STATWARS®

A Primary Engineer and Secondary Engineer Production for the Institution of Primary Engineers®, Institution of Secondary Engineers® and Institution of Tertiary Engineers®.

STATWARS® National Curriculum Mapping Document

www.statwarscompetition.com www.onedotall.com www.primaryengineer.com

Primary Engineer Programmes ...the first step®

SECONDARY ENGINEER®

Primary Engineer LEADERS AWARD
Secondary Engineer LEADERS AWARD

institution of Primary Engineers®

institution of Secondary Engineers®

THE DATA LAB value from data

WEHR

Scottish Engineering

Terms and conditions of use

The aim of STATWARS® is to help young people develop their data literacy and critical thinking skills by using data to create their own film or TV series concept. We provide a classroom project that engages every pupil with data skills by bringing the enchantment of the entertainment industry to their doorstep!

Pupils work in teams to analyse a large dataset of TV series and films to produce an infographic poster, an advertisement poster and a 60-sec pitch video. The competition's structure encourages pupils to use their own creative spin and personal experiences to find meaning in, interpret and present the data.

Teachers are provided with whole-class resources alongside videos from industry professionals to ensure a real-world, careers driven context is provided for pupils. Teachers can request visits, or internet calls from data professionals to help support the project in school and answer the many questions pupils will have!

The competition requires teams of pupils to produce two posters (each, no larger than A2) one advertising the film or TV series, clearly designed to appeal to its demographic audience, and the other to communicate through infographics, the data used to influence the decisions made. Teams will also be required to produce a 60 second film to 'elevator pitch' their idea to the judging panel.

Shortlisted teams will be invited to an awards day to talk through their project with the judges and engage in fun data-related activities. The next awards event will be announced on the www.statwarscompetition.com website.

STATWARS® is an annual competition that has been developed by Primary Engineer Programmes for The Institution of Primary Engineers® and The Institution of Secondary Engineers®.

For more information on any of our programmes please use the links below:
Linksto:
www.onedotall.com
www.primaryengineer.com
www.secondaryengineer.com
www.leadersaward.com

What is STATWARS?

The STATWARS vision is to provide a classroom project that delivers meaningful and engaging mathematics, numeracy and data literacy to pupils, by bringing the enchantment of the entertainment industry to their doorstep.

STATWARS allows pupils to make rich cross curricular connections between mathematics, the world of work and their own learning, as they work through a topic that is meaningful, relevant and contemporary. Pupils work in teams to analyse a large dataset of TV shows and films to produce an infographic poster, an advertisement poster and a 60-sec pitch.

The competition's structure encourages pupils to apply mathematics not just creatively, but logically, to collect, analyse and present data, whilst drawing on their own personal experiences of what makes great entertainment! The nature of the project therefore encourages teamwork, leadership, curiosity, critical thinking and resilience, as teams are asked to consider indeterminate problems and develop data driven hypothesise.

Teachers are provided with whole-class differentiated resources, alongside videos from industry professionals to ensure a real-world, careers driven context is provided for pupils. Teachers can request visits, or internet calls from data professionals to help support the project in school and answer the many questions pupils will have!

The competition requires teams of pupils to produce two posters (each, no larger than A2) one advertising the film or TV series, clearly designed to appeal to its demographic audience, and the other to communicate through infographics, the data used to influence the decisions made. Teams will also be required to produce a 60 second film to 'elevator pitch' their idea to the judging panel.

Shortlisted teams will be invited to an awards day to talk through their project with the judges and engage in fun data related activities.

For more information and how to enter, please visit https://www.statwarscompetition.com/

Developing pupils across the curriculum

STATWARS has clear links to the National Curriculum programme of study across **KS2-3**, such as **Mathematics** and **Computing, preparing students for Key Stage 4 studies** and further education in these areas. These links draw on the need to offer a problem based platform to deliver meaningful and engaging mathematics, which allows the cross curricular application of such skills, knowledge and understanding. A main aim of STATWARS is to promote an understanding of real world use of mathematics, allowing pupils to follow simple or complex lines of enquiry from start to finish, conjecture relationships and generalisations in order to develop coherent, justified arguments that are based on thorough data analysis. STATWARS also encourages the use of technology, such as the internet to search and collect data, as well as data mining and analysis software, which allow the conceptualisation, manipulation and presentation of data.

