

Midlothian Council ICT Strategy

ICT and Level D Maths

	Maths attainment targets	ICT strands and attainment targets	Possible contexts and lessons	Possible software
Collect	<p>Pupils should be able to:</p> <ul style="list-style-type: none"> • by selecting sources of information for tasks, including a questionnaire which allows several responses to each question 	<p>Pupils are able to:</p> <p>Collecting and analysing levels B, C and D</p> <ul style="list-style-type: none"> • enter data into a predefined database (B) • create a simple database (C) • enter data into a spreadsheet (D) 		MS Works database and spreadsheet
Organise	<ul style="list-style-type: none"> • by using diagrams or tables • by using a database or spreadsheet table: <ul style="list-style-type: none"> – with up to three fields defined by pupils – with the aid, where appropriate, of a computer package 	<p>Collecting and analysing levels C and D</p> <ul style="list-style-type: none"> • interrogate a database (C) • create a simple database (C) • use database reports including searching and sorting (D) 		MS Works database and spreadsheet
Display	<ul style="list-style-type: none"> • by constructing graphs (bar, line, frequency polygon) and pie charts: <ul style="list-style-type: none"> – involving simple fractions or decimals – involving continuous data which have been grouped – with the aid, where appropriate, of a computer package 	<p>Collecting and analysing levels D and E</p> <ul style="list-style-type: none"> • enter data into a spreadsheet (D) • produce graphs (E) 		MS Works database and spreadsheet
Interpret	<ul style="list-style-type: none"> • from a range of displays and database by retrieving information subject to one condition 	<p>Collecting and analysing Level C</p> <ul style="list-style-type: none"> • interrogate a database 		MS Works database and spreadsheet
Range and type of number	<ul style="list-style-type: none"> • work with: <ul style="list-style-type: none"> • whole numbers up to 100,000 (count, order, read/write) • whole numbers up to a million (read/write only) • fractions (all previous plus twentieths, fiftieths, hundredths) and equivalences among these and decimals (in applications) • percentages, decimals to two places and equivalences among these in applications in money and measurement 	<p>Using the technology levels B and C</p> <ul style="list-style-type: none"> • use menus and further mouse controls (B) • start and close an application; create a new document (B) • use the components of a 'windows' environment (C) 		Numerous S/W packages covering number skills.
Money	<ul style="list-style-type: none"> • use all UK coins/notes to £20 worth or more, including exchange. 	<p>Using the technology levels B and C</p> <ul style="list-style-type: none"> • use menus and further mouse controls (B) • start and close an application; create a new document (B) • use the components of a 'windows' environment. (C) 		Numerous software packages such as <i>Lifeskills Time & Money</i>

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ICT and Level D Maths (part 2)

	Maths attainment targets	ICT strands and attainment targets	Possible contexts and lessons	Possible software
Add and subtract	<p>Pupils should be able to:</p> <ul style="list-style-type: none"> mentally for two-digit whole numbers, beyond in some cases, involving multiples of 10 or 100 without a calculator for four digits with at most two decimal places (easy examples only) with a calculator for four digits with at most two decimal places, in applications in number measurement and money 	<p>Pupils are able to:</p> <p>Using the technology levels B and C</p> <ul style="list-style-type: none"> use menus and further mouse controls (B) start and close an application; create a new document (B) use the components of a 'windows' environment (C) 		Numerous software packages covering number skills.
Multiply and divide	<ul style="list-style-type: none"> mentally for whole numbers by single digits (easy examples only) mentally for four-digit numbers, including decimals by 10 or 100 without a calculator for four digits with at most two decimal places by a single digit with a calculator for four digits with at most two decimal places by a whole number with two digits, in applications in number money and measure. 	<p>Using the technology levels B and C</p> <ul style="list-style-type: none"> use menus and further mouse controls (B) start and close an application; create a new document (B) use the components of a 'windows' environment. (C) 		Numerous software packages covering number skills.

