
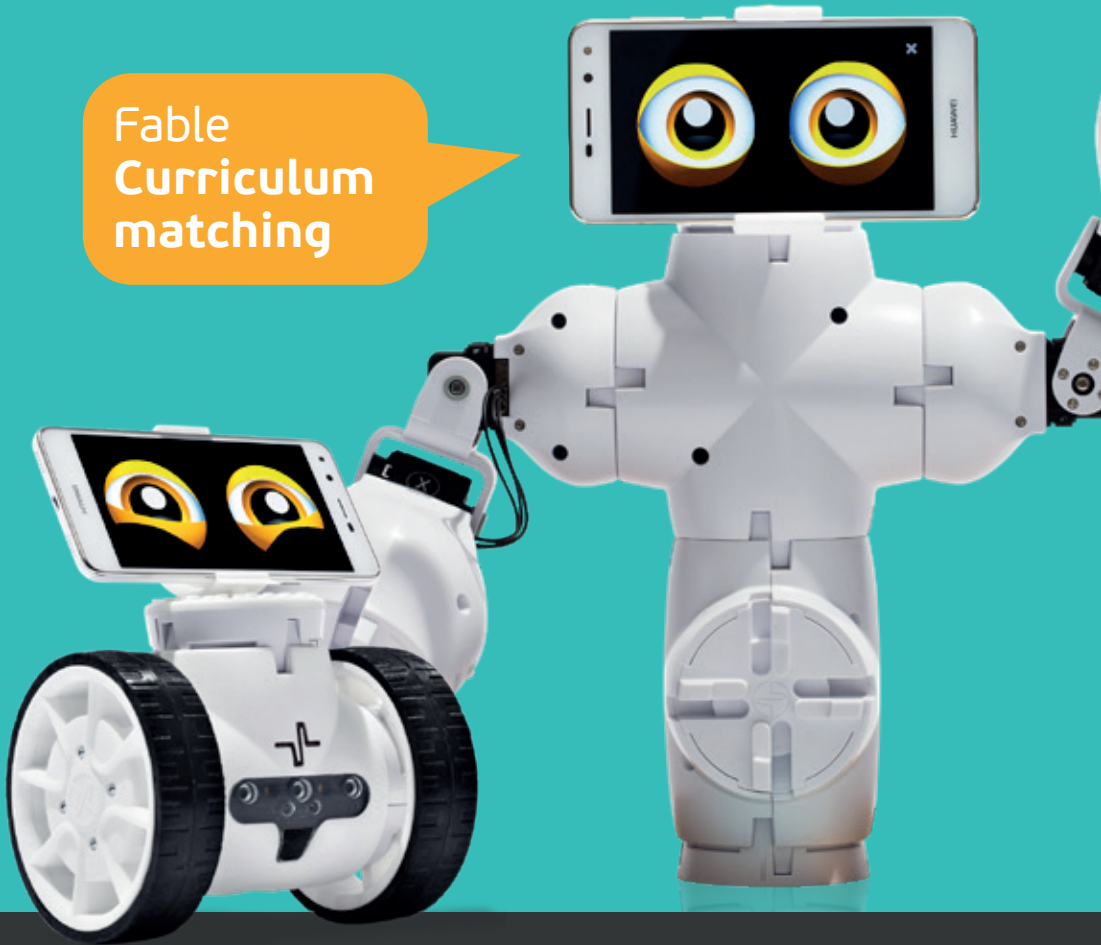


fable

 Shape
Robotics

Fable
Curriculum
matching



A motivational learning system

www.shaperobotics.com

Lesson Title Grades	UK equivalent	Computing concepts covered (according to Shape Robotics lesson plans)	National curriculum links
F1 Throwing Robot	5-6 (Yrs 6-7)	This will also link with the Science and Maths curriculum.	<p>KS2</p> <ul style="list-style-type: none"> - design, write and debug programs that accomplish specific goals - controlling or simulating physical systems - solve problems by decomposing them into smaller parts - use sequence in programs - use selection in programs - use repetition in programs - work with various forms of input and output - use logical reasoning to explain how some simple algorithms work and to detect and correct errors in algorithms and programs <p>KS3</p> <ul style="list-style-type: none"> - design, use and evaluate computational abstractions that model the state and behaviour of real-world problems and physical systems - understand several key algorithms that reflect computational thinking [for example, ones for sorting and searching]; - use logical reasoning to compare the utility of alternative algorithms for the same problem - use two or more programming languages, at least one of which is textual, to solve a variety of computational problems;