Mathematics is a highly creative and interconnected discipline, providing solutions to the most intriguing problems. STATWARS allows pupils to make rich connections between different subjects, the world of work and their own learning, as they work through a topic that is meaningful, relevant and contemporary. This creates a sense of curiosity and enjoyment of mathematics as pupils are required to consider the importance of numerical ratings, monetary values and other statistical measurements and their impact on the entertainment industry, in the past, present and future. Pupils can begin to see mathematics as a wholly relevant skillset, which can be applied throughout their whole life, thus potentially leading to multiple industry and societal benefits.

Pupils are also challenged to apply their mathematics creatively, but logically to a solve the problem, which involves breaking it down into a series of steps, each of which offer themselves to an increasing level of sophistication. The nature of the project encourages curiosity, criticality and resilience, as pupils are asked to consider indeterminate problems and develop data driven hypothesise. The competition is differentiated to allow pupils to work in groups, or independently as part of a team to solve those problems, through the support of a scaffolded project, as well as their peers.

Pupils are required to understand, use and justify their use of quantitative and qualitative data, by seeking out and explaining patterns and relationships. STATWARS challenges pupils to reason mathematically throughout their analysis and presentation of data and information collected, so that they can justify their film or TV show choices. Pupils then deliver this information via a sales pitch, using two posters; one for advertisement, and one as an infographic. These creative elements of the competition allow pupils to present their data in numerous ways, with the goal of providing justification of decision. This use of mathematics focused spoken language develops pupils across the whole curriculum, cognitively, socially and linguistically. This contextualised development and application of mathematics leads to the increase in ability to apply those skills to other subjects and the wider world.

Many other National Curriculum areas are developed through STATWARS, such as English; reading, writing, and spoken language, discussion, making formal presentations and participating in debate and Art & Design; exploring ideas, producing creative work and evaluation of design.

Contents

The tables which follow show how STATWARS Film and TV can be mapped to the English National Curriculum for Mathematics and Computing:

KS2 Mathematics (5-6)

Topic Number	Name/Description	KS2 Mathematics (5-6)
1	**Defining the problem** - This topic is aimed at providing context to the project and helping pupils understand what needs to be done to provide a solution to the problem. They will be able to do some initial data gathering and planning here.	read, write, order and compare numbers to at least 1,000,000 and determine the value of each digit round any number up to 1,000,000 to the nearest 10, 100, 1,000, 10,000 and 100,000 solve number problems and practical problems that involve all of the above use rounding to check answers to calculations and determine, in the context of a problem, levels of accuracy recognise the per cent symbol (%) and understand that per cent relates to 'number of parts per 100', and write percentages as a fraction with denominator 100, and as a decimal fraction
2	**Planning** - This topic allows pupils to work in project teams to determine the best approach to their solution. They will understand what data is and the varying forms it can take.	read, write, order and compare numbers to at least 1,000,000 and determine the value of each digit count forwards or backwards in steps of powers of 10 for any given number up to 1,000,000 round any number up to 1,000,000 to the nearest 10, 100, 1,000, 10,000 and 100,000 solve number problems and practical problems that involve all of the above recognise the per cent symbol (%) and understand that per cent relates to 'number of parts per 100', and write percentages as a fraction with denominator 100, and as a decimal fraction
3	**Collecting** - This topic helps pupils understand the importance of collecting, and scrutinising data. They will be able to a given dataset and use the WWW to find relevant data for the project and organise it accordingly.	read, write, order and compare numbers to at least 1,000,000 and determine the value of each digit round any number up to 1,000,000 to the nearest 10, 100, 1,000, 10,000 and 100,000 solve number problems and practical problems that involve all of the above add and subtract whole numbers with more than 4 digits, including using formal written methods (columnar addition and subtraction) use rounding to check answers to calculations and determine, in the context of a problem, levels of accuracy solve addition and subtraction multi-step problems in contexts,

