Part of GIPPESWYK COMMUNITY EDUCATIONAL TRUST

Achieving success together

This Policy has been adopted and approved by Gippeswyk Community Educational Trust and has been adapted for use by Copleston High School.

NUMERACY POLICY	
Approved by GCET/Adapted by Copleston High School	1.9.2017
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Date of next Review	Summer Term 2024
Responsible Officer	Vice Principal – Mrs L Vadali
Policy Number	ACS4

Definition of a Parent

- All biological parents, whether they are married or not.
- any person who, although not a biological parent, has parental responsibility for a child or young person - this could be an adoptive parent, a step-parent, guardian or other relative
- any person who, although not a biological parent and does not have parental responsibility, has care of a child or young person.

A person typically has care of a child or young person if they are the person with whom the child lives, either full or part time and who looks after the child, irrespective of what their biological or legal relationship is with the child.

Contents

Copleston High School Numeracy Policy

Our aim is to raise the achievement of all pupils and students by seeking to develop their numeracy skills by consistent and accurate application across the curriculum.

Numeracy is a key skill in students' learning and all students are entitled to quality experiences in this area. The teaching of numeracy is the responsibility of all staff and the school's approaches should be as consistent as possible across the curriculum.

Definition of Numeracy

Numeracy is a proficiency which is developed mainly in mathematics but also in other subjects. It is more than an ability to do basic arithmetic. It involves developing confidence and competence with numbers and measures. It requires understanding of the number system, a repertoire of mathematical techniques, and an inclination and ability to solve quantitative or spatial problems in a range of contexts. Numeracy also demands understanding of the ways in which data are gathered by counting and measuring, and presented in graphs, diagrams, charts and tables.

(Framework for Teaching Mathematics -- DfES)

We need to:

1. Raise the profile of numeracy within the school
2. Raise standards of numeracy
3. Make numeracy teaching an overt part of every curriculum area

The school will:

- Create a positive and attractive environment which celebrates numeracy
- Provide role models through celebrating the successes of older students
- Ensure that there are activities in the curriculum to allow pupils to learn and practise their range of numeracy skills
- Display high quality examples of numeracy being applied across the curriculum
- Provide INSET on teaching numeracy as appropriate.

Each Department will:

Contribute to the raising of numeracy standards within their curriculum area by:

- The provision of high quality exemplar materials
- The use of ICT
- Displaying examples of numeracy within curriculum based contexts
- Highlighting opportunities for the use of numeracy within their subject area

- Endeavouring to ensure that materials presented to students will match their capability both in subject content and in numerical demands
- Ensuring that all staff are familiar with the 'Numeracy Across The Curriculum' document which supports this policy.

NUMERACY - DEPARTMENT GUIDELINES

As a teacher you can help children to acquire proficiency in numeracy by giving a sharp focus to the relevant aspects of the programmes of study for mathematics. The outcome should be numerate pupils who are confident enough to tackle mathematical problems without going immediately to teachers or friends for help

All teachers will:

1. Have the highest expectations of the students and ensure that the numerical content is of a high standard.

2. Discourage students from writing down answers only and encourage them to show their numerical working out within the main body of their work.

3. Encourage the use of estimation particularly for checking work.

4. Encourage students to write mathematically correct statements.

5. Recognise that there is never only one correct method and students will be encouraged to develop their own where appropriate rather than be taught 'set' ways.

6. Allow and encourage students to 'vocalise' their maths - a necessary step towards full understanding for many students.

7. Help students to understand the methods they are using or being taught - students gain more and are likely to remember much more easily if they understand rather than are merely repeating by rote.

8. Encourage students to use non-calculator methods whenever possible.

9. Encourage students to use the correct language e.g. use the word mean rather than average.

10. Follow the guidelines laid out in the 'Numeracy Across The Curriculum' document.

If problems with numeracy are identified then the Mathematics department will be informed and will if possible adjust the teaching programme to address the weakness.

Copleston High School
Numeracy Across the Curriculum

Numeracy is a proficiency, which involves confidence and competence with numbers and measures. It means that students need to have an understanding of the number system. They need to have computational skills and be able to apply them to solve problems in a variety of contexts. Numeracy also requires them to have an understanding of how information is gathered by counting and measuring and how it is presented in graphs, charts and tables.