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F2 Parabolas	9 (Yr 10)	This will also link with the Science and Maths curriculum.	<p>KS3</p> <ul style="list-style-type: none"> - design, use and evaluate computational abstractions that model the state and behaviour of real-world problems and physical systems - understand several key algorithms that reflect computational thinking [for example, ones for sorting and searching]; - use logical reasoning to compare the utility of alternative algorithms for the same problem - use two or more programming languages, at least one of which is textual, to solve a variety of computational problems; <p>KS4</p> <ul style="list-style-type: none"> - develop and apply their analytic, problem-solving, design, and computational thinking skills
F3 The Pulling Force of Fable	7-8 (Yrs 8-9)	<p>The pupil can program using block structured programming.</p> <p>The pupil can use debug their programming.</p> <p>The pupil can optimise and correct their programming using logic reasoning.</p> <p>This will also link with the Science and Maths curriculum.</p>	<p>KS3</p> <ul style="list-style-type: none"> - design, use and evaluate computational abstractions that model the state and behaviour of real-world problems and physical systems - use logical reasoning to compare the utility of alternative algorithms for the same problem - use two or more programming languages, at least one of which is textual, to solve a variety of computational problems;

Fable lesson plans matched to UK National Curriculum Computing Program of Study

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F4 Solar panel	8-9 (Yrs 9-10)	This will also link to the Science curriculum.	<p>KS3</p> <ul style="list-style-type: none"> – design, use and evaluate computational abstractions that model the state and behaviour of real-world problems and physical systems – understand several key algorithms that reflect computational thinking [for example, ones for sorting and searching]; – use logical reasoning to compare the utility of alternative algorithms for the same problem – use two or more programming languages, at least one of which is textual, to solve a variety of computational problems; – design and develop modular programs that use procedures or functions – understand simple Boolean logic [for example, AND, OR and NOT] and some of its uses in circuits and programming; <p>KS4</p> <ul style="list-style-type: none"> – design, use and evaluate develop and apply their analytic, problem-solving, design, and computational thinking skills

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F5 Wind power	8-9 (Yrs 9-10)	<p>This will also link to the Science curriculum.</p> <p>The student is able to program using block programming.</p> <p>The student is able to create repetitions and check for defects (debugging) in the program.</p> <p>The student can use logical reasoning to optimize and correct coding.</p>	<p>KS3</p> <ul style="list-style-type: none"> – design, use and evaluate computational abstractions that model the state and behaviour of real-world problems and physical systems – understand several key algorithms that reflect computational thinking [for example, ones for sorting and searching]; – use logical reasoning to compare the utility of alternative algorithms for the same problem – use two or more programming languages, at least one of which is textual, to solve a variety of computational problems; – design and develop modular programs that use procedures or functions – understand simple Boolean logic [for example, AND, OR and NOT] and some of its uses in circuits and programming; <p>KS4</p> <ul style="list-style-type: none"> – develop and apply their analytic, problem-solving, design, and computational thinking skills

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F6 Pythagoras	8-9 (Yrs 9-10)	This will also link to the Maths curriculum. The pupil should be able to create simple programs using block structured programming. The pupil should be able to program repetition and do debugging. The pupil should be able to use logic reasoning to optimise and correct the programming.	<p>KS3</p> <ul style="list-style-type: none"> – design, use and evaluate computational abstractions that model the state and behaviour of real-world problems and physical systems – understand several key algorithms that reflect computational thinking [for example, ones for sorting and searching]; – use logical reasoning to compare the utility of alternative algorithms for the same problem – use two or more programming languages, at least one of which is textual, to solve a variety of computational problems; – design and develop modular programs that use procedures or functions <p>KS4</p> <ul style="list-style-type: none"> – develop and apply their analytic, problem-solving, design, and computational thinking skills