Topic Number	Name/Description	KS2 Mathematics (5-6)
		deciding which operations and methods to use and why multiply numbers up to 4 digits by a one- or two-digit number using a formal written method, including long multiplication for two-digit numbers multiply and divide numbers mentally, drawing upon known facts divide numbers up to 4 digits by a one-digit number using the formal written method of short division and interpret remainders appropriately for the context solve problems involving addition, subtraction, multiplication and division and a combination of these, including understanding the meaning of the equals sign round decimals with 2 decimal places to the nearest whole number and to 1 decimal place recognise the per cent symbol (%) and understand that per cent relates to 'number of parts per 100', and write percentages as a fraction with denominator 100, and as a decimal fraction solve problems involving converting between units of time solve comparison, sum and difference problems using information presented in a line graph solve problems involving the calculation of percentages [for example, of measures and such as 15% of 360] and the use of percentages for comparison use simple formulae use, read, write and convert between standard units, converting measurements of length, mass, volume and time from a smaller unit of measure to a larger unit, and vice versa, using decimal notation to up to 3 decimal places interpret and construct pie charts and line graphs and use these to solve problems calculate and interpret the mean as an average

Topic Number	Name/Description	KS2 Mathematics (5-6)
4	**Analysing** - This topic asks pupils to consider the data they have gathered and make informed decisions as a result. They will be able to use more than one form of analysis.	read, write, order and compare numbers to at least 1,000,000 and determine the value of each digit round any number up to 1,000,000 to the nearest 10, 100, 1,000, 10,000 and 100,000 solve number problems and practical problems that involve all of the above add and subtract whole numbers with more than 4 digits, including using formal written methods (columnar addition and subtraction) use rounding to check answers to calculations and determine, in the context of a problem, levels of accuracy solve addition and subtraction multi-step problems in contexts, deciding which operations and methods to use and why solve problems involving multiplication and division, including using their knowledge of factors and multiples, squares and cubes solve problems involving addition, subtraction, multiplication and division and a combination of these, including understanding the meaning of the equals sign solve problems involving converting between units of time solve comparison, sum and difference problems using information presented in a line graph complete, read and interpret information in tables, including timetables solve problems involving the calculation of percentages [for example, of measures and such as 15% of 360] and the use of percentages for comparison use simple formulae solve problems involving the calculation and conversion of units of measure, using decimal notation up to 3 decimal places where appropriate interpret and construct pie charts and line graphs and use these to solve problems calculate and interpret the mean as an average

Topic Number	Name/Description	KS2 Mathematics (5-6)
5.1	**Conclusion and Delivery 1**: The film choice. This topic allows pupils to develop their analysis into a visual representation of the data and communicate it effectively using suitable software.	read, write, order and compare numbers to at least 1,000,000 and determine the value of each digit complete, read and interpret information in tables, including timetables draw 2-D shapes using given dimensions and angles draw and translate simple shapes on the coordinate plane, and reflect them in the axes interpret and construct pie charts and line graphs and use these to solve problems
5.2	**Conclusion and Delivery 2**: Marketing the idea - This topic allows pupils to consider the creative aspects their finished product and how they could market it. It allows them to consider the real world applications of creating a product and then trying to make it successful.	N/A