Mathematical skills can be consolidated and enhanced when pupils have opportunities to apply and develop them across the curriculum. Poor numeracy skills, in particular, hold back pupils' progress and can lower their self esteem. To improve these skills is a whole school matter. Each department should identify the contribution it makes towards numeracy and other mathematical skills so that pupils become confident at tackling mathematics in any context.

The School Policy is that:
Numeracy is a key skill in student's learning and all students are entitled to quality experiences in this area. The teaching of Numeracy is the responsibility of all staff and the school's approaches should be as consistent as possible across the curriculum.

Curriculum areas will try to make sure that materials presented to students match their capability in terms of subject content and in numerical demands made.

All teachers should consider pupils' ability to cope with the numerical demands of everyday life and provide opportunities to

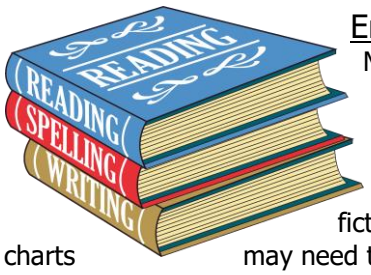
- handle number and measurement competently, mentally, orally and in writing
- use calculators accurately, efficiently and appropriately
- interpret and use numerical and statistical data represented in a variety of forms.

Numeracy in other Subject Areas

There will be opportunities for students to use and apply numeracy skills in a wide variety of contexts and students will be using a range of strategies and methods. No one method should be seen as being the 'right one' as students are encouraged to develop their own accurate and efficient methods. They may not be the ones you used at school!

Links between mathematics and other subject areas

Mathematics and numeracy contribute to many curriculum areas and often provide practical applications of skills acquired in mathematics lessons. It is a good opportunity to apply and use mathematics in real contexts.



English

Mathematics lessons help to develop literacy skills by teaching mathematical vocabulary and technical terms and by requiring pupils to read and interpret problems and identify the mathematics necessary to solve the problem. It also requires pupils to explain their methods and strategies to others and present their findings and conclusions. English lessons may provide non-fiction texts in which mathematical information in the form of graphs, tables or charts may need to be interpreted and explained. In Library lessons the Dewey classification is an excellent application of decimal ordering.

Science

Almost every scientific experiment or investigation is likely to require some mathematical skills in either
classifying, counting, measuring, calculating, estimating, and recording in charts, tables or graphs. Science will provide a wide range of situations in which numeracy skills will be required in real life contexts.

Art, Design and Technology

All of these areas rely quite heavily on the pupils being able to measure and use spatial skills and the properties of shapes including the use of symmetry. Designs may require enlarging or reducing and the use of ratios may be required in the context of modifying recipes. In Food there is the need to use time and calculations involving money.

Humanities and RE

In History and Geography pupils may collect data by measuring or counting and record results in the form of charts, tables or graphs. They will also need to interpret data presented in the form of charts or graphs. Historical ideas require an understanding of time and time lines similar to the number line. Map skills require the understanding of coordinates and ideas of angles, directions, position, scale and ratios.

Physical Education and Music

Athletics requires the understanding of measurements including time, speed, height, length and distance. In other areas of PE and music ideas of time, position, movement, symmetry and direction are required.

Information Technology

Students will be able to use skills of collecting, classifying and representing data by using data handling software and produce graphs and tables and interpret their results. They may use computer models and simulations that will require their ability to manipulate numbers and identify patterns and relationships. When using control software they require the ideas of angle, measurement and distance.

The key to making the most of these opportunities is to identify the mathematical possibilities across the curriculum at the planning stages. You should also draw the student's attention to the links between subjects both in mathematics lessons and when using mathematical skills in other areas of the curriculum.

Department	Content
Art	Symmetry; paint mixtures as a ratio
Food	Recipes as a ration; reading scales
Geography	Representing data; use of spreadsheets
History	Timelines; sequencing events
ICT	Representing data
MFL	Dates; counting in different languages
Music	Sequencing
PE	Collection of real data
RE	Interpretation/comparison of data from secondary sources
Science	Calculating with formulae; three-way relationships
Textiles	Scale; practical equipment; proportion

Examples of Cross Curricular Guidance

This document should provide information and guidelines to help provide consistency across the curriculum – it is not intended to be prescriptive but does contain advice. It is recognised that other departments may have their own specific techniques which the Mathematics department will take on board as necessary and as advised.