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F7 Geometry	3 (Yr 4)	<p>This will also link to the Maths curriculum.</p> <p>Level 1: The pupils can translate a geometric shape into a programming sequence.</p> <p>Level 2: The pupils can create a shape to scale in accordance with a scalable programming sequence</p> <p>Level 3: The pupils can refine their programming sequence, so that they, via programming, can transform their geometric shape.</p>	<p>KS2</p> <ul style="list-style-type: none"> – design, write and debug programs that accomplish specific goals – controlling or simulating physical systems – solve problems by decomposing them into smaller parts – use sequence in programs – use repetition in programs – work with various forms of input and output – use logical reasoning to explain how some simple algorithms work and to detect and correct errors in algorithms and programs

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F8 Converting and reading speed and distance	7-8 (yrs 8-9)	This will also link to the Maths and Science curriculum. Also to the Design and Technology curriculum if a 3D printer is used. The pupils have a knowledge of methods for measuring and designing in select programs. The pupils have a knowledge of the relation between the engine power of the robot and the circumference of the wheel, to determine to speed of the robot.	KS3 <ul style="list-style-type: none"> – design, use and evaluate computational abstractions that model the state and behaviour of real-world problems and physical systems – use logical reasoning to compare the utility of alternative algorithms for the same problem – use two or more programming languages, at least one of which is textual, to solve a variety of computational problems; ; – design and develop modular programs that use procedures or functions – understand simple Boolean logic [for example, AND, OR and NOT] and some of its uses in circuits and programming;
F9 The significance of technology for people's health and living conditions	7-9 (8-9)	This has several cross curricular links. The pupil can create sequential programs, that can accomplish simple objectives. The pupil understands that programs are executed by following simple, exact, and precise instructions.	KS3 <ul style="list-style-type: none"> – design, use and evaluate computational abstractions that model the state and behaviour of real-world problems and physical systems – use logical reasoning to compare the utility of alternative algorithms for the same problem – use two or more programming languages, at least one of which is textual, to solve a variety of computational problems;

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F10 Welfare technology	8-9 (yrs 9-10)		KS3 <ul style="list-style-type: none"> – design, use and evaluate computational abstractions that model the state and behaviour of real-world problems and physical systems – understand several key algorithms that reflect computational thinking [for example, ones for sorting and searching]; – use logical reasoning to compare the utility of alternative algorithms for the same problem
F11 Building a pet robot	2-4 (yrs 3-4)		KS2 <ul style="list-style-type: none"> – design, write and debug programs that accomplish specific goals – controlling or simulating physical systems – solve problems by decomposing them into smaller parts – use sequence in programs – use repetition in programs – work with various forms of input and output – use logical reasoning to explain how some simple algorithms work and to detect and correct errors in algorithms and programs

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F12 Theme - Fable on vacation	3-4 (Yrs 4-5)		KS2 <ul style="list-style-type: none"> - design, write and debug programs that accomplish specific goals - controlling or simulating physical systems - solve problems by decomposing them into smaller parts - use sequence in programs - use selection in programs - use repetition in programs - work with various forms of input and output - use logical reasoning to explain how some simple algorithms work and to detect and correct errors in algorithms and programs
F13 Triangles	4-6 (Yrs 5-6)	This will also link to the Maths curriculum	KS2 <ul style="list-style-type: none"> - design, write and debug programs that accomplish specific goals - controlling or simulating physical systems - solve problems by decomposing them into smaller parts - use sequence in programs - use repetition in programs - work with various forms of input and output - use logical reasoning to explain how some simple algorithms work and to detect and correct errors in algorithms and programs