STATWARS KS2 Mathematics (5-6) Summary of outcomes

STATWARS KS2 Mathematics (5-6) Summary of outcomes	Sub Topic	Years
solve problems involving converting between units of time	Measurement	5
use rounding to check answers to calculations and determine, in the context of a problem, levels of accuracy	Number - addition and subtraction	5
add and subtract whole numbers with more than 4 digits, including using formal written methods (columnar addition and subtraction)	Number - addition and subtraction	5
solve addition and subtraction multi-step problems in contexts, deciding which operations and methods to use and why	Number - addition and subtraction	5
recognise the per cent symbol (%) and understand that per cent relates to 'number of parts per 100', and write percentages as a fraction with denominator 100, and as a decimal fraction	Number - fractions (including decimals and percentages)	5
round decimals with 2 decimal places to the nearest whole number and to 1 decimal place	Number - fractions (including decimals and percentages)	5
recognise the per cent symbol (%) and understand that per cent relates to 'number of parts per 100', and write percentages as a fraction with denominator 100, and as a decimal fraction	Number - fractions (including decimals and percentages)	5
multiply numbers up to 4 digits by a one- or two-digit number using a formal written method, including long multiplication for two-digit numbers	Number - multiplication and division	5
multiply and divide numbers mentally, drawing upon known facts	Number - multiplication and division	5
divide numbers up to 4 digits by a one-digit number using the formal written method of short division and interpret remainders appropriately for the context	Number - multiplication and division	5
solve problems involving addition, subtraction, multiplication and division and a combination of these, including understanding the meaning of the equals sign	Number - multiplication and division	5
solve problems involving multiplication and division, including using their knowledge of factors and multiples, squares and cubes	Number - multiplication and division	5
read, write, order and compare numbers to at least 1,000,000 and determine the value of each digit	Number - number and place value	5
round any number up to 1,000,000 to the nearest 10, 100, 1,000, 10,000 and 100,000	Number - number and place value	5
solve number problems and practical problems that involve all of the above	Number - number and place value	5
count forwards or backwards in steps of powers of 10 for any given number up to 1,000,000	Number - number and place value	5
solve comparison, sum and difference problems using information presented in a line graph	Statistics	5
complete, read and interpret information in tables, including timetables	Statistics	5
use simple formulae	Algebra	6
draw and translate simple shapes on the coordinate plane, and reflect them in the axes	Geometry - position and direction	6
draw 2-D shapes using given dimensions and angles	Geometry - properties of shapes	6

STATWARS KS2 Mathematics (5-6) Summary of outcomes	Sub Topic	Years
use, read, write and convert between standard units, converting measurements of length, mass, volume and time from a smaller unit of measure to a larger unit, and vice versa, using decimal notation to up to 3 decimal places	Measurement	6
solve problems involving the calculation and conversion of units of measure, using decimal notation up to 3 decimal places where appropriate	Measurement	6
solve problems involving the calculation of percentages [for example, of measures and such as 15% of 360] and the use of percentages for comparison	Ratio and proportion	6
interpret and construct pie charts and line graphs and use these to solve problems	Statistics	6
calculate and interpret the mean as an average	Statistics	6
interpret and construct pie charts and line graphs and use these to solve problems	Statistics	6

KS2 Computing

Topic Number	Name/Description	KS2 Computing
1	**Defining the problem** - This topic is aimed at providing context to the project and helping pupils understand what needs to be done to provide a solution to the problem. They will be able to do some initial data gathering and planning here.	design, write and debug programs that accomplish specific goals, including controlling or simulating physical systems; solve problems by decomposing them into smaller parts
2	**Planning** - This topic allows pupils to work in project teams to determine the best approach to their solution. They will understand what data is and the varying forms it can take.	design, write and debug programs that accomplish specific goals, including controlling or simulating physical systems; solve problems by decomposing them into smaller parts understand computer networks, including the internet; how they can provide multiple services, such as the World Wide Web, and the opportunities they offer for communication and collaboration use search technologies effectively, appreciate how results are selected and ranked, and be discerning in evaluating digital content use technology safely, respectfully and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concerns about content and contact
3	**Collecting** - This topic helps pupils understand the importance of collecting, and scrutinising data. They will be able to a given dataset and use the WWW to find relevant data for the project and organise it accordingly.	select, use and combine a variety of software (including internet services) on a range of digital devices to design and create a range of programs, systems and content that accomplish given goals, including collecting, analysing, evaluating and presenting data and information understand computer networks, including the internet; how they can provide multiple services, such as the World Wide Web, and the opportunities they offer for communication and collaboration use search technologies effectively, appreciate how results are selected and ranked, and be discerning in evaluating digital content use technology safely, respectfully and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concerns about content and contact
4	**Analysing** - This topic asks pupils to consider the data	design, write and debug programs that accomplish specific goals, including controlling or simulating physical systems; solve problems by decomposing them into smaller parts