Approaches

- It must be recognised that not all students in your groups will have the same numerical skills and where you are unsure of the capabilities of particular students a member of the Mathematics department should be consulted.
- All subject areas will discourage students from writing answers only and encourage them to show numerical working within the body of their work.
- All teachers will encourage estimation particularly for checking work.
- All teachers will encourage the writing of mathematically correct statements.
- It must be recognised that there is never only one correct method and students will be encouraged to develop their own strategies and methods where appropriate and will not necessarily be taught *set* ways.
- Wherever possible students will be encouraged to vocalise their mathematics so that full understanding can be promoted – this may be an essential step for some students.
- All students should be helped to understand the method they are being asked to use or being taught – they are then more likely to be able to transfer this method and remember it rather than learning by rote.

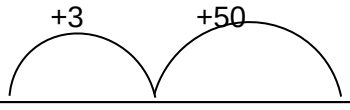
Methods

Where a student is gaining success with a particular method it is important that s/he is not confused by being given another method. This does not disallow the possibility of introducing alternatives in order to improve understanding or as part of a lesson deliberately designed to investigate alternative methods, provided students can manage this without confusion.

Number

Below, you will find examples of problems involving the four operators, how they are taught, and approached by pupils at different stages in their school lives. It is important to remember that, pupils on entry to secondary school, may still be using these earlier methods of calculation.

Addition and Subtraction

Addition is commutative so a+b=b+a	**Subtraction** is not commutative so a-b ≠b-a
Example : 29 + 39 = 30 + 40 - 2 = 70 - 2 = **68** **or** 29 + 39 = 20 + 30 + 9 + 9 = 50 + 18	Example : 90 - 37 = 90 - 40 + 3 = **53** **or** 

= 50 + 10 + 8 = 60 + 8 = **68**	37 40 90 ∴ 90 – 37 = **53**
Example: 8642 + 753 8000 + 600 + 40 + 2 700 + 50 + 3 8000 + 1300 + 90 + 5 = **9395** **or** 8000 + (600 + 700) + (40 + 50) + (2 + 3) = 8000 + 1300 + 90 + 5 **= 9395** **or** 8642 By this time they +753 *understand* **9395** carrying 1	Example: 2410 - 482 1000 1300 100 10 2000 + 400 + 10 + 0 – 400 + 80 + 2 1000 + 900 + 20 + 8 **= 1928** **or** 2410 - 482 Using what they -2 know about -70 negative numbers 2000 **1928** 1 13 10 1 By now they **or** 2410 understand - 482 *borrowing* **1928**

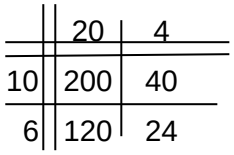
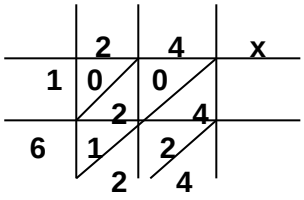
Multiplication and Division

Multiplication is usually associated with the idea of repeated addition, e.g.:
7 x 6 = 6 + 6 + 6 + 6 + 6 + 6 + 6 = 42
Division is associated with repeated subtraction or sharing, e.g.:
42 ÷ 7 = 42 – 7 – 7 – 7 – 7 – 7 – 7 – 7 = 0 (42 shared equally 6 times)

Multiplication is commutative axb=bxa	**Division** is not commutative a÷b≠b÷a
Pupils will be taught multiplication tables up to 10 x 10 and associated facts, e.g.: If 7 x 9 = 63 because commutative then 9 x 7 = 63 63 ÷ 9 = 7 63 ÷ 7 = 9 ∴ 6 x 4 = 24 Halving and Doubling 3 x 8 = 24 7 x 29 = (7 x 30) – (7 x 1) = (7 x 3 x 10) – (7 x 1) = 210 – 7 = **203** 20 x 30 = (2 x 10) x (3 x 10) Using = 2 x 3 x 10 x 10	Recognition that division is the inverse of multiplication, e.g.: 63 ÷ 9 = 7 became 7 x 9 = 63

