK National Curriculum	Key stage 1 & 2 Computing*	Key stage 1 & 2 Computing*	Key stage 1 & 2 Computing*	Key stage 1 & 2 Computing*	Key stage 1 & 2 Computing*	Key stage 1 & 2 Computing*		
Sample Application of Skills	Create a fraction matching game.	Create a unit conversion cooking game.	Create an interactive long division problem.	Create a game about telling time.	Create an interactive decimal math game.	Create an interactive project about dividing with decimal numbers.		

*See individual lesson guides for details on UK Computer standards

STEM: Math 201

Grades 6-8

Scope and Sequence

Each lesson takes about 45-60 minutes to complete.

Math 201 is a course for students in grades 6-8 who are ready to embark on a journey that reinforces programming skills while solving math problems and modeling math concepts. The Mathematics Common Core State Standards (CCSS) that students develop are listed here in addition to CSTA computer science standards.

	Math Quiz	Coordinate Plane	Average Age	Positive and Negative Values	Double Negatives	Percents and Money	Market Price	Your Recipe
Key Skills and Concepts	• Use conditional loops, basic math, input/output, functions, conditional wait, simple events, simple conditionals, visibility, advanced messaging, simple messaging	• Use shape drawing, simple loops, simple motion, input/output, advanced motion, simple events, simple drawing	• Use simple loops, input/output, simple variables, basic math, conditionals	• Use fill color, advanced advanced costume handling, basic math, conditional loops, shape drawing, simple loops, motion, variables, simple events	• Use simple events, conditional loops, direction and turning, cloning, delays, visibility, motoin, input/output, basic math	• Use advanced costume handling, cimple variables, basic math, input/output	• Use simple loops, simple motion, basic math, cloning, conditional loops, input/output, advanced math	• Use simple events, costume handling, layers, input/output, text handling, messaging, conditionals, visibility
CCSS-Math Standards	MP.1 6.NS.B.4 7.NS.A.1.D 8.EE.A.1	MP.1 6.NS.C.6	MP.1 6.SP.B.5.C	MP.1 6.NS.C.5	MP.1 7.NS.A.2.A	MP.1 6.RP.A.3.C 7.RP.A.3	MP.1 6.RP.A.3.C 7.RP.A.3	MP.1 6.PR.A.3.D
CCSS-ELA Standards	SL.6.1 SL.7.1 SL.8.1	SL.6.1 SL.7.1 SL.8.1	SL.6.1 SL.7.1 SL.8.1	SL.6.1 SL.7.1 SL.8.1	SL.6.1 SL.7.1 SL.8.1	SL.6.1 SL.7.1 SL.8.1	SL.6.1 SL.7.1 SL.8.1	SL.6.1 SL.7.1 SL.8.1
CSTA Computer Science Standards	2-AP-12 2-AP-13 2-AP-16 2-AP-17	2-AP-13 2-AP-16 2-AP-17	2-AP-13 2-AP-16 2-AP-17	2-AP-12 2-AP-13 2-AP-16 2-AP-17	2-AP-12 2-AP-13 2-AP-16 2-AP-17	2-AP-13 2-AP-16 2-AP-17	2-AP-12 2-AP-13 2-AP-16 2-AP-17	2-AP-13 2-AP-16 2-AP-17
Illinois CS Standards	6-8.AP.13 6-8.AP.14 6-8.AP.17 6-8.AP.18	6-8.AP.14 6-8.AP.17 6-8.AP.18	6-8.AP.14 6-8.AP.17 6-8.AP.18	6-8.AP.13 6-8.AP.14 6-8.AP.17 6-8.AP.18	6-8.AP.13 6-8.AP.14 6-8.AP.17 6-8.AP.18	6-8.AP.14 6-8.AP.17 6-8.AP.18	6-8.AP.13 6-8.AP.14 6-8.AP.17 6-8.AP.18	6-8.AP.14 6-8.AP.17 6-8.AP.18
ISTE Standards	1.c, 1.d, 4.d, 5.c, 5.d, 6.b	1.c, 1.d, 4.d, 5.c, 5.d, 6.b	1.c, 1.d, 4.d, 5.c, 5.d, 6.b	1.c, 1.d, 4.d, 5.c, 5.d, 6.b	1.c, 1.d, 4.d, 5.c, 5.d, 6.b	1.c, 1.d, 4.d, 5.c, 5.d, 6.b	1.c, 1.d, 4.d, 5.c, 5.d, 6.b	1.c, 1.d, 4.d, 5.c, 5.d, 6.b
UK National Curriculum	Key stage 3 Computing*	Key stage 3 Computing*	Key stage 3 Computing*	Key stage 3 Computing*	Key stage 3 Computing*	Key stage 3 Computing*	Key stage 3 Computing*	Key stage 3 Computing*
Sample Application of Skills	Create a math quiz game.	Create an interactive coordinate plane.	Create a project that calculates an average.	Create an interactive project about positive and negative values.	Create an interactive project that multiplies a number by a negative number.	Create an interactive game about percents and money.	Create an interactive game on market price items.	Create a unit conversion baking game.

*See individual lesson guides for details on UK Computer standards

STEM: Math 201

Grades 6-8

Scope and Sequence

Each lesson takes about 45-60 minutes to complete.

Math 201 is a course for students in grades 6-8 who are ready to embark on a journey that reinforces programming skills while solving math problems and modeling math concepts. The Mathematics Common Core State Standards (CCSS) that students develop are listed here in addition to CSTA computer science standards.

	My Shop	Probability Magic	Dice Rolls					
Key Skills and Concepts	• Use simple events, simple drawing, text handling, input/output, basic math, conditionals, simple drawing	• Use simple events, text handling, input/output, simple messaging, advanced motion, visibility, basic math, conditionals, costume handling	• Use simple variables, simple events, simple loops, basic math, simple conditionals, input/output					
CCSS-Math Standards	MP.1 6.RP.A.3.C 7.RP.A.3	MP.1 6.SP.B.5.A 7.SP.C.5 7.SP.C.6	MP.1 6.SP.B.5.A 7.SP.C.5 7.SP.C.6					
CCSS-ELA Standards	SL.6.1 SL.7.1 SL.8.1	SL.6.1 SL.7.1 SL.8.1	SL.6.1 SL.7.1 SL.8.1					
CSTA Computer Science Standards	2-AP-13 2-AP-16 2-AP-17	2-AP-13 2-AP-16 2-AP-17	2-AP-13 2-AP-16 2-AP-17					
Illinois CS Standards	6-8.AP.14 6-8.AP.17 6-8.AP.18	6-8.AP.14 6-8.AP.17 6-8.AP.18	6-8.AP.14 6-8.AP.17 6-8.AP.18					
ISTE Standards	1.c, 1.d, 4.d, 5.c, 5.d, 6.b	1.c, 1.d, 4.d, 5.c, 5.d, 6.b	1.c, 1.d, 4.d, 5.c, 5.d, 6.b					
UK National Curriculum	Key stage 3 Computing*	Key stage 3 Computing*	Key stage 3 Computing*					
Sample Application of Skills	Create an interactive shopping game.	Create an interactive project about probability.	Create a project that simulates hundreds of dice rolls.					

*See individual lesson guides for details on UK Computer standards

STEM: English 101 — Grades 3-5

Scope and Sequence

Each lesson takes about 45-60 minutes to complete.

English 101 is a course for students in grades 3-5 who are ready to embark on a journey that reinforces programming skills while creating projects about grammar, storytelling, reading, and writing. The English Common Core State Standards (CCSS) that students develop are listed here in addition to CSTA Standards.

	When I Grow Up	Haiku	Grammar Owl	Syllables	Irregular Spelling	Drawing Information	Main Idea	First and Second Hand
Key Skills and Concepts	• Use simple events, advanced costume handling, input/output, text handling, simple messaging, visibility, advanced motion	• Use simple events, advanced costume handling, advanced motion	• Use simple events, advanced costume handling, text handling, input/output, basic math, conditionals, messaging, visibility, delays	• Use simple events, simple messaging, costume handling, animation	• Use input/output, simple messaging, simple events, text handling, visibility, simple loops, direction and turning	• Use simple events, resize actor, input/output, basic math, simple conditionals	• Use input/output, animation, advanced motion, simple messaging, simple conditionals, basic math	• Use input/output, advance loops, basic math, simple messaging, animation, advanced motion
CCSS-Math Standards	MP.1	MP.1	MP.1	MP.1	MP.1	MP.1	MP.1	MP.1
CCSS-ELA Standards	L.RF.3.4.A, SL.3.1 L.RF.4.4.A, SL.4.1 L.RF.5.4.A, SL.5.1	L.RF.3.4.A, SL.3.1 L.RF.4.4.A, SL.4.1 L.RF.5.4.A, SL.5.1	L.RF.3.4.A, SL.3.1 L.RF.4.4.A, SL.4.1 L.RF.5.4.A, SL.5.1 L.L.3.2 L.L.4.2.C L.L.5.2.C	L.RF.3.4.A, SL.3.1 L.RF.4.4.A, SL.4.1 L.RF.5.4.A, SL.5.1	L.RF.3.4.A, SL.3.1 L.RF.4.4.A, SL.4.1 L.RF.5.4.A, SL.5.1 L.L.3.2 L.L.4.2, L.L.4.2.D L.L.5.2, L.L.5.2.E	L.RF.3.4.A, SL.3.1 L.RF.4.4.A, SL.4.1 L.RF.5.4.A, SL.5.1	L.RF.3.4.A, SL.3.1 L.RF.4.4.A, SL.4.1 L.RF.5.4.A, SL.5.1 L.L.3.2 L.L.4.2.C L.L.5.2.C	L.RF.3.4.A, SL.3.1 L.RF.4.4.A, SL.4.1 L.RF.5.4.A, SL.5.1
CSTA Standards	1B-AP-11 1B-AP-12 1B-AP-15	1B-AP-11 1B-AP-12 1B-AP-15	1B-AP-11 1B-AP-12 1B-AP-15	1B-AP-11 1B-AP-12 1B-AP-15	1B-AP-11 1B-AP-12 1B-AP-15	1B-AP-11 1B-AP-12 1B-AP-15	1B-AP-11 1B-AP-12 1B-AP-15	1B-AP-11 1B-AP-12 1B-AP-15
Illinois CS Standards	3-5.AP.08 3-5.AP.11 3-5.AP.12 3-5.AP.13 3-5.AP.15 3-5.AP.17	3-5.AP.08 3-5.AP.11 3-5.AP.12 3-5.AP.13 3-5.AP.15 3-5.AP.17	3-5.AP.08 3-5.AP.10 3-5.AP.11 3-5.AP.12 3-5.AP.13 3-5.AP.15 3-5.AP.17	3-5.AP.08 3-5.AP.11 3-5.AP.12 3-5.AP.13 3-5.AP.15 3-5.AP.17	3-5.AP.08 3-5.AP.11 3-5.AP.12 3-5.AP.13 3-5.AP.15 3-5.AP.17	3-5.AP.08 3-5.AP.10 3-5.AP.11 3-5.AP.12 3-5.AP.13 3-5.AP.15 3-5.AP.17	3-5.AP.08 3-5.AP.10 3-5.AP.11 3-5.AP.12 3-5.AP.13 3-5.AP.15 3-5.AP.17	3-5.AP.08 3-5.AP.11 3-5.AP.12 3-5.AP.13 3-5.AP.15 3-5.AP.17
ISTE Standards	1.1.c, 1.1.d, 1.4.d, 1.5.c, 1.5.d, 1.6.b	1.1.c, 1.1.d, 1.4.d, 1.5.c, 1.5.d, 1.6.b	1.1.c, 1.1.d, 1.4.d, 1.5.c, 1.5.d, 1.6.b	1.1.c, 1.1.d, 1.4.d, 1.5.c, 1.5.d, 1.6.b	1.1.c, 1.1.d, 1.4.d, 1.5.c, 1.5.d, 1.6.b	1.1.c, 1.1.d, 1.4.d, 1.5.c, 1.5.d, 1.6.b	1.1.c, 1.1.d, 1.4.d, 1.5.c, 1.5.d, 1.6.b	1.1.c, 1.1.d, 1.4.d, 1.5.c, 1.5.d, 1.6.b
UK National Curriculum	Key stage 1 & 2 Computing*	Key stage 1 & 2 Computing*	Key stage 1 & 2 Computing*	Key stage 1 & 2 Computing*	Key stage 1 & 2 Computing*	Key stage 1 & 2 Computing*	Key stage 1 & 2 Computing*	Key stage 1 & 2 Computing*
Sample Application of Skills	Create an interactive project about a career.	Create an animated Haiku poem.	Create a grammar quiz game.	Create a project that counts out the syllables in a word.	Create a project about irregularly spelled words.	Create a project about reading comprehension.	Create a short story with a main idea.	Create a project that demonstrates the difference between a firsthand and secondhand account of a story.

