Level 1

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Unit	Lesson objective	Key code blocks	Vocabulary	CAS Pathway links
On the move Student guide Lesson plans: Under the sea Royal chase Transport on the go Another planet	Learn that programs execute by following clear instructions. Understand that programs respond to inputs to do different things.	Object Command Start event Click event	Run Code Action Execute Program Algorithm	**Algorithms** • Understands what an algorithm is and is able to express simple linear (non-branching) algorithms symbolically. (AL) • Understands that computers need precise instructions. (AL) • Demonstrates care and precision to avoid errors. (AL) **Programming and development** • Executes, checks and changes programs. (AL) • Understands that programs execute by following precise instructions. (AL)
Simple inputs Student guide Lesson plans: Burst the bubbles Catch the fish Magic castle Emergency!	Learn to combine start and input events to create more advanced apps and programs using precise instructions.	Object Command Start event Click event	Object Action Input	**Algorithms** • Understands what an algorithm is and is able to express simple linear (non-branching) algorithms symbolically. (AL) • Understands that computers need precise instructions. (AL) • Demonstrates care and precision to avoid errors. (AL) **Programming and development** • Executes, checks and changes programs. (AL) • Understands that programs execute by following precise instructions. (AL)

Level 2

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Unit	Lesson objective	Key code blocks	Vocabulary	CAS Pathway links
Different sorts of inputs Student guide Lesson plans: Red Riding Hood Key to the race Up in the air Shark attack Snow White	Learn that programs respond to different sorts of inputs, and that the keyboard can be used to control objects on screen, not just by clicking them directly.	Key press event Pointer event	Output Input Pointer Key press Algorithm	**Algorithms** • Understands what an algorithm is and is able to express simple linear (non-branching) algorithms symbolically. (AL) • Understands that computers need precise instructions. (AL) • Demonstrates care and precision to avoid errors. (AL) • Detects and corrects errors i.e. debugging, in algorithms. (AL) **Programming and development** • Executes, checks and changes programs. (AL) • Understands that programs execute by following precise instructions. (AL) • Detects and corrects simple semantic errors i.e. debugging, in programs. (AL)
Buttons and instructions Student guide Lesson plans: Fly a helicopter Slug hunt Find my cat! Hungry Migbod	Learn that one object can be used to control another object, e.g. writing code so clicking a button gives an instruction to make a lorry move.	Button object Click event	Output Input Button	**Algorithms** • Understands what an algorithm is and is able to express simple linear (non-branching) algorithms symbolically. (AL) • Understands that computers need precise instructions. (AL) • Demonstrates care and precision to avoid errors. (AL) • Detects and corrects errors i.e. debugging, in algorithms. (AL) **Programming and development** • Executes, checks and changes programs. (AL) • Understands that programs execute by following precise instructions. (AL)

Level 3

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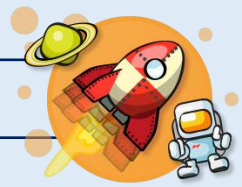

Unit	Lesson objective	Key code blocks	Vocabulary	CAS Pathway links
Sequence and animation Student guide Lesson plans: Stepping through Snail vs spider Alien space race Traffic lights	Learn to make things happen in a sequence, creating simple animations and simulations.	Timer event Step command Wait command	Sequence Command Timer	**Algorithms** • Designs simple algorithms using loops, and selection i.e. if statements. (AL) • Uses logical reasoning to predict outcomes. (AL) • Detects and corrects errors i.e. debugging, in algorithms. (AL) **Programming and development** • Uses logical reasoning to predict the behaviour of programs. (AL) • Detects and corrects simple semantic errors i.e. debugging, in programs. (AL)
Conditional events (selection) Student guide Lesson plans: Space maze Self-driving car Hungry snake Pufferfish pop	Learn to code with 'if statements', which select different pieces of code to execute depending on what happens to other objects.	Hit event Object Value	Selection Condition	**Algorithms** • Designs simple algorithms using loops, and selection i.e. if statements. (AL) • Uses logical reasoning to predict outcomes. (AL) • Detects and corrects errors i.e. debugging, in algorithms. (AL) **Programming and development** • Uses arithmetic operators, if statements, and loops, within programs. (AL) • Uses logical reasoning to predict the behaviour of programs. (AL) • Detects and corrects simple semantic errors i.e. debugging, in programs. (AL)

Level 4

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Unit	Lesson objective	Key code blocks	Vocabulary	CAS Pathway links
Introduction to variables Student guide Lesson plans: Pop game Catch the coconuts! Healthy eating Tablet till Pirate gold	Learn how computers use variables to count things and keep track of what is going on, then create simple games which use a score variable.	Variable Set command Change command Hit event Click event	Variable Change Set Value Score Condition	**Algorithms** • Designs solutions (algorithms) that use repetition and two-way selection i.e. if, then and else. (AL) • Uses diagrams to express solutions. (AB) • Uses logical reasoning to predict outputs, showing an awareness of inputs. (AL) **Programming and development** • Creates programs that implement algorithms to achieve given goals. (AL) • Declares and assigns variables. (AB)
Repetition and loops Student guide Lesson plans: Bugs in the garden Driving me loopy Astronaut orbit Hot air balloon show	Learn how computers use repetition and loops to do things over and over again (and again!).	Repeat loop Always loop Timer loop If statement Variable	Loop Nesting Infinite Repeat Condition	**Algorithms** • Designs solutions (algorithms) that use repetition and two-way selection i.e. if, then and else. (AL) • Uses diagrams to express solutions. (AB) • Uses logical reasoning to predict outputs, showing an awareness of inputs. (AL) **Programming and development** • Creates programs that implement algorithms to achieve given goals. (AL) • Declares and assigns variables. (AB)