<table>
<tr>
<td>multiples of 10 = 6 x 10 x 10
= 600</td>
<td></td>
</tr>
<tr>
<td>Example: 275 x 8
(200 x 8) + (70 x 8) + (5 x 8)
1600 + 560 + 40
= 2200
or
275 x 2 = 550
275 x 4 = 1100 (doubled)
275 x 8 = 2200 (doubled)
or
<table><tr><td>x</td><td>200</td><td>70</td><td>5</td></tr><tr><td>8</td><td>1600</td><td>560</td><td>40</td></tr></table> Grid method
= 1600 + 560 + 40
= 2200</td>
<td>Working on the idea that division is repeated subtraction. e.g.:

458 ÷ 3
Since 3 x 100 = 300 and
3 x 200 = 600
the answer must be between 100 and 200 (estimation).
3 x 100 = 300
3 x 50 = 150 (halving)
3 x 150 = 450
3 x 2 = 6
3 x 152 = 456
So: 458 ÷ 3 = 152 remainder 2</td>
</tr>
</table>

Multiplication	Division
Example: 24 x 16 24 x 10 = 240 24 x 16 24 x 6 = (20 x 6) + (4 x 6) = 144 240 + 144 = **384** **or** (24 x 20) – (24 x 4) =480 – 96 = **384** **or**  24 x 16 = 200 + 120 + 40 + 24 = **384** ***Note: This is a very popular method is known as the 'box' or 'grid' method. This is an algorithmic method that does require understanding but is utilised very effectively my many pupils.*** **or**  **3 8 4** adding the diagonals	Example: 432 ÷ 15 20 + 8 15 ⟌432 (15 x 20) 300 132 (15 x 8) 120 15 x 10 = 150 15 x 20 = 300 15 x 4 = 60 15 x 8 = 120 ∴ 432 ÷ 15 = **28 remainder 12** The above method is referred to as '***chunking'***, as they are subtracting chunks of 15 at a time.
Standard method – long multiplication 24 x 16 144 (6 x24) 240 (10 x 24) **384**	Standard method – long division 28 r 12 15 ⟌432 30 132 120 12

Many lower attaining pupils experience great difficulty in understanding some formal methods of calculation. It is essential to build upon what the child knows, understands and can do. The examples above are real examples of how pupils have approached the problems.

FRACTIONS DECIMALS AND PERCENTAGES
NON-CALCULATOR METHODS

Calculating with fractions

It is worth pointing out that 'of' in English translates to '×' in mathematics

Example: Calculate $\frac{5}{6}$ of £48

Solution: Find $\frac{1}{6}$ and multiply by 5

To find $\frac{1}{6}$ of 48 we need to divide 48 by 6.

So, $\frac{1}{6}$ of 48 = 48 ÷ 6 = 8

So, $\frac{5}{6}$ of 48 = 5 x $\frac{1}{6}$ = 5 x 8 = 40.

Final answer

$\frac{5}{6}$ **of £48 = £40**

Calculating with Percentages

Since 10% = $^1/_{10}$, to find 10% of £240 we divide 240 by 10.

Students should be able to find 10%
and therefore multiples of 10%
eg 30% is 3 x 10% and 5% by halving 10%

Example: Find 35% of £240
Now, since 10% is equal to **£24**
and
½ of 10% is 5%

then 5% is ½ of £24

=£12

35% of £240 = 3 x £24 + £12

= £84

Whilst it is possible, it would be inefficient to calculate 23.608% of 406.87kg using this method.
For this a calculator is best used!

Changing a percentage into a decimal

To change a percentage into a decimal we aim to remember that percentage means "per-hundred". Therefore 23% means 23 per 100. This is written as $^{23}/_{100}$, and to change this fraction into a decimal we divide 23 by 100, to give 0.23

Note:

Most pupils simply need to remember that to change a percentage into a decimal, they should divide the percentage by 100.