*See individual lesson guides for details on UK Computer standards

STEM: English 101

Scope and Sequence

Grades 3-5

Each lesson takes about 45-60 minutes to complete.

English 101 is a course for students in grades 3-5 who are ready to embark on a journey that reinforces programming skills while creating projects about grammar, storytelling, reading, and writing. The English Common Core State Standards (CCSS) that students develop are listed here in addition to CSTA Standards.

	Simile and Metaphor	Interjection	Contractions	Supporting Ideas	Past, Present, and Future Tense	Synonyms	Interrogative Words	
Key Skills and Concepts	• Use input/output, basic math, simple conditionals, simple messaging, animation	• Use simple events, simple messaging, text handling, input/output, animation, layers	• Use advanced events, detect conditions, motion, direction and turning, delays, simple loops, simple events, text handling, input/output, advanced costume handling	• Use simple events, simple loops, detect conditions, simple conditionals, advanced motion, simple messaging, visibility, animation, input/output	• Use simple events, simple loops, simple conditionals, advanced motion, program control, advanced costume handling, simple messaging	• Use simple events, simple loops, conditionals, advanced motion, program control, simple messaging, input/output	• Use input/output and simple variables	
CCSS-Math Standards	MP.1	MP.1	MP.1	MP.1	MP.1	MP.1	MP.1	
CCSS-ELA Standards	L.RF.3.4.A, SL.3.1 L.RF.4.4.A, SL.4.1 L.RF.5.4.A, SL.5.1 L.L.3.2, L.L.4.2.C L.L.5.2.C	L.RF.3.4.A, SL.3.1 L.RF.4.4.A, SL.4.1 L.RF.5.4.A, SL.5.1	L.RF.3.4.A, SL.3.1 L.RF.4.4.A, SL.4.1 L.RF.5.4.A, SL.5.1 L.L.3.2, L.L.4.2.C L.L.5.2.C	L.RF.3.4.A, SL.3.1 L.RF.4.4.A, SL.4.1 L.RF.5.4.A, SL.5.1	L.RF.3.4.A, SL.3.1 L.RF.4.4.A, SL.4.1 L.RF.5.4.A, SL.5.1	L.RF.3.4.A, SL.3.1 L.RF.4.4.A, SL.4.1 L.RF.5.4.A, SL.5.1	L.RF.3.4.A, SL.3.1 L.RF.4.4.A, SL.4.1 L.RF.5.4.A, SL.5.1 L.L.3.2, L.L.4.2.C L.L.5.2.C	
CSTA Standards	1B-AP-11 1B-AP-12 1B-AP-15	1B-AP-11 1B-AP-12 1B-AP-15	1B-AP-11 1B-AP-12 1B-AP-15	1B-AP-11 1B-AP-12 1B-AP-15	1B-AP-11 1B-AP-12 1B-AP-15	1B-AP-11 1B-AP-12 1B-AP-15	1B-AP-11 1B-AP-12 1B-AP-15	
Illinois CS Standards	3-5.AP.08 3-5.AP.10 3-5.AP.11 3-5.AP.12 3-5.AP.13 3-5.AP.15 3-5.AP.17	3-5.AP.08 3-5.AP.11 3-5.AP.12 3-5.AP.13 3-5.AP.15 3-5.AP.17	3-5.AP.08 3-5.AP.10 3-5.AP.11 3-5.AP.12 3-5.AP.13 3-5.AP.15 3-5.AP.17	3-5.AP.08 3-5.AP.10 3-5.AP.11 3-5.AP.12 3-5.AP.13 3-5.AP.15 3-5.AP.17	3-5.AP.08 3-5.AP.10 3-5.AP.11 3-5.AP.12 3-5.AP.13 3-5.AP.15 3-5.AP.17	3-5.AP.08 3-5.AP.10 3-5.AP.11 3-5.AP.12 3-5.AP.13 3-5.AP.15 3-5.AP.17	3-5.AP.08 3-5.AP.09 3-5.AP.11 3-5.AP.12 3-5.AP.13 3-5.AP.15 3-5.AP.17	
ISTE Standards	1.1.c, 1.1.d, 1.4.d, 1.5.c, 1.5.d, 1.6.b	1.1.c, 1.1.d, 1.4.d, 1.5.c, 1.5.d, 1.6.b	1.1.c, 1.1.d, 1.4.d, 1.5.c, 1.5.d, 1.6.b	1.1.c, 1.1.d, 1.4.d, 1.5.c, 1.5.d, 1.6.b	1.1.c, 1.1.d, 1.4.d, 1.5.c, 1.5.d, 1.6.b	1.1.c, 1.1.d, 1.4.d, 1.5.c, 1.5.d, 1.6.b	1.1.c, 1.1.d, 1.4.d, 1.5.c, 1.5.d, 1.6.b	
UK National Curriculum	Key stage 1 & 2 Computing*	Key stage 1 & 2 Computing*	Key stage 1 & 2 Computing*	Key stage 1 & 2 Computing*	Key stage 1 & 2 Computing*	Key stage 1 & 2 Computing*	Key stage 1 & 2 Computing*	
Sample Application of Skills	Create a project about similes and metaphors.	Create a project that uses interjections.	Create a project that demonstrates the contracted form of a word.	Create a game that uses supporting ideas to prove the main idea.	Create an interactive project that changes depending on which tense is touching the Actor.	Create a project that demonstrates different synonyms of a word.	Create a story using interrogative words.	

*See individual lesson guides for details on UK Computer standards

STEM: English 201 — Grades 6-8

Scope and Sequence

Each lesson takes about 45-60 minutes to complete.

English 201 is a course for students in grades 6-8 who are ready to embark on a journey that reinforces programming skills while creating projects about grammar, storytelling, reading, and writing. The English Common Core State Standards (CCSS) that students develop are listed here in addition to CSTA computer science standards.

	Fewer/Less	Their They're There	Homophones	Spelling Collector	Parts of Speech Sorting	Antonyms	Verb Tenses	Book Report	Root Words	Sentence or Fragment?
Key Skills and Concepts	• Use simple events, advanced motion, visibility, direction and turning, conditional loops, simple motion, delays, advanced math	• Use input/output, simple conditionals, advanced math	• Use advanced costume handling, conditional loops, animation, advanced math, advanced motion	• Use simple events, simple conditionals, motion, cloning, visibility, direction and turning, functions	• Use simple events, visibility, advanced motion, conditional loops, detect conditionals, simple sound playing	• Use simple events, conditional loops, detect conditions, simple motion, advanced messaging, layers, simple drawing	• Use input/output, animation, simple messaging, text handling, conditional wait, basic math	• Use simple events, costume handling, visibility, messaging, input/output, delays, animation, motion	• Use input/output, simple events, conditional loops, detect conditions, simple motion, simple messaging, visibility	• Use input/output, advanced messaging, simple conditionals, basic math, simple messaging
CCSS-Math Standards	MP.1	MP.1	MP.1	MP.1	MP.1	MP.1	MP.1	MP.1	MP.1	MP.1
CCSS-ELA Standards	SL.6.1, SL.7.1, SL.8.1 L.L.6.3, L.L.6.2.A L.L.6.2.B, L.RI.6.7 L.L.7.3, L.L.7.2.B L.L.8.2.C, L.L.8.3 L.L.8.2.A	SL.6.1, SL.7.1 SL.8.1 L.L.6.3, L.L.6.2.A L.L.6.2.B,L.RI.6.7 L.L.7.3, L.L.7.2.B L.L.8.2.C, L.L.8.3 L.L.8.2.A	SL.6.1, SL.7.1, SL.8.1 L.L.6.3, L.L.6.2.A L.L.6.2.B, L.RI.6.7 L.L.7.3, L.L.7.2.B L.L.8.2.C, L.L.8.3 L.L.8.2.A	SL.6.1, SL.7.1 SL.8.1 L.L.6.3, L.L.6.2.A L.L.6.2.B,L.RI.6.7 L.L.7.3, L.L.7.2.B L.L.8.2.C, L.L.8.3 L.L.8.2.A	SL.6.1, SL.7.1 SL.8.1 L.L.6.3, L.RI.6.7 L.L.7.3 L.L.8.3	SL.6.1, SL.7.1 SL.8.1 L.L.6.3, L.RI.6.7 L.L.7.3 L.L.8.3	SL.6.1, SL.7.1 SL.8.1 L.L.6.3, L.RI.6.7 L.L.7.3 L.L.8.3	SL.6.1, SL.7.1 SL.8.1 L.L.6.3, L.L.6.2.A L.L.6.2.B, L.RI.6.7 L.L.7.3, L.L.7.2.B L.L.8.2.C, L.L.8.3 L.L.8.2.A	SL.6.1, SL.7.1 SL.8.1 L.L.6.3, L.RI.6.7 L.L.7.3 L.L.8.3	SL.6.1, SL.7.1 SL.8.1 L.L.6.3, L.L.6.2.A L.L.6.2.B, L.RI.6.7 L.L.7.3, L.L.7.2.B L.L.8.2.C, L.L.8.3 L.L.8.2.A
CSTA Computer Science Standards	2-AP-12 2-AP-13 2-AP-16 2-AP-17	2-AP-13 2-AP-16 2-AP-17	2-AP-12 2-AP-13 2-AP-16 2-AP-17	2-AP-13 2-AP-16 2-AP-17	2-AP-13 2-AP-16 2-AP-17	2-AP-12 2-AP-13 2-AP-16 2-AP-17	2-AP-13 2-AP-16 2-AP-17	2-AP-13 2-AP-16 2-AP-17	2-AP-12 2-AP-13 2-AP-16 2-AP-17	2-AP-13 2-AP-16 2-AP-17
Illinois CS Standards	6-8.AP.13 6-8.AP.14 6-8.AP.17 6-8.AP.18	6-8.AP.14 6-8.AP.17 6-8.AP.18	6-8.AP.13 6-8.AP.14 6-8.AP.17 6-8.AP.18	6-8.AP.14 6-8.AP.17 6-8.AP.18	6-8.AP.14 6-8.AP.17 6-8.AP.18	6-8.AP.13 6-8.AP.14 6-8.AP.17 6-8.AP.18	6-8.AP.14 6-8.AP.17 6-8.AP.18	6-8.AP.14 6-8.AP.17 6-8.AP.18	6-8.AP.13 6-8.AP.14 6-8.AP.17 6-8.AP.18	6-8.AP.14 6-8.AP.17 6-8.AP.18
ISTE Standards	1.c, 1.d, 4.d, 5.c, 5.d, 6.b	1.c, 1.d, 4.d, 5.c, 5.d, 6.b	1.c, 1.d, 4.d, 5.c, 5.d, 6.b	1.c, 1.d, 4.d, 5.c, 5.d, 6.b	1.c, 1.d, 4.d, 5.c, 5.d, 6.b	1.c, 1.d, 4.d, 5.c, 5.d, 6.b	1.c, 1.d, 4.d, 5.c, 5.d, 6.b	1.c, 1.d, 4.d, 5.c, 5.d, 6.b	1.c, 1.d, 4.d, 5.c, 5.d, 6.b	1.c, 1.d, 4.d, 5.c, 5.d, 6.b
UK National Curriculum	Key stage 3 Computing*	Key stage 3 Computing*	Key stage 3 Computing*	Key stage 3 Computing*	Key stage 3 Computing*	Key stage 3 Computing*	Key stage 3 Computing*	Key stage 3 Computing*	Key stage 3 Computing*	Key stage 3 Computing*
Sample Application of Skills	Create a game using the words "fewer" and "less."	Create a game using the words "their," "they're," and "there."	Create a story using homophones.	Create a game that collects correctly spelled words.	Create a game about verbs, nouns, and adjectives.	Create an antonym matching game.	Create a quiz game about different verb tenses.	Create an interactive book report.	Create a root word matching game.	Create a game about sentences and fragments.

