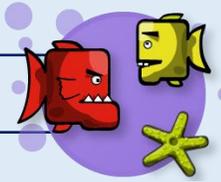


Level 1



| Unit | Lesson objective | Key code blocks | Vocabulary | CAS Pathway links |
|----------------------|---|--|---|---|
| On the move | <p>Learn that programs execute by following clear instructions.</p> <p>Understand that programs respond to inputs to do different things.</p> | <p>Object</p> <p>Command</p> <p>Start event</p> <p>Click event</p> | <p>Run</p> <p>Code</p> <p>Action</p> <p>Execute</p> <p>Program</p> <p>Algorithm</p> | <p>Algorithms</p> <ul style="list-style-type: none">• 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) <p>Programming and development</p> <ul style="list-style-type: none">• Executes, checks and changes programs. (AL)• Understands that programs execute by following precise instructions. (AL) |
| Simple inputs | <p>Learn to combine start and input events to create more advanced apps and programs using precise instructions.</p> | <p>Object</p> <p>Command</p> <p>Start event</p> <p>Click event</p> | <p>Object</p> <p>Action</p> <p>Input</p> | <p>Algorithms</p> <ul style="list-style-type: none">• 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) <p>Programming and development</p> <ul style="list-style-type: none">• Executes, checks and changes programs. (AL)• Understands that programs execute by following precise instructions. (AL) |

Level 2



| Unit | Lesson objective | Key code blocks | Vocabulary | CAS Pathway links |
|----------------------------------|---|----------------------------------|--|---|
| Different sorts of inputs | 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 <ul style="list-style-type: none">• 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 <ul style="list-style-type: none">• 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 | 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 <ul style="list-style-type: none">• 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 <ul style="list-style-type: none">• Executes, checks and changes programs. (AL)• Understands that programs execute by following precise instructions. (AL) |

Level 3



| Unit | Lesson objective | Key code blocks | Vocabulary | CAS Pathway links |
|---------------------------------------|--|---|------------------------------|--|
| Sequence and animation | Learn to make things happen in a sequence, creating simple animations and simulations. | Timer event Step command Wait command | Sequence Command Timer | Algorithms <ul style="list-style-type: none">• 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 <ul style="list-style-type: none">• 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) | 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 <ul style="list-style-type: none">• 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 <ul style="list-style-type: none">• 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



| Unit | Lesson objective | Key code blocks | Vocabulary | CAS Pathway links |
|----------------------------------|--|---|--|--|
| Introduction to variables | 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 <ul style="list-style-type: none">• 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 <ul style="list-style-type: none">• Creates programs that implement algorithms to achieve given goals. (AL)• Declares and assigns variables. (AB) |
| Repetition and loops | 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 <ul style="list-style-type: none">• 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 <ul style="list-style-type: none">• Creates programs that implement algorithms to achieve given goals. (AL)• Declares and assigns variables. (AB) |

Level 5



| Unit | Lesson objective | Key code blocks | Vocabulary | CAS Pathway links |
|---|---|--|---|--|
| Speed, direction and coordinates | 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 <ul style="list-style-type: none">• 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 <ul style="list-style-type: none">• 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) |



| Unit | Lesson objective | Key code blocks | Vocabulary | CAS Pathway links |
|---------------------------------------|---|---|--|--|
| Random numbers and simulations | 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 <ul style="list-style-type: none">• 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 <ul style="list-style-type: none">• 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



| Unit | Lesson objective | Key code blocks | Vocabulary | CAS Pathway links |
|-------------------------------|---|--|---|--|
| More complex variables | 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 <ul style="list-style-type: none">• 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 <ul style="list-style-type: none">• 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) |



| Unit | Lesson objective | Key code blocks | Vocabulary | CAS Pathway links |
|--------------------------|---|---|--|--|
| Object properties | 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 <ul style="list-style-type: none">• 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 <ul style="list-style-type: none">• 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) |