Example 23% of £36 = 0.23 x 36 a calculator can now be used

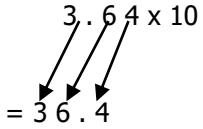
= 8.28

= £8.28

Please note when using the calculator for money calculations 4.7 on the calculator needs to be interpreted as £4.70

Standard Form
Students need to be aware of how their calculators express standard form and what it means. E.g. on some calculators $5 \div 200 = 2.5^{-2}$
It should be noted that this should be recorded as 2.5 x 10^{-2} and that it is equivalent to 0.025

Multiples of ten
When multiplying by ten we do not teach the 'rule' add a nought or move the decimal point along one but rather explain that the numbers move one place to the left relative to the decimal place. So



However once this has been understood students may adopt their own method for multiplying and dividing by multiples of 10.

Time
Pupils should never record 3hrs and 30 mins as 3.30hrs but as 3.5hrs.
[When working with time it is possible to use the degrees/mins/secs key on many calculators.]

Algebra

Equations:
The terms "cross-multiply" and "swap sides – swap signs" can lead to misunderstandings, as part of any explanation of how to solve equations and so should be avoided. Once students understand and are proficient with solving equations they may use these terms however.

To teach solution of linear equations we use the 'balancing method' or a flow diagram
To solve: $3x - 7 = 5$

Balance Method:

$3x - 7 = 5$ (add 7 to both sides)
$3x - 7 + 7 = 5 + 7$
$3x = 12$ (divide both sides by 3)
$3x \div 3 = 12 \div 3$
$x = 4$

Flow Chart Method:

START: x $\rightarrow$ [x3] $\rightarrow$ [-7] $\rightarrow$ 3x - 7 (you now UNDO)
END: 4 $\leftarrow$ [÷3] $\leftarrow$ [+7] $\leftarrow$ 5
X = 4

Shape, Space and Measures

Rough Conversions between Metric and Imperial:

In the Maths Department we teach the following conversions:

1 inch ≈ 2.5 cm	1 yard ≈ 1 m	1 kg ≈ 2.2 lbs
2 pints ≈ 1 litre	1 mile ≈ 1.6 km	1 oz ≈ 25 g

Pupils should be expected to record the units they are using when answering a question.

Please note that we use cm^2 and not sq cm

Estimation

Estimation is an important aspect of measurement and drawing. Pupils should be encouraged whenever possible to make sensible estimates before measurement. Estimation can help pupils avoid careless mistakes in measurement. Estimation can also be used to introduce discussion on appropriate and sensible degrees of accuracy. The degree of accuracy of an answer should be consistent with the data given: so if a question uses values correct to 1 decimal place then the answer should be to no more than 1 decimal place.

Tables, Charts and graphs

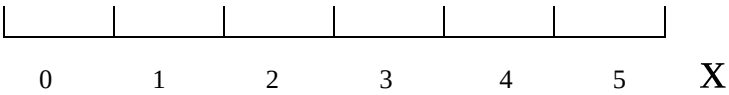
For consistency and accuracy, drawing will usually be done in pencil, with straight lines drawn using a ruler, *for example, in tables, graph axes, sketches and diagrams.* Points and lines on graphs should be plotted and drawn using a sharpened pencil. Labelling of graphs and diagrams should normally be completed in ink, *for example titles, axes labels etc.*

Plotting Points

When drawing a diagram on which points have to be plotted some pupils will need to be reminded that the numbers written on the axes must be on the lines not in the spaces. Points should be plotted with crosses and not dots.