STEM: Social Studies 101 — Grades 3-5

Scope and Sequence

Each lesson takes about 45-60 minutes to complete.

Social Studies 101 is a course for students in grades 3-5 who are ready to embark on a journey that reinforces programming skills while creating projects about topics in history, geography, civics, ethics, and digital citizenship. The Common Core State Standards (CCSS) that students develop are listed here in addition to CSTA Standards.

	My Map	Cardinal Directions	The Equator	Continents	Physical and Human Geography	Internet Safety	Honesty	Government Systems
Key Skills and Concepts	• Use simple events, input/output, layers	• Use input/output, simple conditionals, simple sound playing, loops	• Use advanced motion, input/output, simple messaging advanced costume handling	• Use simple events, input/output	• Use simple events, input/output, simple messaging, simple conditionals	• Use advanced motion, delays, simple sound playing	• Use simple messaging, input/output, simple conditionals	• Use conditional loops, simple motion, simple events, touching actor, simple sound playing
CCSS-Math Standards	MP.1	MP.1	MP.1	MP.1	MP.1	MP.1	MP.1	MP.1
CCSS-ELA Standards	SL.6.1 SL.7.1 SL.8.1	SL.6.1 SL.7.1 SL.8.1	SL.6.1 SL.7.1 SL.8.1	SL.6.1 SL.7.1 SL.8.1	SL.6.1 SL.7.1 SL.8.1	SL.6.1 SL.7.1 SL.8.1	SL.6.1 SL.7.1 SL.8.1	SL.6.1 SL.7.1 SL.8.1
CSTA Standards	2-AP-13 2-AP-16 2-AP-17	2-AP-13 2-AP-16 2-AP-17	2-AP-13 2-AP-16 2-AP-17	2-AP-13 2-AP-16 2-AP-17	2-AP-13 2-AP-16 2-AP-17	2-AP-13 2-AP-16 2-AP-17	2-AP-13 2-AP-16 2-AP-17	2-AP-12 2-AP-13 2-AP-16 2-AP-17
Illinois CS Standards	3-5.AP.08 3-5.AP.11 3-5.AP.12 3-5.AP.13 3-5.AP.15 3-5.AP.17	3-5.AP.08 3-5.AP.10 3-5.AP.11 3-5.AP.12 3-5.AP.13 3-5.AP.15 3-5.AP.17	3-5.AP.08 3-5.AP.11 3-5.AP.12 3-5.AP.13 3-5.AP.15 3-5.AP.17	3-5.AP.08 3-5.AP.11 3-5.AP.12 3-5.AP.13 3-5.AP.15 3-5.AP.17	3-5.AP.08 3-5.AP.10 3-5.AP.11 3-5.AP.12 3-5.AP.13 3-5.AP.15 3-5.AP.17	3-5.AP.08 3-5.AP.11 3-5.AP.12 3-5.AP.13 3-5.AP.15 3-5.AP.17	3-5.AP.08 3-5.AP.10 3-5.AP.11 3-5.AP.12 3-5.AP.13 3-5.AP.15 3-5.AP.17	3-5.AP.08 3-5.AP.10 3-5.AP.11 3-5.AP.12 3-5.AP.13 3-5.AP.15 3-5.AP.17
ISTE Standards	1.1.c, 1.1.d, 1.4.d, 1.5.c, 1.5.d, 1.6.b	1.1.c, 1.1.d, 1.4.d, 1.5.c, 1.5.d, 1.6.b	1.1.c, 1.1.d, 1.4.d, 1.5.c, 1.5.d, 1.6.b	1.1.c, 1.1.d, 1.4.d, 1.5.c, 1.5.d, 1.6.b	1.1.c, 1.1.d, 1.4.d, 1.5.c, 1.5.d, 1.6.b	1.1.c, 1.1.d, 1.4.d, 1.5.c, 1.5.d, 1.6.b	1.1.c, 1.1.d, 1.4.d, 1.5.c, 1.5.d, 1.6.b	1.1.c, 1.1.d, 1.4.d, 1.5.c, 1.5.d, 1.6.b
UK National Curriculum	Key stage 1 & 2 Computing*	Key stage 1 & 2 Computing*	Key stage 1 & 2 Computing*	Key stage 1 & 2 Computing*	Key stage 1 & 2 Computing*	Key stage 1 & 2 Computing*	Key stage 1 & 2 Computing*	Key stage 1 & 2 Computing*
Sample Application of Skills	Create an interactive map about landforms..	Create an interactive project about cardinal directions.	Create an animated presentation about the equator.	Create an interactive project about continents.	Create a quiz game about physical and human geography.	Create a quiz game about internet safety.	Create a project about the benefits of being honest.	Create a quiz game about different government systems.

*See individual lesson guides for details on UK Computer standards

STEM: Social Studies 101

Grades 3-5

Scope and Sequence

Each lesson takes about 45-60 minutes to complete.

Social Studies 101 is a course for students in grades 3-5 who are ready to embark on a journey that reinforces programming skills while creating projects about topics in history, geography, civics, ethics, and digital citizenship. The Common Core State Standards (CCSS) that students develop are listed here in addition to CSTA Standards.

	Hunter-Gatherers and Farmers	Historical People	Trading for Goods	World Map				
Key Skills and Concepts	• Use simple events, simple messaging, input/output, visibility, advanced motion	• Use simple events, simple costume handling, visibility, input/output	• Use simple conditionals, input/output, simple messaging, advanced motion	• Use simple sound playing, simple conditionals, input/output, simple events				
CCSS-Math Standards	MP.1	MP.1	MP.1	MP.1				
CCSS-ELA Standards	SL.6.1 SL.7.1 SL.8.1	SL.6.1 SL.7.1 SL.8.1	SL.6.1 SL.7.1 SL.8.1	SL.6.1 SL.7.1 SL.8.1				
CSTA Standards	2-AP-13 2-AP-16 2-AP-17	2-AP-13 2-AP-16 2-AP-17	2-AP-13 2-AP-16 2-AP-17	2-AP-13 2-AP-16 2-AP-17				
Illinois CS Standards	3-5.AP.08 3-5.AP.11 3-5.AP.12 3-5.AP.13 3-5.AP.15 3-5.AP.17	3-5.AP.08 3-5.AP.11 3-5.AP.12 3-5.AP.13 3-5.AP.15 3-5.AP.17	3-5.AP.08 3-5.AP.10 3-5.AP.11 3-5.AP.12 3-5.AP.13 3-5.AP.15 3-5.AP.17	3-5.AP.08 3-5.AP.10 3-5.AP.11 3-5.AP.12 3-5.AP.13 3-5.AP.15 3-5.AP.17				
ISTE Standards	1.1.c, 1.1.d, 1.4.d, 1.5.c, 1.5.d, 1.6.b	1.1.c, 1.1.d, 1.4.d, 1.5.c, 1.5.d, 1.6.b	1.1.c, 1.1.d, 1.4.d, 1.5.c, 1.5.d, 1.6.b	1.1.c, 1.1.d, 1.4.d, 1.5.c, 1.5.d, 1.6.b				
UK National Curriculum	Key stage 1 & 2 Computing*	Key stage 1 & 2 Computing*	Key stage 1 & 2 Computing*	Key stage 1 & 2 Computing*				
Sample Application of Skills	Create a project about hunter-gatherers and farmers.	Create a slideshow about a historical figure.	Create an interactive project about trading for goods.	Create a quiz game about facts around the world.				

*See individual lesson guides for details on UK Computer standards

STEM: Social Studies 201

Grades 6-8

Scope and Sequence

Each lesson takes about 45-60 minutes to complete.

Social Studies 201 is a course for students in grades 6-8 who are ready to embark on a journey that reinforces programming skills while creating projects about topics in history, geography, civics, ethics, and digital citizenship. The Common Core State Standards (CCSS) that students develop are listed here in addition to CSTA computer science standards.

	World Flags Quiz	World Traveler	Famous Explorers and Conquerors	Civil War Map Quiz	13 Colonies	Declaration of Independence	Ancient Civilizations	Religion Vocabulary
Key Skills and Concepts	• Use simple sound playing, simple events, basic math, conditional loops, input/output	• Use simple events, simple variables, input/output, simple conditionals, conditional loops	• Use simple events, advanced motion, simple loops, delays, simple drawing	• Use simple loops, simple motion, detect conditions, color detection, simple conditionals	• Use simple events, conditional loops, detect conditions	• Use simple messaging, input/output, simple conditionals	• Use simple messaging, detect conditions, input/output, visibility, delays, simple sound playing	• Use simple events, conditional loops, simple motion, detect conditions, delays, visibility
CCSS-Math Standards	MP.1	MP.1	MP.1	MP.1	MP.1	MP.1	MP.1	MP.1
CCSS-ELA Standards	SL.6.1 SL.7.1 SL.8.1	SL.6.1 SL.7.1 SL.8.1	SL.6.1 SL.7.1 SL.8.1	SL.6.1 SL.7.1 SL.8.1	SL.6.1 SL.7.1 SL.8.1	SL.6.1 SL.7.1 SL.8.1	SL.6.1 SL.7.1 SL.8.1	SL.6.1 SL.7.1 SL.8.1
CSTA Computer Science Standards	2-AP-12 2-AP-13 2-AP-16 2-AP-17	2-AP-12 2-AP-13 2-AP-16 2-AP-17	2-AP-13 2-AP-16 2-AP-17	2-AP-13 2-AP-16 2-AP-17	2-AP-12 2-AP-13 2-AP-16 2-AP-17	2-AP-13 2-AP-16 2-AP-17	2-AP-13 2-AP-16 2-AP-17	2-AP-12 2-AP-13 2-AP-16 2-AP-17
Illinois CS Standards	6-8.AP.13 6-8.AP.14 6-8.AP.17 6-8.AP.18	6-8.AP.13 6-8.AP.14 6-8.AP.17 6-8.AP.18	6-8.AP.14 6-8.AP.17 6-8.AP.18	6-8.AP.14 6-8.AP.17 6-8.AP.18	6-8.AP.13 6-8.AP.14 6-8.AP.17 6-8.AP.18	6-8.AP.14 6-8.AP.17 6-8.AP.18	6-8.AP.14 6-8.AP.17 6-8.AP.18	6-8.AP.13 6-8.AP.14 6-8.AP.17 6-8.AP.18
ISTE Standards	1.c, 1.d, 4.d, 5.c, 5.d, 6.b	1.c, 1.d, 4.d, 5.c, 5.d, 6.b	1.c, 1.d, 4.d, 5.c, 5.d, 6.b	1.c, 1.d, 4.d, 5.c, 5.d, 6.b	1.c, 1.d, 4.d, 5.c, 5.d, 6.b	1.c, 1.d, 4.d, 5.c, 5.d, 6.b	1.c, 1.d, 4.d, 5.c, 5.d, 6.b	1.c, 1.d, 4.d, 5.c, 5.d, 6.b
UK National Curriculum	Key stage 3 Computing*	Key stage 3 Computing*	Key stage 3 Computing*	Key stage 3 Computing*	Key stage 3 Computing*	Key stage 3 Computing*	Key stage 3 Computing*	Key stage 3 Computing*
Sample Application of Skills	Create a quiz game about different world flags.	Create a quiz game about different countries around the world.	Create a presentation about a famous explorer.	Create a quiz game about the Civil War.	Create a matching game about the 13 colonies.	Create a quiz game about the Declaration of Independence.	Create a project about ancient civilizations.	Create a matching game about different religions.