Topic Number	Name/Description	KS2 Computing
	they have gathered and make informed decisions as a result. They will be able to use more than one form of analysis.	select, use and combine a variety of software (including internet services) on a range of digital devices to design and create a range of programs, systems and content that accomplish given goals, including collecting, analysing, evaluating and presenting data and information
5.1	**Conclusion and Delivery 1**: The film choice. This topic allows pupils to develop their analysis into a visual representation of the data and communicate it effectively using suitable software.	select, use and combine a variety of software (including internet services) on a range of digital devices to design and create a range of programs, systems and content that accomplish given goals, including collecting, analysing, evaluating and presenting data and information understand computer networks, including the internet; how they can provide multiple services, such as the World Wide Web, and the opportunities they offer for communication and collaboration use technology safely, respectfully and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concerns about content and contact
5.2	**Conclusion and Delivery 2**: Marketing the idea - This topic allows pupils to consider the creative aspects their finished product and how they could market it. It allows them to consider the real world applications of creating a product and then trying to make it successful.	select, use and combine a variety of software (including internet services) on a range of digital devices to design and create a range of programs, systems and content that accomplish given goals, including collecting, analysing, evaluating and presenting data and information understand computer networks, including the internet; how they can provide multiple services, such as the World Wide Web, and the opportunities they offer for communication and collaboration use search technologies effectively, appreciate how results are selected and ranked, and be discerning in evaluating digital content use technology safely, respectfully and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concerns about content and contact

STATWARS KS2 Computing Summary of outcomes

STATWARS KS2 Computing Summary of outcomes	Sub Topic	Years
design, write and debug programs that accomplish specific goals, including controlling or simulating physical systems; solve problems by decomposing them into smaller parts	Computer Science	3-6
understand computer networks, including the internet; how they can provide multiple services, such as the World Wide Web, and the opportunities they offer for communication and collaboration	Digital Literacy	3-6
use search technologies effectively, appreciate how results are selected and ranked, and be discerning in evaluating digital content	Digital Literacy	3-6
use technology safely, respectfully and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concerns about content and contact	Digital Literacy	3-6
select, use and combine a variety of software (including internet services) on a range of digital devices to design and create a range of programs, systems and content that accomplish given goals, including collecting, analysing, evaluating and presenting data and information	Information Technology	3-6

KS3 Mathematics

Topic Number	Name/Description	KS3 Mathematics (7-9)
1	**Defining the problem** - This topic is aimed at providing context to the project and helping pupils understand what needs to be done to provide a solution to the problem. They will be able to do some initial data gathering and planning here.	explore what can and cannot be inferred in statistical and probabilistic settings, and begin to express their arguments formally construct and interpret appropriate tables, charts, and diagrams, including frequency tables, bar charts, pie charts, and pictograms for categorical data, and vertical line (or bar) charts for ungrouped and grouped numerical data
2	**Planning** - This topic allows pupils to work in project teams to determine the best approach to their solution. They will understand what data is and the varying forms it can take.	consolidate their numerical and mathematical capability from key stage 2 and extend their understanding of the number system and place value to include decimals, fractions, powers and roots use standard units of mass, length, time, money and other measures, including with decimal quantities interpret when the structure of a numerical problem requires additive, multiplicative or proportional reasoning construct and interpret appropriate tables, charts, and diagrams, including frequency tables, bar charts, pie charts, and pictograms for categorical data, and vertical line (or bar) charts for ungrouped and grouped numerical data
3	**Collecting** - This topic helps pupils understand the importance of collecting, and scrutinising data. They will be able to a given dataset and use the WWW to find relevant data for the project and organise it accordingly.	consolidate their numerical and mathematical capability from key stage 2 and extend their understanding of the number system and place value to include decimals, fractions, powers and roots move freely between different numerical, algebraic, graphical and diagrammatic representations [for example, equivalent fractions, fractions and decimals, and equations and graphs] make and test conjectures about patterns and relationships; look for proofs or counter-examples begin to model situations mathematically and express the results using a range of formal mathematical representations use standard units of mass, length, time, money and other measures, including with decimal quantities understand and use standard mathematical formulae; rearrange