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F14 Areas and squares	4-5 (Yrs 5-6)	This will also link to the Maths curriculum	KS2 <ul style="list-style-type: none"> - design, write and debug programs that accomplish specific goals - controlling or simulating physical systems - solve problems by decomposing them into smaller parts - use sequence in programs - use repetition in programs work with various forms of input and output - use logical reasoning to explain how some simple algorithms work and to detect and correct errors in algorithms and programs
F15 Perimeters and squares		This will also link to the Maths curriculum	KS2 <ul style="list-style-type: none"> - design, write and debug programs that accomplish specific goals - controlling or simulating physical systems - solve problems by decomposing them into smaller parts - use sequence in programs - use repetition in programs - work with various forms of input and output - use logical reasoning to explain how some simple algorithms work and to detect and correct errors in algorithms and programs

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F16 Intro to programming	Yrs 3-4		KS2 <ul style="list-style-type: none"> - design, write and debug programs that accomplish specific goals - controlling or simulating physical systems - solve problems by decomposing them into smaller parts - use sequence in programs - use repetition in programs - work with various forms of input and output - use logical reasoning to explain how some simple algorithms work and to detect and correct errors in algorithms and programs
F17 Novel engineering	Yrs 5-9		KS2 <ul style="list-style-type: none"> - design, write and debug programs that accomplish specific goals - controlling or simulating physical systems - solve problems by decomposing them into smaller parts use sequence in programs - use selection in programs - use repetition in programs - work with various forms of input and output - use logical reasoning to explain how some simple algorithms work and to detect and correct errors in algorithms and programs

Lesson Title Grades	UK equivalent	Computing concepts covered (according to Shape Robotics lesson plans)	National curriculum links
F17 Novel engineering			KS3 <ul style="list-style-type: none"> - design, use and evaluate computational abstractions that model the state and behaviour of real-world problems and physical systems - understand several key algorithms that reflect computational thinking [for example, ones for sorting and searching]; - use logical reasoning to compare the utility of alternative algorithms for the same problem - use two or more programming languages, at least one of which is textual, to solve a variety of computational problems; - design and develop modular programs that use procedures or functions - understand simple Boolean logic [for example, AND, OR and NOT] and some of its uses in circuits and programming;

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F18 Humans and Robots	4-9 (Yrs 5 to 9)		<p>KS2</p> <ul style="list-style-type: none"> - design, write and debug programs that accomplish specific goals - controlling or simulating physical systems - solve problems by decomposing them into smaller parts - use sequence in programs - use selection in programs - use repetition in programs - work with various forms of input and output - use logical reasoning to explain how some simple algorithms work and to detect and correct errors in algorithms and programs <p>KS3</p> <ul style="list-style-type: none"> - design, use and evaluate computational abstractions that model the state and behaviour of real-world problems and physical systems - understand several key algorithms that reflect computational thinking - use logical reasoning to compare the utility of alternative algorithms for the same problem - use two or more programming languages, at least one of which is textual, to solve a variety of computational problems; - understand simple Boolean logic [for example, AND, OR and NOT] and some of its uses in circuits and programming;

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F19 Build an obstacle course	6 (7)		<p>KS3</p> <ul style="list-style-type: none"> - design, use and evaluate computational abstractions that model the state and behaviour of real-world problems and physical systems - understand several key algorithms that reflect computational thinking - use logical reasoning to compare the utility of alternative algorithms for the same problem - design and develop modular programs that use procedures or functions
F20 Robotic research of speed and circular motion	High School (Yr 10+)	This links to the Maths and Physics curriculums	<p>KS4</p> <ul style="list-style-type: none"> - develop and apply their analytic, problem-solving, design, and computational thinking skills
F38 Welding robot	Yrs 10+		<p>KS4</p> <ul style="list-style-type: none"> - develop and apply their analytic, problem-solving, design, and computational thinking skills