*See individual lesson guides for details on UK Computer standards

STEM: Social Studies 201

Grades 6-8

Scope and Sequence

Each lesson takes about 45-60 minutes to complete.

Social Studies 201 is a course for students in grades 6-8 who are ready to embark on a journey that reinforces programming skills while creating projects about topics in history, geography, civics, ethics, and digital citizenship. The Common Core State Standards (CCSS) that students develop are listed here in addition to CSTA computer science standards.

	Famous Artists	Industrialization	Lunar Year	How a Bill Becomes a Law	Presidential Timeline	Government Branches	Street Safety	Longitude, Latitude, and Elevation	Famous Geographic Features
Key Skills and Concepts	• Use simple messaging, delays, visibility, advanced costume handling	• Use simple events, loops, delays, advanced costume handling, simple variables, conditional loops, simple motion, simple messaging	• Use simple events, costume handling, messaging, motion, input/output	• Use input/output and simple conditionals	• Use advanced costume handling, shape drawing, input/output	• Use advanced costume handling, conditional loops, detect conditions, text handling, shape drawing	• Use input/output, delays, advanced motion	• Use simple events, loops, visibility, messaging, costume handling, delays, input/output	• Use input/output, simple conditionals, simple messaging, visibility
CCSS-Math Standards	MP.1	MP.1	MP.1	MP.1	MP.1	MP.1	MP.1	MP.1	MP.1
CCSS-ELA Standards	SL.6.1 SL.7.1 SL.8.1	SL.6.1 SL.7.1 SL.8.1	SL.6.1 SL.7.1 SL.8.1	SL.6.1 SL.7.1 SL.8.1	SL.6.1 SL.7.1 SL.8.1	SL.6.1 SL.7.1 SL.8.1	SL.6.1 SL.7.1 SL.8.1	SL.6.1 SL.7.1 SL.8.1	SL.6.1 SL.7.1 SL.8.1
CSTA Computer Science Standards	2-AP-13 2-AP-16 2-AP-17	2-AP-12 2-AP-13 2-AP-16 2-AP-17	2-AP-13 2-AP-16 2-AP-17	2-AP-13 2-AP-16 2-AP-17	2-AP-13 2-AP-16 2-AP-17	2-AP-12 2-AP-13 2-AP-16 2-AP-17	2-AP-13 2-AP-16 2-AP-17	2-AP-13 2-AP-16 2-AP-17	2-AP-13 2-AP-16 2-AP-17
Illinois CS Standards	6-8.AP.14 6-8.AP.17 6-8.AP.18	6-8.AP.13 6-8.AP.14 6-8.AP.17 6-8.AP.18	6-8.AP.14 6-8.AP.17 6-8.AP.18	6-8.AP.14 6-8.AP.17 6-8.AP.18	6-8.AP.14 6-8.AP.17 6-8.AP.18	6-8.AP.13 6-8.AP.14 6-8.AP.17 6-8.AP.18	6-8.AP.14 6-8.AP.17 6-8.AP.18	6-8.AP.14 6-8.AP.17 6-8.AP.18	6-8.AP.14 6-8.AP.17 6-8.AP.18
ISTE Standards	1.c, 1.d, 4.d, 5.c, 5.d, 6.b	1.c, 1.d, 4.d, 5.c, 5.d, 6.b	1.c, 1.d, 4.d, 5.c, 5.d, 6.b	1.c, 1.d, 4.d, 5.c, 5.d, 6.b	1.c, 1.d, 4.d, 5.c, 5.d, 6.b	1.c, 1.d, 4.d, 5.c, 5.d, 6.b	1.c, 1.d, 4.d, 5.c, 5.d, 6.b	1.c, 1.d, 4.d, 5.c, 5.d, 6.b	1.c, 1.d, 4.d, 5.c, 5.d, 6.b
UK National Curriculum	Key stage 3 Computing*	Key stage 3 Computing*	Key stage 3 Computing*	Key stage 3 Computing*	Key stage 3 Computing*	Key stage 3 Computing*	Key stage 3 Computing*	Key stage 3 Computing*	Key stage 3 Computing*
Sample Application of Skills	Create a patching game about famous artists.	Create an interactive project about industrialization.	Create a project about the Lunar New Year.	Create a project that illustrates how a bill becomes a law.	Create a timeline of U.S. presidents.	Create a project about the different branches of government.	Create a presentation about street safety.	Create a project about longitude, latitude, and elevation.	Create a quiz game about geographic features.

*See individual lesson guides for details on UK Computer standards

micro:bit 101

Grades 3-5

Scope and Sequence

Each lesson takes about 45-60 minutes to complete.

The micro:bit 101 course introduces students to physical computing using micro:bit and Tynker Blocks. A micro:bit is a tiny microcomputer with programmable LEDs, sensors, and more. Students will learn about coding by using a hands-on combination of interactive lessons, concept explanations, videos, puzzles, and DIY projects. This course engages students in developing computational thinking skills, as listed below from the CSTA Computer Science standards and UK Computing standards. The Common Core State Standards for Mathematics and English Language Arts that students develop are also listed here.

	Lesson 1 - Ahoy!	Lesson 2 - Light the Way	Lesson 3 - Wireless Stage	Lesson 4 - High Rollers	Lesson 5 - Pi-Rates	Lesson 6 - Two Sides of a Coin
Key Skills and Concepts	• Identify different parts of the micro:bit • Use code blocks to display text and numbers	• Use code blocks to display images on the micro:bit • Use coordinates	• Use the micro:bit accelerometer • Create a wireless project • Send/receive messages	• Create and use variables • Change and set the value of a variable • Use random numbers	• Use the modulo (mod) operator • Apply conditional logic • Use loops	• Demonstrate an understanding of Booleans and user input
CCSS-Math Standards	MP.1 MP.2 MP.4	MP.1 MP.2 MP.4	MP.1 MP.2 MP.4	MP.1 MP.2 MP.4	MP.1 MP.2 MP.4	MP.1 MP.2 MP.4
CCSS-ELA Standards	RF.3.4 RF.4.4 RF.5.4 RF.3.4.A RF.4.4.A RF.5.4.A	RF.3.4 RF.4.4 RF.5.4 RF.3.4.A RF.4.4.A RF.5.4.A	RF.3.4 RF.4.4 RF.5.4 RF.3.4.A RF.4.4.A RF.5.4.A	RF.3.4 RF.4.4 RF.5.4 RF.3.4.A RF.4.4.A RF.5.4.A	RF.3.4 RF.4.4 RF.5.4 RF.3.4.A RF.4.4.A RF.5.4.A	RF.3.4 RF.4.4 RF.5.4 RF.3.4.A RF.4.4.A RF.5.4.A
CSTA Computer Science Standards	1A-CS-01 1A-CS-02 1B-AP-11 1B-AP-12 1B-AP-15	1A-CS-01 1A-CS-02 1B-AP-11 1B-AP-12 1B-AP-15	1A-CS-01 1A-CS-02 1B-AP-10 1B-AP-11 1B-AP-12 1B-AP-15	1A-CS-01 1A-CS-02 1B-AP-09 1B-AP-11 1B-AP-12 1B-AP-15	1A-CS-01 1A-CS-02 1B-AP-10 1B-AP-11 1B-AP-12 1B-AP-15	1A-CS-01 1A-CS-02 1B-AP-11 1B-AP-12 1B-AP-15
Illinois CS Standards	3-5.CS.01 3-5.CS.02 3-5.AP.11 3-5.AP.12 3-5.AP.15	3-5.CS.01 3-5.CS.02 3-5.AP.11 3-5.AP.12 3-5.AP.15	3-5.CS.01 3-5.CS.02 3-5.AP.10 3-5.AP.11 3-5.AP.12 3-5.AP.15	3-5.CS.01 3-5.CS.02 3-5.AP.09 3-5.AP.11 3-5.AP.12 3-5.AP.15	3-5.CS.01 3-5.CS.02 3-5.AP.10 3-5.AP.11 3-5.AP.12 3-5.AP.15	3-5.CS.01 3-5.CS.02 3-5.AP.11 3-5.AP.12 3-5.AP.15
ISTE Standards	1.c, 1.d, 4.d, 5.c, 5.d, 6.b	1.c, 1.d, 4.d, 5.c, 5.d, 6.b	1.c, 1.d, 4.d, 5.c, 5.d, 6.b	1.c, 1.d, 4.d, 5.c, 5.d, 6.b	1.c, 1.d, 4.d, 5.c, 5.d, 6.b	1.c, 1.d, 4.d, 5.c, 5.d, 6.b
UK National Curriculum	Key stage 2*	Key stage 2*	Key stage 2*	Key stage 2*	Key stage 2*	Key stage 2*
Sample Application of Skills	Learn the different parts of the micro:bit: LED display, buttons, battery, and sensors.	Control the micro:bit's LED display.	Create a project that allows the user to interact with the Stage wirelessly.	Create a virtual dice roller using variables and random numbers.	Use math operators to create a number guessing game.	Create an animated coin toss simulator project.

*See individual lesson guides for details on UK Computer standards

micro:bit 101 — Grades 3-5

Scope and Sequence

Each lesson takes about 45-60 minutes to complete.

The micro:bit 101 course introduces students to physical computing using micro:bit and Tynker Blocks. A micro:bit is a tiny microcomputer with programmable LEDs, sensors, and more. Students will learn about coding by using a hands-on combination of interactive lessons, concept explanations, videos, puzzles, and DIY projects. This course engages students in developing computational thinking skills, as listed below from the CSTA Computer Science standards and UK Computing standards. The Common Core State Standards for Mathematics and English Language Arts that students develop are also listed here.