eg

NOT

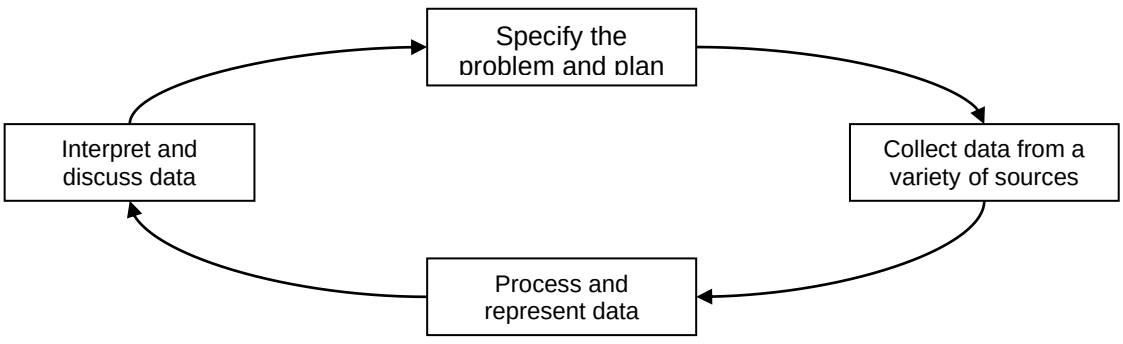


Axes

When drawing graphs to represent experimental data it is usual to use the horizontal axis for the variable which has a regular class interval.
eg In an experiment in which temperature is taken every 5 minutes the horizontal axis would be used for time and the vertical axis for temperature.
Having plotted points pupils can sometimes be confused as to whether or not they should join the points. If the results are from an experiment then a 'line of best fit' will usually be needed. Further details appear in the following section on Data Handling.

Data Handling

Most students will be familiar with the data handling cycle as below.



Specifying the problem and planning

In order to specify a problem, pupils need to suggest a conjecture (hypothesis) that could be investigated. A *conjecture* is a *hypothesis*. This means that it is a statement about something you're going to investigate,

eg: tallest athletes jump best
the cost of a car has an effect on its top speed

Collecting Data

It is important that data are collected for a purpose. Data is found as either:
Primary data – data you collect yourself using a survey or experiment; or
Secondary data – data that is already collected for you. You can find secondary data in books or on the internet.
For a sample to be statistically significant there needs to be a sample size of at least 30

Representing data and interpretation

Representing data in an orderly and easy-to-read/understand form is paramount to Handling Data. Charts and diagrams without headings, labels and an appropriate scale are useless.
The representations synthesise the raw data into summary information. Please see later guidelines for constructing graphs and charts

Averages

This is a typically sized number that is used to represent a set of data. There are three main averages used in different circumstances. You have to choose the most appropriate average to use.

MEAN The sum of all the values divided by the number of values, eg Find the mean of 6, 3, 1, 4

$$\text{Mean} = \frac{6 + 3 + 1 + 4}{4}$$

$$= 14 \div 4$$

$$= \mathbf{3.5}$$

MEDIAN The value in the middle of the data after it has been arranged in size order. If we have an even number of data, then we find the mean of the middle two values.

Example 1. Find the median of 4, 6, 3, 2, 1

6, 4, ③, 2, 1 or 1,2,③,4,6 ∴ **Median is 3**

Example 2. Find the median of 4, 6, 3, 2, 1, 2

6, 4, (3, 2,) 2, 1 ∴ $\text{Median} = \frac{3 + 2}{2}$

$$= \mathbf{2.5}$$

Mode The value in the data that occurs most frequently, e.g.

Find the mode of : 3, 15, 0, 3, 1, 0, 4, 3 **Mode = 3**

There may be two values that occur the same number of times and therefore there can be 2 modes but no more than 2 modes are usually given. If there is no number that occurs most often, there is no mode.

NOTE: The **range** is the spread of data it is not an average, i.e. the largest value subtract the smallest value, and so it is therefore a single value e.g.:

7, 6, 8, 12, 9 **Range = 12 – 6 = 6**

The mean is a good average when the range is small. The median is a useful average when the range is large.

Calculators

For a lot of calculations a mental or pencil and paper method will be appropriate and this will help to promote general numeracy skills. However, it is recognised that there are situations when a calculator is necessary and departments should ensure that students have access to calculators in this case. The Mathematics department does require that each student has access to a calculator but also recognises that this may not always be the case and sometimes calculators are shared within a family.

When calculators are used for a specific function it must be recognised that the correct use of the calculator may have to be taught. Please consult a member of the Mathematics department if in any doubt.

In deciding when pupils use a calculator in lessons we should ensure that:

- pupils' first resort should be mental methods;
- pupils have sufficient understanding of the calculation to decide the most appropriate method: mental, pencil and paper or calculator;
- pupils have the technical skills required to use the basic facilities of a calculator constructively and efficiently, the order in which to use keys, how to enter numbers as money, measures, fractions, etc.;
- pupils understand the four arithmetical operations and recognise which to use to solve a particular problem;
- when using a calculator, pupils are aware of the processes required and are able to say whether their answer is reasonable;
- pupils can interpret the calculator display in context (e.g. 5.3 is £5.30 in money calculations);
- we help pupils, where necessary, to use the correct order of operations – especially in multi-step calculations, such as (3.2 - 1.65) x (15.6 - 5.77).