Topic Number	Name/Description	KS3 Mathematics (7-9)
		formulae to change the subject model situations or procedures by translating them into algebraic expressions or formulae and by using graphs recognise, sketch and produce graphs of linear and quadratic functions of 1 variable with appropriate scaling, using equations in x and y and the Cartesian plane solve problems involving percentage change, including: percentage increase, decrease and original value problems and simple interest in financial mathematics construct and interpret appropriate tables, charts, and diagrams, including frequency tables, bar charts, pie charts, and pictograms for categorical data, and vertical line (or bar) charts for ungrouped and grouped numerical data describe simple mathematical relationships between 2 variables (bivariate data) in observational and experimental contexts and illustrate using scatter graphs
4	**Analysing** - This topic asks pupils to consider the data they have gathered and make informed decisions as a result. They will be able to use more than one form of analysis.	consolidate their numerical and mathematical capability from key stage 2 and extend their understanding of the number system and place value to include decimals, fractions, powers and roots select and use appropriate calculation strategies to solve increasingly complex problems use language and properties precisely to analyse numbers, algebraic expressions, 2-D and 3-D shapes, probability and statistics make and test conjectures about patterns and relationships; look for proofs or counter-examples begin to reason deductively in geometry, number and algebra, including using geometrical constructions develop their mathematical knowledge, in part through solving problems and evaluating the outcomes, including multi-step problems develop their use of formal mathematical knowledge to interpret and solve problems, including in financial mathematics begin to model situations mathematically and express the results using a range of formal mathematical representations select appropriate concepts, methods and techniques to apply to unfamiliar and non-routine problems

Topic Number	Name/Description	KS3 Mathematics (7-9)
		use a calculator and other technologies to calculate results accurately and then interpret them appropriately use standard units of mass, length, time, money and other measures, including with decimal quantities solve problems involving percentage change, including: percentage increase, decrease and original value problems and simple interest in financial mathematics construct and interpret appropriate tables, charts, and diagrams, including frequency tables, bar charts, pie charts, and pictograms for categorical data, and vertical line (or bar) charts for ungrouped and grouped numerical data describe simple mathematical relationships between 2 variables (bivariate data) in observational and experimental contexts and illustrate using scatter graphs
5.1	**Conclusion and Delivery 1**: The film choice. This topic allows pupils to develop their analysis into a visual representation of the data and communicate it effectively using suitable software.	explore what can and cannot be inferred in statistical and probabilistic settings, and begin to express their arguments formally construct and interpret appropriate tables, charts, and diagrams, including frequency tables, bar charts, pie charts, and pictograms for categorical data, and vertical line (or bar) charts for ungrouped and grouped numerical data describe simple mathematical relationships between 2 variables (bivariate data) in observational and experimental contexts and illustrate using scatter graphs
5.2	**Conclusion and Delivery 2**: Marketing the idea - This topic allows pupils to consider the creative aspects their finished product and how they could market it. It allows them to consider the real world applications of creating a product and then trying to make it successful.	N/A

STATWARS KS3 Mathematics (7-9) Summary of outcomes

STATWARS KS3 Mathematics (7-9) Summary of outcomes	Sub Topic	Years
understand and use standard mathematical formulae; rearrange formulae to change the subject	Algebra	7-9
model situations or procedures by translating them into algebraic expressions or formulae and by using graphs	Algebra	7-9
recognise, sketch and produce graphs of linear and quadratic functions of 1 variable with appropriate scaling, using equations in x and y and the Cartesian plane	Algebra	7-9
consolidate their numerical and mathematical capability from key stage 2 and extend their understanding of the number system and place value to include decimals, fractions, powers and roots	Develop fluency	7-9
move freely between different numerical, algebraic, graphical and diagrammatic representations [for example, equivalent fractions, fractions and decimals, and equations and graphs]	Develop fluency	7-9
select and use appropriate calculation strategies to solve increasingly complex problems	Develop fluency	7-9
use language and properties precisely to analyse numbers, algebraic expressions, 2-D and 3-D shapes, probability and statistics	Develop fluency	7-9
use standard units of mass, length, time, money and other measures, including with decimal quantities	Number	7-9
solve problems involving percentage change, including: percentage increase, decrease and original value problems and simple interest in financial mathematics	Ratio, proportion and rates of change	7-9
explore what can and cannot be inferred in statistical and probabilistic settings, and begin to express their arguments formally	Reason mathematically	7-9
interpret when the structure of a numerical problem requires additive, multiplicative or proportional reasoning	Reason mathematically	7-9
make and test conjectures about patterns and relationships; look for proofs or counter-examples	Reason mathematically	7-9
begin to reason deductively in geometry, number and algebra, including using geometrical constructions	Reason mathematically	7-9
begin to model situations mathematically and express the results using a range of formal mathematical representations	Solve problems	7-9
develop their mathematical knowledge, in part through solving problems and evaluating the outcomes, including multi-step problems	Solve problems	7-9
develop their use of formal mathematical knowledge to interpret and solve problems, including in financial mathematics	Solve problems	7-9
select appropriate concepts, methods and techniques to apply to unfamiliar and non-routine problems	Solve problems	7-9
construct and interpret appropriate tables, charts, and diagrams, including frequency tables, bar charts, pie charts, and pictograms for categorical data, and vertical line (or bar) charts for ungrouped and grouped numerical data	Statistics	7-9
describe simple mathematical relationships between 2 variables (bivariate data) in observational and experimental contexts and illustrate using scatter graphs	Statistics	7-9