	Lesson 7 - M-oceanography	Lesson 8 - Game Night	Lesson 9 - Sensory Overload	Lesson 10 - Pins	Lesson 11 - Devices	Lesson 12 - FUNctions
Key Skills and Concepts	• Simplify variables with arrays • Create simple animations • Use lists • Apply loops	• Create sprites • Apply knowledge of coordinates • Move and delete sprites • Use the micro:bit's built-in radio	• Use sensors and sprites • Learn about different micro:bit sensors: accelerometer, temperature, and compass	• Attach pins to the micro:bit • Use alligator clips and LEDs • Explore digital input/output	• Control the micro:bit's motor and speaker • Play different sounds • Attach motors and speakers to the micro:bit	• Create and call functions • Apply conditional logic
CCSS-Math Standards	2.OA.B.2 MP.1 MP.2 MP.4	2.OA.B.2 MP.1 MP.2 MP.4	MP.1 MP.2 MP.4	MP.1 MP.2 MP.4	MP.1 MP.2 MP.4	MP.1 MP.2 MP.4
CCSS-ELA Standards	RF.3.4 RF.4.4 RF.5.4 RF.3.4.A RF.4.4.A RF.5.4.A	RF.3.4 RF.4.4 RF.5.4 RF.3.4.A RF.4.4.A RF.5.4.A	RF.3.4 RF.4.4 RF.5.4 RF.3.4.A RF.4.4.A RF.5.4.A	RF.3.4 RF.4.4 RF.5.4 RF.3.4.A RF.4.4.A RF.5.4.A	RF.3.4 RF.4.4 RF.5.4 RF.3.4.A RF.4.4.A RF.5.4.A	RF.3.4 RF.4.4 RF.5.4 RF.3.4.A RF.4.4.A RF.5.4.A
CSTA Computer Science Standards	1B-CS-01 1B-CS-02 1B-AP-10 1B-AP-11 1B-AP-12 1B-AP-15	1B-CS-01 1B-CS-02 1B-AP-09 1B-AP-10 1B-AP-11 1B-AP-12 1B-AP-15	1B-CS-01 1B-CS-02 1B-AP-09 1B-AP-10 1B-AP-11 1B-AP-12 1B-AP-15	1B-CS-01 1B-CS-02 1B-AP-10 1B-AP-11 1B-AP-12 1B-AP-15	1B-CS-01 1B-CS-02 1B-AP-10 1B-AP-11 1B-AP-12 1B-AP-15	1B-CS-01 1B-CS-02 1B-AP-10 1B-AP-11 1B-AP-12 1B-AP-15
Illinois CS Standards	3-5.CS.01 3-5.CS.02 3-5.AP.10 3-5.AP.11 3-5.AP.12 3-5.AP.15 6-8.ET.E	3-5.CS.01 3-5.CS.02 3-5.AP.09 3-5.AP.10 3-5.AP.11 3-5.AP.12 3-5.AP.15 6-8.ET.E	3-5.CS.01 3-5.CS.02 3-5.AP.09 3-5.AP.10 3-5.AP.11 3-5.AP.12 3-5.AP.15 6-8.ET.E	3-5.CS.01 3-5.CS.02 3-5.AP.10 3-5.AP.11 3-5.AP.12 3-5.AP.15 6-8.ET.E	3-5.CS.01 3-5.CS.02 3-5.AP.10 3-5.AP.11 3-5.AP.12 3-5.AP.15 6-8.ET.E	3-5.CS.01 3-5.CS.02 3-5.AP.10 3-5.AP.11 3-5.AP.12 3-5.AP.15 6-8.ET.E
ISTE Standards	1.c, 1.d, 4.d, 5.c, 5.d, 6.b	1.c, 1.d, 4.d, 5.c, 5.d, 6.b	1.c, 1.d, 4.d, 5.c, 5.d, 6.b	1.c, 1.d, 4.d, 5.c, 5.d, 6.b	1.c, 1.d, 4.d, 5.c, 5.d, 6.b	1.c, 1.d, 4.d, 5.c, 5.d, 6.b
UK National Curriculum	Key stage 2*	Key stage 2*	Key stage 2*	Key stage 2*	Key stage 2*	Key stage 2*
Sample Application of Skills	Create a wave animation using the micro:bit.	Create a fast-paced racer game using the micro:bit.	Use multiple micro:bits to create a tag game.	Create a project that light up LEDs on the micro:bit.	Create a "prize wheel" game that plays different sounds.	Create a rock, paper, scissors game.

*See individual lesson guides for details on UK Computer standards

micro:bit 101 — Grades 3-5

Scope and Sequence

Each lesson takes about 45-60 minutes to complete.

The micro:bit 101 course introduces students to physical computing using micro:bit and Tynker Blocks. A micro:bit is a tiny microcomputer with programmable LEDs, sensors, and more. Students will learn about coding by using a hands-on combination of interactive lessons, concept explanations, videos, puzzles, and DIY projects. This course engages students in developing computational thinking skills, as listed below from the CSTA Computer Science standards and UK Computing standards. The Common Core State Standards for Mathematics and English Language Arts that students develop are also listed here.

	Lesson 13 - Soarin Dragon	Lesson 14 - Glow Shoes	Lesson 15 - Grapher	Lesson 16 - Piano		
Key Skills and Concepts	• Use Tynker's Physics Engine • Apply knowledge of coordinates • Create/delete clones	• Connect LEDs to the mirco:bit • Use the "shake" gesture to detect movement	• Plot data • Collect sensor data from the micro:bit • Plot points onto the Tynker Stage	• Create a working piano using aluminum foil, paper, alligator clips, and the micro:bit		
CCSS-Math Standards	MP.1 MP.2 MP.4	MP.1 MP.2 MP.4	MP.1 MP.2 MP.4	2.OA.B.2 MP.1 MP.2 MP.4		
CCSS-ELA Standards	RF.3.4 RF.4.4 RF.5.4 RF.3.4.A RF.4.4.A RF.5.4.A	RF.3.4 RF.4.4 RF.5.4 RF.3.4.A RF.4.4.A RF.5.4.A	RF.3.4 RF.4.4 RF.5.4 RF.3.4.A RF.4.4.A RF.5.4.A	RF.3.4 RF.4.4 RF.5.4 RF.3.4.A RF.4.4.A RF.5.4.A		
CSTA Computer Science Standards	1B-CS-01 1B-CS-02 1B-AP-10 1B-AP-11 1B-AP-12 1B-AP-15	1B-CS-01 1B-CS-02 1B-AP-09 1B-AP-10 1B-AP-11 1B-AP-12 1B-AP-15	1B-CS-01 1B-CS-02 1B-AP-09 1B-AP-10 1B-AP-11 1B-AP-12 1B-AP-15	1B-CS-01 1B-CS-02 1B-AP-10 1B-AP-11 1B-AP-12 1B-AP-15		
Illinois CS Standards	3-5.CS.01 3-5.CS.02 3-5.AP.10 3-5.AP.11 3-5.AP.12 3-5.AP.15 6-8.ET.E	3-5.CS.01 3-5.CS.02 3-5.AP.10 3-5.AP.11 3-5.AP.12 3-5.AP.15 6-8.ET.E	3-5.CS.01 3-5.CS.02 3-5.AP.10 3-5.AP.11 3-5.AP.12 3-5.AP.15 6-8.ET.E	3-5.CS.01 3-5.CS.02 3-5.AP.10 3-5.AP.11 3-5.AP.12 3-5.AP.15 6-8.ET.E		
ISTE Standards	1.c, 1.d, 4.d, 5.c, 5.d, 6.b	1.c, 1.d, 4.d, 5.c, 5.d, 6.b	1.c, 1.d, 4.d, 5.c, 5.d, 6.b	1.c, 1.d, 4.d, 5.c, 5.d, 6.b		
UK National Curriculum	Key stage 2*	Key stage 2*	Key stage 2*	Key stage 2*		
Sample Application of Skills	Create a game that uses the micro:bit as a gamepad with Tynker.	Create a gadget that lights up shoes and counts steps.	Plot data using the micro:bit.	Build a paper piano, then program it to play using the micro:bit.		

*See individual lesson guides for details on UK Computer standards

WeDo Coding — Grades 3-5

Scope and Sequence

Each lesson takes about 45-60 minutes to complete.

The WeDo Coding Course Collection uses the LEGO WeDo 2.0 SmartHub and sensors. Students will learn how to program the WeDo to interact with other devices, use the WeDo as a controller for virtual games, and more. The interactive lessons, videos, games, puzzles, and projects in this course engage students in developing computational thinking skills, as listed below from the CSTA Standards and UK Computing standards. The Common Core State Standards for Mathematics and English Language Arts that students develop are also listed here.

	Lesson 1 - Introduction	Lesson 2 - Light and Sound	Lesson 3 - Sensors Galore	Lesson 4 - Milo and Friends	Lesson 5 - Game Controller	Lesson 6 - Total Control
Key Skills and Concepts	• Pair (wirelessly connect) the SmartHub to the device • Apply sequencing to program the SmartHub to play different sounds • Use code blocks with parameters to solve puzzle modules	• Program the LED and speakers simultaneously • Program the SmartHub to play a song • Use counting loops • Identify patterns	• Program the SmartHub to react to the tilt sensor, motion sensor, and motor • Apply conditional logic • Use infinite loops	• Build 3 different models: Frog/Walk, Fish/Flex, Driver/Milo • Apply comparison operators • Use motion and motor code blocks	• Apply coding concepts to program 3 different games • Use Tynker's Physics Engine • Apply conditional logic • Use loops	• Use conditional statements • Program the SmartHub to light up • Use code blocks to program 2 projects
CCSS-Math Standards	MP.1	MP.1	MP.1	MP.1	MP.1	MP.1
CCSS-ELA Standards	RI.3.7, RF.3.4,RF.3.4.A, SL.3.1 RF.4.4.A, RF.1.4.A,RF.4.4, SL.4.1, RF.5.4.A, RF.5.4 SL.5.1	RI.3.7, RF.3.4,RF.3.4.A, SL.3.1 RF.4.4.A, RF.1.4.A,RF.4.4, SL.4.1,RF.5.4.A, RF.5.4 SL.5.1	RI.3.7, RF.3.4,RF.3.4.A, SL.3.1 RF.4.4.A, RF.1.4.A,RF.4.4, SL.4.1,RF.5.4.A, RF.5.4 SL.5.1	RI.3.7, RF.3.4,RF.3.4.A, SL.3.1 RF.4.4.A, RF.1.4.A,RF.4.4, SL.4.1,RF.5.4.A, RF.5.4 SL.5.1	RI.3.7, RF.3.4,RF.3.4.A, SL.3.1 RF.4.4.A, RF.1.4.A RF.4.4, SL.4.1,RF.5.4.A, RF.5.4 SL.5.1	RI.3.7, RF.3.4,RF.3.4.A, SL.3.1 RF.4.4.A, RF.1.4.A RF.4.4, SL.4.1RF.5.4.A, RF.5.4 SL.5.1
CSTA Standards	1A-CS-01, 1A-CS-02 1A-AP-09, 1A-AP-11 1A-AP-12, 1A-AP-14 1A-AP-15, 1B-CS-02 1B-CS-03, 1B-AP-11 1B-AP-12, 1B-AP-15	1A-CS-01, 1A-CS-02 1A-AP-09, 1A-AP-11 1A-AP-12, 1A-AP-14 1A-AP-15, 1B-CS-02 1B-CS-03, 1B-AP-11 1B-AP-12, 1B-AP-15	1A-CS-01, 1A-CS-02 1A-AP-09, 1A-AP-11 1A-AP-12, 1A-AP-14 1A-AP-15, 1B-CS-02 1B-CS-03, 1B-AP-11 1B-AP-12, 1B-AP-15	1A-CS-01, 1A-CS-02 1A-AP-09, 1A-AP-11 1A-AP-12, 1A-AP-14 1A-AP-15, 1B-CS-02 1B-CS-03, 1B-AP-11 1B-AP-12, 1B-AP-15	1A-CS-01, 1A-CS-02 1A-AP-09, 1A-AP-11 1A-AP-12, 1A-AP-14 1A-AP-15, 1B-CS-02 1B-CS-03, 1B-AP-11 1B-AP-12, 1B-AP-15	1A-CS-01, 1A-CS-02 1A-AP-09, 1A-AP-11 1A-AP-12, 1A-AP-14 1A-AP-15, 1B-CS-02 1B-CS-03, 1B-AP-11 1B-AP-12, 1B-AP-15
Illinois CS Standards	3-5.CS.02. 3-5.CS.03 3-5.AP.08, 3-5.AP.11, 3-5.AP.12, 3-5.AP.15, 3-5.AP.17	3-5.CS.02, 3-5.CS.03 3-5.AP.08, 3-5.AP.11 3-5.AP.12, 3-5.AP.15 3-5.AP.17	3-5.CS.02, 3-5.CS.03 3-5.AP.08, 3-5.AP.09 3-5.AP.10, 3-5.AP.11 3-5.AP.12, 3-5.AP.13 3-5.AP.15, 3-5.AP.17	3-5.CS.02, 3-5.CS.03 3-5.AP.08, 3-5.AP.11 3-5.AP.12, 3-5.AP.15 3-5.AP.17	3-5.CS.02, 3-5.CS.03 3-5.AP.08, 3-5.AP.11 3-5.AP.12, 3-5.AP.13 3-5.AP.15, 3-5.AP.17	3-5.CS.02, 3-5.CS.03 3-5.AP.08 3-5.AP.09, 3-5.AP.11 3-5.AP.12, 3-5.AP.13 3-5.AP.15. 3-5.AP.17
ISTE Standards	1.1.c, 1.1.d, 1.4.d, 1.5.c, 1.5.d, 1.6.b	1.1.c, 1.1.d, 1.4.d, 1.5.c, 1.5.d, 1.6.b	1.1.c, 1.1.d, 1.4.d, 1.5.c, 1.5.d, 1.6.b	1.1.c, 1.1.d, 1.4.d, 1.5.c, 1.5.d, 1.6.b	1.1.c, 1.1.d, 1.4.d, 1.5.c, 1.5.d, 1.6.b	1.1.c, 1.1.d, 1.4.d, 1.5.c, 1.5.d, 1.6.b
UK National Curriculum	Key stage 2*	Key stage 2*	Key stage 2*	Key stage 2*	Key stage 2*	Key stage 2*
Sample Application of Skills	Pair the WeDo SmartHub to a device, play different sounds, and program the SmartHub's LED.	Program the LED and speakers simultaneously.	Program the detachable tilt, motor, and distance sensors.	Build then program: a frog to walk, a fish to flex, and a car.	Program the SmartHub into a controller to play games such as Brick Breaker and Geometry Dash.	Create a personality test game and a comprehensive remote control app that controls all the WeDo sensors.