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F39 Morse	4-5 (Yrs 5-6)		<p>KS2</p> <ul style="list-style-type: none"> - design, write and debug programs that accomplish specific goals - controlling or simulating physical systems - solve problems by decomposing them into smaller parts - use sequence in programs - use selection in programs - use repetition in programs - work with various forms of input and output - use logical reasoning to explain how some simple algorithms work and to detect and correct errors in algorithms and programs

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F40 Automation in the industry	Yr 9+		<p>KS3</p> <ul style="list-style-type: none"> - design, use and evaluate computational abstractions that model the state and behaviour of real-world problems and physical systems - understand several key algorithms that reflect computational thinking [for example, ones for sorting and searching]; - use logical reasoning to compare the utility of alternative algorithms for the same problem - use two or more programming languages, at least one of which is textual, to solve a variety of computational problems; - make appropriate use of data structures [for example, lists, tables or arrays]; - design and develop modular programs that use procedures or functions - understand simple Boolean logic [for example, AND, OR and NOT] and some of its uses in circuits and programming; - understand how numbers can be represented in binary, and be able to carry out simple operations on binary numbers [for example, binary addition, and conversion between binary and decimal] <p>KS4</p> <ul style="list-style-type: none"> - develop and apply their analytic, problem-solving, design, and computational thinking skills

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F43 Penalty kick	8-9 (Yrs 9-10)		<p>KS3</p> <ul style="list-style-type: none"> – design, use and evaluate computational abstractions that model the state and behaviour of real-world problems and physical systems – understand several key algorithms that reflect computational thinking [for example, ones for sorting and searching]; – use logical reasoning to compare the utility of alternative algorithms for the same problem – use two or more programming languages, at least one of which is textual, to solve a variety of computational problems; – understand simple Boolean logic [for example, AND, OR and NOT] and some of its uses in circuits and programming; <p>KS4</p> <ul style="list-style-type: none"> – develop and apply their analytic, problem-solving, design, and computational thinking skills

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F44 Control fable	5 (Yr 6)		<p>KS2</p> <ul style="list-style-type: none"> – design, write and debug programs that accomplish specific goals – controlling or simulating physical systems – solve problems by decomposing them into smaller parts – use sequence in programs – use selection in programs – use repetition in programs – work with various forms of input and output – use logical reasoning to explain how some simple algorithms work and to detect and correct errors in algorithms and programs

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F45 Social and throwing robot	Yrs 5-9	This will also link with the Science and Maths curriculum.	<p>KS2</p> <ul style="list-style-type: none"> - design, write and debug programs that accomplish specific goals - controlling or simulating physical systems - solve problems by decomposing them into smaller parts - use sequence in programs - use selection in programs - use repetition in programs - work with various forms of input and output - use logical reasoning to explain how some simple algorithms work and to detect and correct errors in algorithms and programs <p>KS3</p> <ul style="list-style-type: none"> - design, use and evaluate computational abstractions that model the state and behaviour of real-world problems and physical systems - understand several key algorithms that reflect computational thinking [for example, ones for sorting and searching]; - use logical reasoning to compare the utility of alternative algorithms for the same problem - use two or more programming languages, at least one of which is textual, to solve a variety of computational problems;

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F46 Fable nods	4-6 (Yrs 5&6)		<p>KS2</p> <ul style="list-style-type: none"> - design, write and debug programs that accomplish specific goals - controlling or simulating physical systems - solve problems by decomposing them into smaller parts - use sequence in programs - use selection in programs - use repetition in programs - work with various forms of input and output - use logical reasoning to explain how some simple algorithms work and to detect and correct errors in algorithms and programs
F47 Flexible throwing arm	Yr 12/13	The curriculum for Physics A level states: "IT and digital resources must be included in all aspects of teaching and support students' learning, e.g. through information seeking, modelling, simulation, control, and visualization."	Dependant on A Level Specification being followed. The UK has several examination boards each with their own specification.
F48 Convergence	Yrs 10-13		<p>KS4</p> <ul style="list-style-type: none"> - develop and apply their analytic, problem-solving, design, and computational thinking skills