KS3 Computing

Topic Number	Name/Description	KS3 Computing
1	**Defining the problem** - This topic is aimed at providing context to the project and helping pupils understand what needs to be done to provide a solution to the problem. They will be able to do some initial data gathering and planning here.	undertake creative projects that involve selecting, using, and combining multiple applications, preferably across a range of devices, to achieve challenging goals, including collecting and analysing data and meeting the needs of known users
2	**Planning** - This topic allows pupils to work in project teams to determine the best approach to their solution. They will understand what data is and the varying forms it can take.	undertake creative projects that involve selecting, using, and combining multiple applications, preferably across a range of devices, to achieve challenging goals, including collecting and analysing data and meeting the needs of known users
3	**Collecting** - This topic helps pupils understand the importance of collecting, and scrutinising data. They will be able to a given dataset and use the WWW to find relevant data for the project and organise it accordingly.	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] undertake creative projects that involve selecting, using, and combining multiple applications, preferably across a range of devices, to achieve challenging goals, including collecting and analysing data and meeting the needs of known users create, reuse, revise and repurpose digital artefacts for a given audience, with attention to trustworthiness, design and usability understand a range of ways to use technology safely, respectfully, responsibly and securely, including protecting their online identity and privacy; recognise inappropriate content, contact and conduct, and know how to report concerns
4	**Analysing** - This topic asks pupils to consider the data they have gathered and make informed decisions as a result. They will be able to use more than one form of analysis.	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 undertake creative projects that involve selecting, using, and combining multiple applications, preferably across a range of devices, to achieve challenging goals, including collecting and analysing data and meeting the needs of known users

Topic Number	Name/Description	KS3 Computing
5.1	**Conclusion and Delivery 1**: The film choice. This topic allows pupils to develop their analysis into a visual representation of the data and communicate it effectively using suitable software.	undertake creative projects that involve selecting, using, and combining multiple applications, preferably across a range of devices, to achieve challenging goals, including collecting and analysing data and meeting the needs of known users create, reuse, revise and repurpose digital artefacts for a given audience, with attention to trustworthiness, design and usability
5.2	**Conclusion and Delivery 2**: Marketing the idea - This topic allows pupils to consider the creative aspects their finished product and how they could market it. It allows them to consider the real world applications of creating a product and then trying to make it successful.	undertake creative projects that involve selecting, using, and combining multiple applications, preferably across a range of devices, to achieve challenging goals, including collecting and analysing data and meeting the needs of known users create, reuse, revise and repurpose digital artefacts for a given audience, with attention to trustworthiness, design and usability

STATWARS KS3 Computing Summary of outcomes

STATWARS KS3 Computing Summary of outcomes	Sub Topic	Years
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]	Computer Science	7-9
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	Computer Science	7-9
understand a range of ways to use technology safely, respectfully, responsibly and securely, including protecting their online identity and privacy; recognise inappropriate content, contact and conduct, and know how to report concerns	Digital Literacy	7-9
undertake creative projects that involve selecting, using, and combining multiple applications, preferably across a range of devices, to achieve challenging goals, including collecting and analysing data and meeting the needs of known users	Information Technology	7-9
create, reuse, revise and repurpose digital artefacts for a given audience, with attention to trustworthiness, design and usability	Information Technology	7-9