*See individual lesson guides for details on UK Computer standards

WeDo Coding **Grades 3-5**

Scope and Sequence

Each lesson takes about 45-60 minutes to complete.

The WeDo Coding Course Collection uses the LEGO WeDo 2.0 SmartHub and sensors. Students will learn how to program the WeDo to interact with other devices, use the WeDo as a controller for virtual games, and more. The interactive lessons, videos, games, puzzles, and projects in this course engage students in developing computational thinking skills, as listed below from the CSTA Standards and UK Computing standards. The Common Core State Standards for Mathematics and English Language Arts that students develop are also listed here.

	Lesson 7 - Weather Station	Lesson 8 - Rock Band	Lesson 9 - Advanced Gamer	Lesson 10 - Dominoes	Lesson 11 - Fly a Drone	
Key Skills and Concepts	• Use the motor and LED sensors • Use functions • Build a windmill	• Program the SmartHub to play music • Use sound code blocks • Create and call functions	• Use Tynker's Physics Engine • Apply loops • Use conditional logic	• Build a racecar • Use code blocks to program 2 different race car projects • Use the modulo (mod) operator	• Use drone code blocks • Program a drone to take off, land, and turn	
CCSS-Math Standards	MP.1	MP.1	MP.1	MP.1	MP.1	
CCSS-ELA Standards	RI.3.7, RF.3.4,RF.3.4.A, SL.3.1 RF.4.4.A, RF.1.4.A RF.4.4, SL.4.1,RF.5.4.A, RF.5.4 SL.5.1	RI.3.7, RF.3.4,RF.3.4.A, SL.3.1 RF.4.4.A, RF.1.4.A RF.4.4, SL.4.1,RF.5.4.A, RF.5.4 SL.5.1	RI.3.7, RF.3.4,RF.3.4.A, SL.3.1 RF.4.4.A, RF.1.4.A RF.4.4, SL.4.1,RF.5.4.A, RF.5.4 SL.5.1	RI.3.7, RF.3.4,RF.3.4.A, SL.3.1 RF.4.4.A, RF.1.4.A RF.4.4, SL.4.1,RF.5.4.A, RF.5.4 SL.5.1	RI.3.7, RF.3.4,RF.3.4.A, SL.3.1 RF.4.4.A, RF.1.4.A RF.4.4, SL.4.1,RF.5.4.A, RF.5.4 SL.5.1	
CSTA Standards	1A-CS-01, 1A-CS-02 1A-AP-09, 1A-AP-11 1A-AP-12, 1A-AP-14 1A-AP-15, 1B-CS-02 1B-CS-03, 1B-AP-11 1B-AP-12, 1B-AP-15	1A-CS-01, 1A-CS-02 1A-AP-09, 1A-AP-11 1A-AP-12, 1A-AP-14 1A-AP-15, 1B-CS-02 1B-CS-03, 1B-AP-11 1B-AP-12, 1B-AP-15	1A-CS-01, 1A-CS-02 1A-AP-09, 1A-AP-11 1A-AP-12, 1A-AP-14 1A-AP-15, 1B-CS-02 1B-CS-03, 1B-AP-11 1B-AP-12, 1B-AP-15	1A-CS-01, 1A-CS-02 1A-AP-09, 1A-AP-11 1A-AP-12, 1A-AP-14 1A-AP-15, 1B-CS-02 1B-CS-03, 1B-AP-11 1B-AP-12, 1B-AP-15	1A-CS-01, 1A-CS-02 1A-AP-09, 1A-AP-11 1A-AP-12, 1A-AP-14 1A-AP-15, 1B-CS-02 1B-CS-03, 1B-AP-11 1B-AP-12, 1B-AP-15	
Illinois CS Standards	3-5.CS.02 3-5.CS.03 3-5.AP.08 3-5.AP.11 3-5.AP.12 3-5.AP.15 3-5.AP.17	3-5.CS.02 3-5.CS.03 3-5.AP.08 3-5.AP.11 3-5.AP.12 3-5.AP.13 3-5.AP.15 3-5.AP.17	3-5.CS.02 3-5.CS.03 3-5.AP.08 3-5.AP.11 3-5.AP.12 3-5.AP.13 3-5.AP.15 3-5.AP.17	3-5.CS.02 3-5.CS.03 3-5.AP.08 3-5.AP.11 3-5.AP.12 3-5.AP.15 3-5.AP.17	3-5.CS.02 3-5.CS.03 3-5.AP.08 3-5.AP.11 3-5.AP.12 3-5.AP.13 3-5.AP.15 3-5.AP.17	
ISTE Standards	1.1.c, 1.1.d, 1.4.d, 1.5.c, 1.5.d, 1.6.b	1.1.c, 1.1.d, 1.4.d, 1.5.c, 1.5.d, 1.6.b	1.1.c, 1.1.d, 1.4.d, 1.5.c, 1.5.d, 1.6.b	1.1.c, 1.1.d, 1.4.d, 1.5.c, 1.5.d, 1.6.b	1.1.c, 1.1.d, 1.4.d, 1.5.c, 1.5.d, 1.6.b	
UK National Curriculum	Key stage 2*	Key stage 2*	Key stage 2*	Key stage 2*	Key stage 2*	
Sample Application of Skills	Use an internet weather web service and program a real-time weather station using the WeDo.	Use multiple SmartHubs to program a classroom rock band.	Use code to make the WeDo sensors into a gaming joystick.	Build then program a racecar. Use the distance sensors to create a chain reaction.	Use the WeDo tilt and distance sensors to fly a drone.	

*See individual lesson guides for details on UK Computer standards

Artificial Intelligence 101

Grades 3-8

Scope and Sequence

Each lesson takes about 45-60 minutes to complete.

In this course, your students are put at the center of the action with AI-based webcam projects! Create interactive Snapchat-style costumes, hand-tracking apps, activity games, and so much more. Students will also explore natural language processing (NLP), the technology used by modern chatbots like ChatGPT. The interactive lessons and AI projects in this course engage students in developing computational thinking skills, as listed below from the CSTA Standards and UK Computing standards. The Common Core State Standards for Mathematics and English Language Arts that students develop are also listed here.

	Lesson 1 - Face Tracking	Lesson 2 - Hand Tracking	Lesson 3 - Body Tracking	Lesson 4 - Object Detection	Lesson 5 - Natural Language Processing
Key Skills and Concepts	• What is AI • Video input • Landmarks & attributes • Apply conditional logic	• Hand tracking • Hand landmarks • Landmark blocks	• Body pose tracking • Body landmarks • Segmentation	• Enable object detection • Object visibility • Position and number • Conditional logic • Variables	• Use NLP to create and use text classifiers • Input and intent • Output and response
CCSS-Math Standards	MP.1	MP.1	MP.1	MP.1	MP.1
CCSS-ELA Standards	RF.3.4.A, RF.4.4.A, RF.5.4.A, 6-8.RST.3, 6-8.RST.4, 6-8.RST.7	RF.3.4.A, RF.4.4.A, RF.5.4.A, 6-8.RST.3, 6-8.RST.4, 6-8.RST.7	RF.3.4.A, RF.4.4.A, RF.5.4.A, 6-8.RST.3, 6-8.RST.4, 6-8.RST.7	RF.3.4.A, RF.4.4.A, RF.5.4.A, 6-8.RST.3, 6-8.RST.4, 6-8.RST.7	RF.3.4.A, RF.4.4.A, RF.5.4.A, 6-8.RST.3, 6-8.RST.4, 6-8.RST.7
CSTA Standards	1B-AP-11, 1B-AP-12, 1B-AP-15, 2-AP-13, 2-AP-17	1B-AP-11, 1B-AP-12, 1B-AP-15, 2-AP-13, 2-AP-17	1B-AP-09, 1B-AP-11, 1B-AP-12, 1B-AP-15, 2-AP-11, 2-AP-13, 2-AP-17	1B-AP-09, 1B-AP-11, 1B-AP-12, 1B-AP-15, 2-AP-11, 2-AP-13, 2-AP-17	1B-AP-11, 1B-AP-12, 1B-AP-15, 2-AP-13, 2-AP-17
Illinois CS Standards	3-5.AP.08 3-5.AP.10 3-5.AP.11 3-5.AP.12 3-5.AP.15 3-5.ET.B 3-5.ET.E 6-8.AP.14 6-8.AP.16 6-8.AP.18 6-8.ET.B 6-8.ET.E	3-5.AP.08 3-5.AP.10 3-5.AP.11 3-5.AP.12 3-5.AP.15 3-5.ET.E 6-8.AP.14 6-8.AP.16 6-8.AP.18 6-8.ET.E	3-5.AP.08 3-5.AP.10 3-5.AP.11 3-5.AP.12 3-5.AP.15 3-5.ET.E 6-8.AP.14 6-8.AP.16 6-8.AP.18 6-8.ET.E	3-5.AP.08 3-5.AP.10 3-5.AP.11 3-5.AP.12 3-5.AP.15 3-5.ET.E 6-8.AP.12 6-8.AP.14 6-8.AP.16 6-8.AP.18 6-8.ET.E	3-5.AP.08 3-5.AP.10 3-5.AP.11 3-5.AP.12 3-5.AP.15 3-5.ET.A 3-5.ET.E 6-8.AP.14 6-8.AP.16 6-8.AP.18 6-8.ET.A 6-8.ET.E
ISTE Standards	1.1.c, 1.1.d, 1.4.d, 1.5.c, 1.6.b	1.1.c, 1.1.d, 1.4.d, 1.5.c, 1.6.b	1.1.c, 1.1.d, 1.4.d, 1.5.c, 1.6.b	1.1.c, 1.1.d, 1.4.d, 1.5.c, 1.6.b	1.1.c, 1.1.d, 1.4.d, 1.5.c, 1.6.b
UK National Curriculum	Keystage 2&3*	Keystage 2*	Keystage 2*	Keystage 2*	Keystage 2*
Sample Application of Skills	Create a project that uses face detecting AI to make it look like fire appears on the screen whenever the user opens their mouth.	Program a DJ set that uses hand detecting AI.	Create a project where a stick figure mirrors your every dance move.	Use object detection to center and crop an image on the Stage.	Create a project where the user types in what they want to eat or drink (based on the menu), then Codey will bring back food or a beverage.