Level 5

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Unit	Lesson objective	Key code blocks	Vocabulary	CAS Pathway links
Speed, direction and coordinates Student guide Lesson plans: Faster and slower Speedy simulation Sailing the seas Parachuting cows	Learn how computers use numbers to represent things such as how fast things are moving, and where they are.	Set command Change command Value	Property Value Parameter Coordinate Axis Heading Angle Speed	**Algorithms** • Designs solutions (algorithms) that use repetition and two-way selection i.e. if, then and else. (AL) • Uses diagrams to express solutions. (AB) • Uses logical reasoning to predict outputs, showing an awareness of inputs. (AL) • Designs solutions by decomposing a problem and creates a sub-solution for each of these parts. (DE) (AL) (AB) • Recognises that different solutions exist for the same problem. (AL) (AB) **Programming and development** • Creates programs that implement algorithms to achieve given goals. (AL) • Declares and assigns variables. (AB) • Designs solutions by decomposing a problem and creates a sub-solution for each of these parts. (DE) (AL) (AB) • Recognises that different solutions exist for the same problem. (AL) (AB)

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Unit	Lesson objective	Key code blocks	Vocabulary	CAS Pathway links
Random numbers and simulations Student guide Lesson plans: Racing at random Caterpillar catcher Cross the road Ping pong Pinball	Learn how computers can generate random numbers and how these can be used in simulations.	Random operator Set command Change command Value	Random Range Heading Coordinate Simulation Property	**Algorithms** • Designs solutions (algorithms) that use repetition and two-way selection i.e. if, then and else. (AL) • Uses diagrams to express solutions. (AB) • Uses logical reasoning to predict outputs, showing an awareness of inputs. (AL) • Designs solutions by decomposing a problem and creates a sub-solution for each of these parts. (DE) (AL) (AB) • Recognises that different solutions exist for the same problem. (AL) (AB) **Programming and development** • Creates programs that implement algorithms to achieve given goals. (AL) • Declares and assigns variables. (AB) • Designs solutions by decomposing a problem and creates a sub-solution for each of these parts. (DE) (AL) (AB) • Recognises that different solutions exist for the same problem. (AL) (AB) • Uses a variable and relational operators within a loop to govern termination. (AL) (GE)

Level 6

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Unit	Lesson objective	Key code blocks	Vocabulary	CAS Pathway links
More complex variables Student guide Lesson plans: Shape-shifting Pop challenge Toy shop till Stopwatch	Learn to use variables in more complex ways, and to manipulate inputs to create useful outputs.	Comparison operator Variable Value If statement	Input Variable Boolean True False	**Algorithms** • Designs solutions (algorithms) that use repetition and two-way selection i.e. if, then and else. (AL) • Uses logical reasoning to predict outputs, showing an awareness of inputs. (AL) • Designs solutions by decomposing a problem and creates a sub-solution for each of these parts. (DE) (AL) (AB) • Recognises that different solutions exist for the same problem. (AL) (AB) • Can identify similarities and differences in situations and can use these to solve problems (pattern recognition). (GE) **Programming and development** • Creates programs that implement algorithms to achieve given goals. (AL) • Declares and assigns variables. (AB) • Designs solutions by decomposing a problem and creates a sub-solution for each of these parts. (DE) (AL) (AB) • Recognises that different solutions exist for the same problem. (AL) (AB) • Uses a variable and relational operators within a loop to govern termination. (AL) (GE) • Uses a range of operators and expressions e.g. Boolean, and applies them in the context of program control. (AL) • Selects the appropriate data types. (AL) (AB)

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Unit	Lesson objective	Key code blocks	Vocabulary	CAS Pathway links
Object properties Student guide Lesson plans: Don't feed the birds Rocket blaster Football fun Sheepdog Golf game	Learn more about how computers use property values and parameters to store information about objects.	Operator Get command Set command Value Variable	Parameter Property Simulation Heading Friction	**Algorithms** • Designs solutions (algorithms) that use repetition and two-way selection i.e. if, then and else. (AL) • Uses logical reasoning to predict outputs, showing an awareness of inputs. (AL) • Designs solutions by decomposing a problem and creates a sub-solution for each of these parts. (DE) (AL) (AB) • Recognises that different solutions exist for the same problem. (AL) (AB) • Can identify similarities and differences in situations and can use these to solve problems (pattern recognition). (GE) **Programming and development** • Creates programs that implement algorithms to achieve given goals. (AL) • Declares and assigns variables. (AB) • Designs solutions by decomposing a problem and creates a sub-solution for each of these parts. (DE) (AL) (AB) • Recognises that different solutions exist for the same problem. (AL) (AB) • Uses a variable and relational operators within a loop to govern termination. (AL) (GE) • Uses a range of operators and expressions e.g. Boolean, and applies them in the context of program control. (AL) • Selects the appropriate data types. (AL) (AB)