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ICT and Level D Maths (part 3)

	Maths attainment targets	ICT strands and attainment targets	Possible contexts and lessons	Possible software
Round numbers	Pupils should be able to: <ul style="list-style-type: none"> round any number to the nearest appropriate whole number, 10 or 100. 	Pupils are able to:		
Fractions, percentages and ratio	<ul style="list-style-type: none"> find simple fractions ($1/7$, $3/4$, $3/5$, $60/100$) of quantities involving at most four digits (easy examples only) 			
Patterns and sequences	<ul style="list-style-type: none"> continue and describe more complex sequences 	Collecting and analysing Level E <ul style="list-style-type: none"> model simple scenarios using spreadsheet 		<i>MS Works</i> database and spreadsheet
Functions and equations	<ul style="list-style-type: none"> recognise and explain simple relationships: <ul style="list-style-type: none"> between two sets of numbers or objects 	Collecting and analysing Level E <ul style="list-style-type: none"> model simple scenarios using spreadsheet 		<i>MS Works</i> database and spreadsheet
Measure and estimate	<ul style="list-style-type: none"> measure in standard units: <ul style="list-style-type: none"> length: small lengths in millimetres; large lengths like buildings in metres weight: extended range of articles, e.g. own weight volume: accuracy extended to small containers in millilitres; $1\text{ l} = 1000\text{ ml}$ area: right-angled triangles on cm squared grids temperature estimate small weights, small areas, small volumes in easily handled standard units recognise when kilometres are appropriate select appropriate measuring devices and units for weight be aware of common imperial units in appropriate practical applications 			
Time	<ul style="list-style-type: none"> use 24-hour times and equate with 12-hour times. calculate durations in hours/minutes, mentally if possible time activities in seconds with a stopwatch calculate speeds (practical activities only) 	Using the technology levels B and C <ul style="list-style-type: none"> use menus and further mouse controls (B) start and close an application; create a new document (B) use the components of a 'windows' environment. (C) 		Numerous software packages such as <i>Lifeskills Time & Money</i>
Perimeter, formulae, scales	<ul style="list-style-type: none"> calculate perimeter of simple straight-sided shapes by adding lengths. 			

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ICT and Level D Maths (part 4)

	Maths attainment targets	ICT strands and attainment targets	Possible contexts and lessons	Possible software
Range of shapes	<p>Pupils should be able to:</p> <ul style="list-style-type: none"> • collect, discuss, make and use 3D and 2D shapes: <ul style="list-style-type: none"> – discuss 3D and 2D shapes referring to faces, edges, vertices, diagonals, sides, angles. – recognise pentagon, hexagon – identify and name equilateral and isosceles triangles – extend shape vocabulary to radius, diameter, circumference – create or copy a tiling using a shape template – make 3D models, solid or skeletal, including using nets: cube and cuboid only – use the rigidity property of triangles in model-making 	<p>Pupils are able to:</p>		
Position and movement	<ul style="list-style-type: none"> • Discuss position and movement: <ul style="list-style-type: none"> – give directions for a route or journey – use an eight-point compass rose – use a coordinate system to locate a point on a grid – create patterns by rotating a shape 	<p>Controlling and modelling Level D</p> <ul style="list-style-type: none"> • plan a sequence of instructions to be executed by a device <p>Using the technology levels B and C</p> <ul style="list-style-type: none"> • use menus and further mouse controls (B) • start and close an application; create a new document (B) • use the components of a 'windows' environment (C) 		<p>Numerous software packages including LOGO.</p> <p>Numerous software packages such as <i>Let's Go Katy</i>.</p>
Symmetry	<ul style="list-style-type: none"> • identify and draw lines of symmetry, generally up to four • create symmetrical shapes 			
Angles	<ul style="list-style-type: none"> • draw, copy and measure angles accurately within five degrees • use standard notation, 060°, 150°, 300°, to express bearings. 	<p>Controlling and modelling Level D</p> <ul style="list-style-type: none"> • plan a sequence of instructions to be executed by a device <p>Using the technology levels B and C</p> <ul style="list-style-type: none"> • use menus and further mouse controls (B) • start and close an application; create a new document (B) • use the components of a 'windows' environment. (C) 		<p>Numerous software packages including LOGO.</p> <p>Numerous software packages such as <i>Let's Go Katy</i>.</p>