Guidelines for Constructing Graphs and Charts

Students should be encouraged to:

- use a sharp pencil.
- label both axes and give a title
- use independent variable on *x*-axis, and dependent variable on the *y*-axis, eg: if graphing temperature of a cooling liquid, time should go on the *x*-axis and temperature on the *y*-axis. [The temperature of the liquid is dependent on the time of the reading.]
- label lines not spaces, unless a bar-chart with discrete data
- use equally spaced intervals
- use convenient scales
- mark points by a small cross not a dot
- draw graphs on squared or graph paper
- to draw graphs of a sensible size (they tend to make them too small)
- If axes do not start from zero, a break represented by a zig-zag line should be shown on the axis.

Pupils should be exposed to Bar Charts, Pie Charts, Pictograms, Line graphs and Cumulative frequency curves. Histograms are only tackled by higher level students.

Bar Charts

These are the diagrams typically used to compare categories and most frequently used in areas of the curriculum other than mathematics. The way in which the graph is drawn depends on the type of data to be processed.

Graphs should be drawn with **gaps between the bars** if the data categories are not numerical (colours, makes of car, names of pop star, etc) or are discrete data. In cases where there are gaps in the graph the horizontal axis will be labelled beneath the columns. All bars should be of equal width. A similar diagram with unequal bars is likely to be a histogram but the vertical axis in this case is frequency density.

The labels on the vertical axis should be on the lines.

Discrete data
Data is described as discrete if specific values only can be used, eg. shoe size is discrete as sizes such as 4.8 and 5.77 cannot exist.

Continuous data
Data is described as continuous if all values can exist, eg. height and weight are continuous data as potentially any value could be measured.

Pie Charts
These are typically used to compare categories as fractions of the whole data. The way in which pupils should be expected to work out angles for a pie chart will depend on the complexity of the question. If the numbers involved are simple it will be possible to calculate simple fractions of 360°.
However, with more difficult numbers which do not readily convert to a simple fraction pupils should first work out the share of 360° to be allocated to **one** item and then multiply this by its frequency.
eg. 180 pupils were asked their favourite core subject.

Each pupils has 360 ÷ 180 = 2° of the pie chart.
Pie charts should have each sector labelled and have an overall title. Alternatively a key could be provided.

Scatter graphs
These are typically used to see if one measurement varies with another measurement. Each measurement is plotted on its own axis ie one on the x axis and one on the y axis. If possible a 'line of best fit ' should be drawn.

The degree of correlation between the two sets of data is determined by the proximity of the points to the 'line of best fit'
The 'line of best fit' does not have to go through (0,0) and should be one straight line.

A positive correlation between the two variables occurs when on variable increases as the other increases. However you need to ensure that there is a reasonable connection between the two, e.g. ice cream sales and temperature. Plotting use of mobile phones against cost of houses will give two increasing sets of data but are they connected? The two variables (measurements) should relate to the same 'item' eg ice cream sales and the temperature on that day.

Negative correlation depicts one variable increasing as the other decreases, no correlation comes from a random distribution of points.

Numeracy Opportunities

Provision	Brief description
Numeracy Form Activities	As a part of the school's drive to improve our Numeracy skills across the school, we have designed a range of activities for students to do during form time. Please see an example of some of the activities on our Pastoral Page.

Year 7	Registration group comprising of 'hard to reach' students in Year 7. Mathematical activities are completed during registration time to support pupils needs.
Year 8	Registration group comprising of 'hard to reach' students in Year 8. Mathematical activities are completed during registration time to support pupils needs.
Year 9	Registration group comprising of 'hard to reach' students in Year 9. Mathematical activities are completed during registration time to support pupils needs.
Year 10	Registration group comprising of 'hard to reach' students in Year 10. Mathematical activities are completed during registration time to support pupils needs.
Year 11	Pupils who are identified for extra intervention from tracking data will be selected to go into an intervention form. One group follow the higher curriculum and the other the foundation curriculum. Intervention forms are reviewed after the Autumn mock examinations.