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F55 Mathematical introduction to Fable	Yrs 7-9		KS3 <ul style="list-style-type: none"> – design, use and evaluate computational abstractions that model the state and behaviour of real-world problems and physical systems – use logical reasoning to compare the utility of alternative algorithms for the same problem – design and develop modular programs that use procedures or functions – understand simple Boolean logic [for example, AND, OR and NOT] and some of its uses in circuits and programming;
F56 A Trip to Mars	Yrs 5-9		KS2 <ul style="list-style-type: none"> – design, write and debug programs that accomplish specific goals – controlling or simulating physical systems – solve problems by decomposing them into smaller parts – use sequence in programs – use selection in programs – use repetition in programs – work with various forms of input and output – use logical reasoning to explain how some simple algorithms work and to detect and correct errors in algorithms and programs

Lesson Title Grades	UK equivalent	Computing concepts covered (according to Shape Robotics lesson plans)	National curriculum links
F56 A Trip to Mars	Yrs 5-9		KS3 <ul style="list-style-type: none"> – design, use and evaluate computational abstractions that model the state and behaviour of real-world problems and physical systems – understand several key algorithms that reflect computational thinking [for example, ones for sorting and searching]; – use logical reasoning to compare the utility of alternative algorithms for the same problem – use two or more programming languages, at least one of which is textual, to solve a variety of computational problems; – design and develop modular programs that use procedures or functions – understand simple Boolean logic [for example, AND, OR and NOT] and some of its uses in circuits and programming;

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F57 The good robots	3-6 (4-7)	The pupil can create sequential programs, that can accomplish simple objectives. The pupil understands that programs are executed by following simple, exact, and precise instructions.	KS2 <ul style="list-style-type: none"> - design, write and debug programs that accomplish specific goals - controlling or simulating physical systems - solve problems by decomposing them into smaller parts - use sequence in programs - work with various forms of input and output - use logical reasoning to explain how some simple algorithms work and to detect and correct errors in algorithms and programs
F58 Health technology in everyday lives	7-9 (8-9)	The pupil can create sequential programs, that can accomplish simple objectives. The pupil understands that programs are executed by following simple, exact, and precise instructions.	KS2 <ul style="list-style-type: none"> - design, write and debug programs that accomplish specific goals - controlling or simulating physical systems; - solve problems by decomposing them into smaller parts - use sequence in programs; - work with various forms of input and output - use logical reasoning to explain how some simple algorithms work and to detect and correct errors in algorithms and programs

Lesson Title Grades	UK equivalent	Computing concepts covered (according to Shape Robotics lesson plans)	National curriculum links
F59 Plastic production and UN's Global goals	8-9 (9)	The pupil can create sequential programs, that can accomplish simple objectives. The pupil understands that programs are executed by following simple, exact, and precise instructions.	KS3 <ul style="list-style-type: none"> - design, use and evaluate computational abstractions that model the state and behaviour of real-world problems and physical systems - use logical reasoning to compare the utility of alternative algorithms for the same problem - use two or more programming languages, at least one of which is textual, to solve a variety of computational problems;

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F60 Project smarthome	Yr 5+	Differentiation by outcome so any age student could complete this task with different level of complexity in their final product.	KS2 <ul style="list-style-type: none"> - design, write and debug programs that accomplish specific goals - controlling or simulating physical systems - solve problems by decomposing them into smaller parts - use sequence in programs - use selection in programs - use repetition in programs - work with variables - work with various forms of input and output - use logical reasoning to explain how some simple algorithms work and to detect and correct errors in algorithms and programs