*See individual lesson guides for details on UK Computer standards

Augmented Reality

Grades 5-7

Scope and Sequence

Each lesson takes about 45-60 minutes to complete.

Augmented Reality is a course for students in grades 5-7 who are ready to enter a world where real and virtual elements blend together. The games, puzzles, and projects engage students in developing computational thinking skills, as listed below from the CSTA Computer Science standards and Illinois CS Standards. The Common Core State Standards for Mathematics and English Language Arts that students develop are also listed here.

	Lesson 1 - Activating Visuals	Lesson 2 - Detecting Motion	Lesson 3 - Visual Effects	Lesson 4 - Tracking Motion	Lesson 5 - Masking Actors	Lesson 6 - Motion Direction	Lesson 7 - Boxing Match	Lesson 8 - Human Pong
Key Skills and Concepts	• Identify differences between real and virtual worlds • Use commands to program a photo booth	• Program Actors to respond to motion and play a sound • Use physics blocks to program Actors	• Use visual effect code blocks to match the Actor's dance moves • Create a music video and dancing game	• Use variables • Apply tracking effects	• Use masking to create projects • Design a maze	• Use the physics engine to program Actors • Use motion direction in a project	• Use variables • Create a game that detects video motion on a virtual opponent	• Create a two-player game that detects video motion
CCSS-Math Standards	MP.1	MP.1	MP.1	5.G.A.1 MP.1	MP.1	MP.1	MP.1	6.NS.C.6 MP.1, MP.2
CCSS-ELA Standards	RF.5.4.A,SL.5.1, RI.6.4 RI.6.7, SL.6.1, SL.7.1, SL.8.1	RF.5.4.A,SL.5.1, RI.6.4 RI.6.7, SL.6.1, SL.7.1, SL.8.1	RF.5.4.A,SL.5.1, RI.6.4 RI.6.7, SL.6.1, SL.7.1, SL.8.1	RF.5.4.A,SL.5.1, RI.6.4 RI.6.7, SL.6.1, SL.7.1, SL.8.1	RF.5.4.A,SL.5.1, RI.6.4 RI.6.7, SL.6.1, SL.7.1, SL.8.1	RF.5.4.A,SL.5.1, RI.6.4 RI.6.7, SL.6.1, SL.7.1, SL.8.1	RF.5.4.A,SL.5.1, RI.6.4 RI.6.7, SL.6.1, SL.7.1, SL.8.1	RF.5.4.A,SL.5.1, RI.6.4 RI.6.7, SL.6.1, SL.7.1, SL.8.1
CSTA Standards	1B-AP-11, 1B-AP-12 1B-AP-15, 2-AP-13 2-AP-16, 2-AP-17	1B-AP-10, 1B-AP-11 1B-AP-12, 1B-AP-15 2-AP-12, 2-AP-13 2-AP-16, 2-AP-17	1B-AP-11, 1B-AP-12 1B-AP-15, 2-AP-13 2-AP-16, 2-AP-17	1B-AP-09, 1B-AP-10 1B-AP-11, 1B-AP-12 1B-AP-15, 2-AP-11 2-AP-13, 2-AP-16, 2-AP-17	1B-AP-10, 1B-AP-11 1B-AP-12, 1B-AP-15 2-AP-12, 2-AP-13 2-AP-16, 2-AP-17	1B-AP-10, 1B-AP-11 1B-AP-12, 1B-AP-15 2-AP-12, 2-AP-13 2-AP-16, 2-AP-17	1B-AP-10, 1B-AP-11 1B-AP-12, 1B-AP-15 2-AP-10, 2-AP-11 2-AP-12, 2-AP-13 2-AP-14, 2-AP-15 2-AP-16, 2-AP-17	1B-AP-10, 1B-AP-11 1B-AP-12, 1B-AP-15 2-AP-10, 2-AP-11 2-AP-12, 2-AP-13 2-AP-14, 2-AP-15 2-AP-16, 2-AP-17
Illinois CS Standards	3-5.AP.11 3-5.AP.12 3-5.AP.15 6-8.AP.14 6-8.AP.17 6-8.AP.18 6-8.ET.B 6-8.ET.E	3-5.AP.10 3-5.AP.11 3-5.AP.12 3-5.AP.15 6-8.AP.13 6-8.AP.14 6-8.AP.17 6-8.AP.18 6-8.ET.E	3-5.AP.11 3-5.AP.12 3-5.AP.15 6-8.AP.14 6-8.AP.17 6-8.AP.18 6-8.ET.E	3-5.AP.09 3-5.AP.10 3-5.AP.11 3-5.AP.12 3-5.AP.15 6-8.AP.12 6-8.AP.14 6-8.AP.17 6-8.AP.18, 6-8.ET.E	3-5.AP.10 3-5.AP.11 3-5.AP.12 3-5.AP.15 6-8.AP.13 6-8.AP.14 6-8.AP.17 6-8.AP.18 6-8.ET.E	3-5.AP.10 3-5.AP.11 3-5.AP.12 3-5.AP.15 6-8.AP.13 6-8.AP.14 6-8.AP.17 6-8.AP.18 6-8.ET.E	3-5.AP.10 3-5.AP.11 3-5.AP.12 3-5.AP.15 6-8.AP.11, 6-8.AP.12 6-8.AP.13, 6-8.AP.14 6-8.AP.15, 6-8.AP.16 6-8.AP.17, 6-8.AP.18 6-8.ET.B, 6-8.ET.E	3-5.AP.10 3-5.AP.11 3-5.AP.12 3-5.AP.15 6-8.AP.11, 6-8.AP.12 6-8.AP.13, 6-8.AP.14 6-8.AP.15, 6-8.AP.16 6-8.AP.17, 6-8.AP.18 6-8.ET.E
ISTE Standards	1.c, 1.d, 4.d, 5.c, 5.d, 6.b	1.c, 1.d, 4.d, 5.c, 5.d, 6.b	1.c, 1.d, 4.d, 5.c, 5.d, 6.b	1.c, 1.d, 4.d, 5.c, 5.d, 6.b	1.c, 1.d, 4.d, 5.c, 5.d, 6.b	1.c, 1.d, 4.d, 5.c, 5.d, 6.b	1.c, 1.d, 4.d, 5.c, 5.d, 6.b	1.c, 1.d, 4.d, 5.c, 5.d, 6.b
UK National Curriculum	Key stage 2 & 3 Computing*	Key stage 2 & 3 Computing*	Key stage 2 & 3 Computing*	Key stage 2 & 3 Computing*	Key stage 2 & 3 Computing*	Key stage 2 & 3 Computing*	Key stage 2 & 3 Computing*	Key stage 2 & 3 Computing*
Sample Application of Skills	Create a customized photo booth with props.	Detect real-world motion on a virtual Actor.	Apply transparency and mirroring effects to the camera feed.	Track brightly colored real-world objects as they move.	Import pictures into Actors and use masking commands to isolate specific areas.	Track the direction of real-world motion on an Actor.	Create a boxing game where students will throw punches at a virtual opponent.	Create a multiplayer game of Pong where two people act as the paddles.

*See individual lesson guides for details on UK Computer standards

Augmented Reality
Scope and Sequence

Grades 5-7

Each lesson takes about 45-60 minutes to complete.

Augmented Reality is a course for students in grades 5-7 who are ready to enter a world where real and virtual elements blend together. The games, puzzles, and projects engage students in developing computational thinking skills, as listed below from the CSTA Computer Science standards and Illinois CS Standards. The Common Core State Standards for Mathematics and English Language Arts that students develop are also listed here.

	Lesson 9 - Brick Breaker	Lesson 10 - Fruit Ninja						
Key Skills and Concepts	• Use color calibration to move a Paddle Actor • Create an augmented reality Brick Breaker game	• Use clone blocks to program Actors • Create an augmented reality Fruit Ninja game						
CCSS-Math Standards	6.NS.C.6 MP.1	5.G.A.1 MP.1, MP.2						
CCSS-ELA Standards	RF.5.4.A,SL.5.1, RI.6.4 RI.6.7, SL.6.1, SL.7.1, SL.8.1	RF.5.4.A,SL.5.1, RI.6.4 RI.6.7, SL.6.1, SL.7.1, SL.8.1						
CSTA Computer Science Standards	1B-AP-10, 1B-AP-11, 1B-AP-12, 1B-AP-15 2-AP-10, 2-AP-11 2-AP-12, 2-AP-13 2-AP-14, 2-AP-15 2-AP-16, 2-AP-17	1B-AP-10, 1B-AP-11, 1B-AP-12, 1B-AP-15 2-AP-10, 2-AP-11 2-AP-12, 2-AP-13 2-AP-14, 2-AP-15 2-AP-16, 2-AP-17						
Illinois CS Standards	3-5.AP.10 3-5.AP.11 3-5.AP.12 3-5.AP.15 6-8.AP.11, 6-8.AP.12 6-8.AP.13, 6-8.AP.14 6-8.AP.15, 6-8.AP.16 6-8.AP.17, 6-8.AP.18 6-8.ET.E	3-5.AP.10 3-5.AP.11 3-5.AP.12 3-5.AP.15 6-8.AP.11, 6-8.AP.12 6-8.AP.13, 6-8.AP.14 6-8.AP.15, 6-8.AP.16 6-8.AP.17, 6-8.AP.18 6-8.ET.E						
ISTE Standards	1.c, 1.d, 4.d, 5.c, 5.d, 6.b	1.c, 1.d, 4.d, 5.c, 5.d, 6.b						
UK National Curriculum	Key stage 2 & 3 Computing*	Key stage 2 & 3 Computing*						
Sample Application of Skills	Create and game of Brick Breaker using hand gestures.	Create a game of Fruit Ninja where students slice fruit with their hand.						

*See individual lesson guides for details on UK Computer standards

Drones 101 — Grades 5-7

Scope and Sequence

Each lesson takes about 45-60 minutes to complete.

The Drones 101 course uses a physical drone and tablet (each sold separately). Students will learn about coding and how to program a real-life drone by using a combination of interactive lessons, concept explanations, videos, puzzles, and DIY projects. This course engages students in developing computational thinking skills, as listed below from the CSTA Standards and UK Computing standards. The Common Core State Standards for Mathematics and English Language Arts that students develop are also listed here.

	Lesson 1 - Flight Training	Lesson 2 - Aerobatics	Lesson 3 - Pilot's Wings	Lesson 4 - Dronie	Lesson 5 - Skywriting	Lesson 6 - Remote Control
Key Skills and Concepts	• Use drone code blocks to solve puzzle modules • Set the speed of a drone • Calculate how many seconds the drone needs to move	• Use code blocks to move the drone left, right, and backwards without turning • Connect a real drone to a device (tablet)	• Use code blocks to make a drone navigate through obstacles • Design and build an obstacle course	• Use code blocks to make the drone fly high and take a picture • Identify advantages and disadvantages of using drones to take aerial pictures	• Identify patterns in code sequences • Use counting loops with numerical parameters • Use a forever loop	• Create and use functions • Create button Actors that can be used to control the drone
CCSS-Math Standards	MP.1	MP.1	MP.1	MP.1	MP.1	MP.1
CCSS-ELA Standards	SL.5.1, 6-8.RST.3 6-8.RST.4, 6-8.RST.7 RI.7.4	SL.5.1, 6-8.RST.3 6-8.RST.4, 6-8.RST.7 RI.7.4	SL.5.1, 6-8.RST.3 6-8.RST.4, 6-8.RST.7 RI.7.4	SL.5.1, 6-8.RST.3 6-8.RST.4, 6-8.RST.7 RI.7.4	SL.5.1, 6-8.RST.3 6-8.RST.4, 6-8.RST.7 RI.7.4	SL.5.1, 6-8.RST.3 6-8.RST.4, 6-8.RST.7 RI.7.4
CSTA Standards	1B-CS-02, 1B-CS-03 1B-AP-11, 1B-AP-12 1B-AP-15, 2-CS-02 2-CS-03, 2-AP-10 2-AP-11, 2-AP-13 2-AP-14, 2-AP-15 2-AP-16 3A-AP-17, 3B-AP-22	1B-CS-02, 1B-CS-03 1B-AP-11, 1B-AP-12 1B-AP-15, 2-CS-02 2-CS-03, 2-AP-10 2-AP-11, 2-AP-13 2-AP-14, 2-AP-15 2-AP-16	1B-CS-02, 1B-CS-03 1B-AP-11, 1B-AP-12 1B-AP-15, 2-CS-02 2-CS-03, 2-AP-10 2-AP-11, 2-AP-13 2-AP-14, 2-AP-15 2-AP-16	1B-CS-02, 1B-CS-03 1B-AP-11, 1B-AP-12 1B-AP-15, 2-CS-02 2-CS-03, 2-AP-10 2-AP-11, 2-AP-13 2-AP-14, 2-AP-15 2-AP-16	1B-CS-02, 1B-CS-03 1B-AP-11, 1B-AP-12 1B-AP-15, 2-CS-02 2-CS-03, 2-AP-10 2-AP-11, 2-AP-13 2-AP-14, 2-AP-15 2-AP-16	1B-CS-02, 1B-CS-03 1B-AP-11, 1B-AP-12 1B-AP-15, 2-CS-02 2-CS-03, 2-AP-10 2-AP-11, 2-AP-13 2-AP-14, 2-AP-15 2-AP-16
Illinois CS Standards	3-5.CS.02, 3-5.CS.03 3-5.AP.08, 3-5.AP.11 3-5.AP.12, 3-5.AP.13 3-5.AP.15, 3-5.AP.17 6-8.CS.02, 6-8.CS.03 6-8.AP.11, 6-8.AP.14	3-5.CS.02, 3-5.CS.03 3-5.AP.08, 3-5.AP.11 3-5.AP.12, 3-5.AP.13 3-5.AP.15, 3-5.AP.17 6-8.CS.02, 6-8.CS.03 6-8.AP.11, 6-8.AP.14	3-5.CS.02, 3-5.CS.03 3-5.AP.08, 3-5.AP.11 3-5.AP.12, 3-5.AP.13 3-5.AP.15, 3-5.AP.17 6-8.CS.02, 6-8.CS.03 6-8.AP.11, 6-8.AP.14	3-5.CS.02, 3-5.CS.03 3-5.AP.08, 3-5.AP.11 3-5.AP.12, 3-5.AP.13 3-5.AP.15, 3-5.AP.17 6-8.CS.02, 6-8.CS.03 6-8.AP.11, 6-8.AP.14	3-5.CS.02, 3-5.CS.03 3-5.AP.08, 3-5.AP.11 3-5.AP.12, 3-5.AP.13 3-5.AP.15, 3-5.AP.17 6-8.CS.02, 6-8.CS.03 6-8.AP.11, 6-8.AP.14	3-5.CS.02, 3-5.CS.03 3-5.AP.08, 3-5.AP.11 3-5.AP.12, 3-5.AP.13 3-5.AP.15, 3-5.AP.17 6-8.CS.02, 6-8.CS.03 6-8.AP.11, 6-9.AP.14 6-8.AP.15
ISTE Standards	1.1.c, 1.1.d, 1.4.d, 1.5.c, 1.5.d, 1.6.b	1.1.c, 1.1.d, 1.4.d, 1.5.c, 1.5.d, 1.6.b	1.1.c, 1.1.d, 1.4.d, 1.5.c, 1.5.d, 1.6.b	1.1.c, 1.1.d, 1.4.d, 1.5.c, 1.5.d, 1.6.b	1.1.c, 1.1.d, 1.4.d, 1.5.c, 1.5.d, 1.6.b	1.1.c, 1.1.d, 1.4.d, 1.5.c, 1.5.d, 1.6.b
UK National Curriculum	Key stage 2*	Key stage 2*	Key stage 2*	Key stage 2*	Key stage 2*	Key stage 2*
Sample Application of Skills	Learn the fundamentals of how to code a drone.	Program a real drone to take off, turn, and land.	Use the Tynker mobile app to connect a real drone to fly.	Program the drone to fly up, then take a group picture of the class.	Draw shapes in the sky using the drone.	Create a remote controller within Tynker for the drone.

*See individual lesson guides for details on UK Computer standards

Drones 101 — Grades 5-7

Scope and Sequence

Each lesson takes about 45-60 minutes to complete.

The Drones 101 course uses a physical drone and tablet (each sold separately). Students will learn about coding and how to program a real-life drone by using a combination of interactive lessons, concept explanations, videos, puzzles, and DIY projects. This course engages students in developing computational thinking skills, as listed below from the CSTA Standards and UK Computing standards. The Common Core State Standards for Mathematics and English Language Arts that students develop are also listed here.

	Lesson 7 - Fly by Feel	Lesson 8 - Advanced Movement	Lesson 9 - Virtual Pilot	Lesson 10 - Virtual Pilot 2	Lesson 11 - Grabber and Cannon	
Key Skills and Concepts	• Apply conditional logic • Use code to check what direction the tablet is titled	• Combine movement and rotation code blocks • Make the drone rotate in different directions	• Use functions • Apply conditional logic	• Create and use variables • Change and set the value of a variable	• Use drone drone's grabber and cannon attachments • Apply conditional logic • Use loops	
CCSS-Math Standards	MP.1	MP.1	MP.1	MP.1	MP.1	
CCSS-ELA Standards	SL.5.1, 6-8.RST.3 6-8.RST.4, 6-8.RST.7 RI.7.4	SL.5.1, 6-8.RST.3 6-8.RST.4, 6-8.RST.7 RI.7.4	SL.5.1, 6-8.RST.3 6-8.RST.4, 6-8.RST.7 RI.7.4	SL.5.1, 6-8.RST.3 6-8.RST.4, 6-8.RST.7 RI.7.4	SL.5.1, 6-8.RST.3 6-8.RST.4, 6-8.RST.7 RI.7.4	
CSTA Standards	1B-CS-02, 1B-CS-03 1B-AP-11, 1B-AP-12 1B-AP-15, 2-CS-02 2-CS-03, 2-AP-10 2-AP-11, 2-AP-13 2-AP-14, 2-AP-15 2-AP-16	1B-CS-02, 1B-CS-03 1B-AP-11, 1B-AP-12 1B-AP-15, 2-CS-02 2-CS-03, 2-AP-10 2-AP-11, 2-AP-13 2-AP-14, 2-AP-15 2-AP-16	1B-CS-02, 1B-CS-03 1B-AP-11, 1B-AP-12 1B-AP-15, 2-CS-02 2-CS-03, 2-AP-10 2-AP-11, 2-AP-13 2-AP-14, 2-AP-15 2-AP-16	1B-CS-02, 1B-CS-03 1B-AP-11, 1B-AP-12 1B-AP-15, 2-CS-02 2-CS-03, 2-AP-10 2-AP-11, 2-AP-13 2-AP-14, 2-AP-15 2-AP-16	1B-CS-02, 1B-CS-03 1B-AP-11, 1B-AP-12 1B-AP-15, 2-CS-02 2-CS-03, 2-AP-10 2-AP-11, 2-AP-13 2-AP-14, 2-AP-15 2-AP-16	
Illinois CS Standards	3-5.CS.02, 3-5.CS.03 3-5.AP.08, 3-5.AP.11 3-5.AP.12, 3-5.AP.13 3-5.AP.15, 3-5.AP.17 6-8.CS.02, 6-8.CS.03 6-8.AP.11, 6-8.AP.14	3-5.CS.02, 3-5.CS.03 3-5.AP.08, 3-5.AP.11 3-5.AP.12, 3-5.AP.13 3-5.AP.15, 3-5.AP.17 6-8.CS.02, 6-8.CS.03 6-8.AP.11, 6-8.AP.14	3-5.CS.02, 3-5.CS.03 3-5.AP.08, 3-5.AP.11 3-5.AP.12, 3-5.AP.13 3-5.AP.15, 3-5.AP.17 6-8.CS.02, 6-8.CS.03 6-8.AP.11, 6-8.AP.14	3-5.CS.02, 3-5.CS.03 3-5.AP.08, 3-5.AP.11 3-5.AP.12, 3-5.AP.13 3-5.AP.15, 3-5.AP.17 6-8.CS.02, 6-8.CS.03 6-8.AP.11, 6-8.AP.12 6-8.AP.14	3-5.CS.02, 3-5.CS.03 3-5.AP.08, 3-5.AP.11 3-5.AP.12, 3-5.AP.13 3-5.AP.15, 3-5.AP.17 6-8.CS.02, 6-8.CS.03 6-8.AP.11, 6-8.AP.14	
ISTE Standards	1.1.c, 1.1.d, 1.4.d, 1.5.c, 1.5.d, 1.6.b	1.1.c, 1.1.d, 1.4.d, 1.5.c, 1.5.d, 1.6.b	1.1.c, 1.1.d, 1.4.d, 1.5.c, 1.5.d, 1.6.b	1.1.c, 1.1.d, 1.4.d, 1.5.c, 1.5.d, 1.6.b	1.1.c, 1.1.d, 1.4.d, 1.5.c, 1.5.d, 1.6.b	
UK National Curriculum	Key stage 2*	Key stage 2*	Key stage 2*	Key stage 2*	Key stage 2*	
Sample Application of Skills	Make a custom controller that uses input from the tablet to steer the drone.	Make the drone fly in a curved path.	Program a virtual and real-life drone to do tricks and stunts.	Program a virtual and real-life drone to do advanced maneuvers.	Complete fun missions using the drone's grabber and cannon attachment.	

*See individual lesson guides for details on UK Computer standards