Lesson Title Grades	UK equivalent	Computing concepts covered (according to Shape Robotics lesson plans)	National curriculum links
F60 Project smarthome	Yr 5+	Differentiation by outcome so any age student could complete this task with different level of complexity in their final product.	KS3 <ul style="list-style-type: none"> - design, use and evaluate computational abstractions that model the state and behaviour of real-world problems and physical systems - understand several key algorithms that reflect computational thinking [for example, ones for sorting and searching]; - use logical reasoning to compare the utility of alternative algorithms for the same problem - use two or more programming languages, at least one of which is textual, to solve a variety of computational problems; - make appropriate use of data structures [for example, lists, tables or arrays];- design and develop modular programs that use procedures or functions - understand simple Boolean logic [for example, AND, OR and NOT] and some of its uses in circuits and programming; - understand how numbers can be represented in binary, and be able to carry out simple operations on binary numbers [for example, binary addition, and conversion between binary and decimal] KS4 <ul style="list-style-type: none"> - develop and apply their analytic, problem-solving, design, and computational thinking skills

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F61 Mission entrepreneurship	Yr 10+	The impact of technology and automation on society, including an understanding for safety, ethics and consequence of digital technologies. Computational thinking as an area of learning, including basic knowledge of network, algorithms, programming, logic and algorithmic thinking, abstraction and pattern recognition, data modeling, as well as testing. Iterative design process in an interaction between understanding the world, which the designs are for and the digital technologies, that is a part of the design process. Complex task solving, where the children through understanding of design processes create new solutions with digital technologies and learn to argue for their relevance	KS4 – develop and apply their analytic, problem-solving, design, and computational thinking skills

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F62 Informatics: Project with robots	High School (9-11)		KS3 – design, use and evaluate computational abstractions that model the state and behaviour of real-world problems and physical systems – understand several key algorithms that reflect computational thinking [for example, ones for sorting and searching]; – use logical reasoning to compare the utility of alternative algorithms for the same problem – use two or more programming languages, at least one of which is textual, to solve a variety of computational problems; – make appropriate use of data structures [for example, lists, tables or arrays]; – design and develop modular programs that use procedures or functions – understand simple Boolean logic [for example, AND, OR and NOT] and some of its uses in circuits and programming; – understand how numbers can be represented in binary, and be able to carry out simple operations on binary numbers [for example, binary addition, and conversion] KS4 – develop and apply their analytic, problem-solving, design, and computational thinking skills

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F63 Fable points north	High School (9-11)		<p>KS3</p> <ul style="list-style-type: none"> - design, use and evaluate computational abstractions that model the state and behaviour of real-world problems and physical systems - understand several key algorithms that reflect computational thinking - make appropriate use of data structures [for example, lists, tables or arrays]; - design and develop modular programs that use procedures or functions - understand simple Boolean logic [for example, AND, OR and NOT] and some of its uses in circuits and programming; - understand how numbers can be represented in binary, and be able to carry out simple operations on binary numbers [for example, binary addition, and conversion between binary and decimal] <p>KS4</p> <ul style="list-style-type: none"> - develop and apply their analytic, problem-solving, design, and computational thinking skills

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F64 Cross-curricular project about light	7-8 (Yrs 7-9)	This also links with the Science curriculum.	<p>KS3</p> <ul style="list-style-type: none"> - design, use and evaluate computational abstractions that model the state and behaviour of real-world problems and physical systems - understand several key algorithms that reflect computational thinking [for example, ones for sorting and searching]; - use logical reasoning to compare the utility of alternative algorithms for the same problem - use two or more programming languages, at least one of which is textual, to solve a variety of computational problems; - make appropriate use of data structures [for example, lists, tables or arrays]; - design and develop modular programs that use procedures or functions - understand simple Boolean logic [for example, AND, OR and NOT] and some of its uses in circuits and programming; - understand how numbers can be represented in binary, and be able to carry out simple operations on binary numbers [for example, binary addition, and conversion between binary and decimal]

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<p>F65 GPS coordinates</p>	<p>Not specified (9+)</p>		<p>KS3</p> <ul style="list-style-type: none"> - design, use and evaluate computational abstractions that model the state and behaviour of real-world problems and physical systems - use logical reasoning to compare the utility of alternative algorithms for the same problem - use two or more programming languages, at least one of which is textual, to solve a variety of computational problems; <p>KS4</p> <ul style="list-style-type: none"> - develop and apply their analytic, problem-solving, design, and computational thinking skills

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There is much more
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