Kingsdown School

Whole School Policy for Numeracy

Kingsdown School recognises that numeracy and literacy are essential and complementary skills that need to be acquired by all students.

Kingsdown School is committed to raising the standards of numeracy of all of its students, so that they develop the ability to use numeracy skills effectively in all areas of the curriculum and the skills necessary to cope confidently with the demands of further education, employment and adult life.

Rationale

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. Numeracy skills can be consolidated and enhanced when students have opportunities to apply and develop them across the curriculum. Poor numeracy skills, in particular, hold back students' progress and can lower their self-esteem. Each department should identify the contribution it makes towards numeracy and other numerical skills so that students become confident at tackling numeracy in any context. All departments will use the Shotton Hall materials as a common framework to ensure that there is consistency in the language used to discuss numeracy with students.

Aims

- to develop, maintain and improve standards in numeracy across the school
- to ensure consistency of practice including methods, vocabulary, notation, etc
- to indicate areas for collaboration between subjects
- to raise students' own expectations of achievement, thus raising standards
- to assist the transfer of students' knowledge, skills and understanding between subjects
- to develop students' confidence and ability to express themselves numerically; improving numeracy can have an impact on students' self-esteem, on motivation and behaviour. It allows them to learn independently. It is empowering.

Roles and Responsibilities

Mathematics Teachers: provide students with knowledge, skills and understanding they need to use numeracy effectively.

Teachers across the curriculum: all staff are responsible for ensuring the importance of numeracy is understood by all students and to develop numeracy wherever the opportunity exists.

Numeracy Co-ordinator: identify and assess students with numeracy difficulties in liaison with the interventions manager. Monitor student progress and work with staff to determine future provision. Plan intervention programmes for students with numeracy difficulties. Monitor and track the progress of all students making less than expected progress and disseminate appropriate information to staff. Develop a programme for students to practice their numeracy skills in tutor time on a Monday. Raise the profile of numeracy across the school.

Heads of Department/Faculty/Subject Leaders: should feature numeracy considerations in all schemes of work, clearly indicating where and how they should be implemented; consider and address on-going numeracy issues within their subject areas; identify any training and support that can be offered to help develop subject-based numeracy materials.

Year Leaders and Tutors: identify any students who may have been missed through normal procedures. Identify any students whose poor numeracy may be linked to poor behaviour. Use tutor time effectively to support numeracy through activities including the tutor challenge and student learning profile.

Parents/Carers: encourage their children to use the range of strategies they have learnt to improve their levels of numeracy.

Students: take increasing responsibility for recognising their own numeracy needs and make improvements.

SLT: The Senior Leadership Team is responsible for providing resources necessary to implement this Policy and for monitoring its use throughout the school, with the support of the Mathematics Faculty and Numeracy Co-ordinator.

Governors: Curriculum Committee has responsibility for numeracy developments across the school.

All Departments Will Commit To:

- Ensure that materials presented to students will match their capability both in subject content and in numerical demands.
- Will liaise with the Special Needs and Mathematics Departments when appropriate in order to support their teaching and numeracy.
- Provide opportunities for students to: handle number and measurement competently, mentally, orally and in writing; use calculators accurately and appropriately; interpret and use numerical and statistical data represented in a variety of forms.
- Review schemes of work and teaching plans to identify opportunities for structured approaches to student numeracy.
- If your subject requires use of Numeracy then stress how the Mathematics lessons can help the student gain higher attainment in your subject.
- Use the modelling process to make explicit to students how to use numerical skills.
- Take opportunities to let students know the uses of numeracy in your life and include examples where appropriate in your lessons.

- When completing a task explicitly identify elements of numeracy and how they could not do it without using any element of Numeracy.
- Be consistent with the numerical fundamentals as taught by the Mathematics department. Some examples are shown below.

Sources of further information:
http://www.kangaroomaths.com/index.php
http://www.ncetm.org.uk
http://www.nationalnumeracy.org.uk/home/index.html
http://www.ons.gov.uk/ons/guide-method/census/2011/index.html
http://www.leics.gov.uk/education/ngfl/numeracy Pages 15-30

Signed : W Conaghan
W Conaghan
Headteacher

Date : 12th October 2015

Signed : M Blackwell
M Blackwell
Chair of Governors

Date : 12th October 2015

APPENDIX

Aims for Numeracy

Numeracy is a life skill. Being numerate goes beyond simply "doing sums". It means having the confidence and competency to use numbers and think mathematically in everyday life.

Examples of numeracy

- Being able to assess critically statistics used by the media.
- Being able to manage family budgets; credit cards; offers at supermarkets; travel offers; energy tariffs etc.
- Being able to estimate in all kinds of situations eg journey speed, time and distance; roughly how much a bill will be; or expected bank balance at the end of the month.
- Being able to tell the time and use calculations involving time.

Elements of numeracy

- Understanding the Number system and the use of Place Value
- Using operations to do calculations including with fractions and percentages
- Interpreting charts and graphs
- Using probability to understand chance and risk
- Problem solving in real life situations

Numeracy and Mathematics

Numeracy is a concrete and useful skill in the real world. Mathematics includes all the contents from numeracy and additionally covers more abstract concepts such as: Calculus, Quadratic equations, Algebraic manipulation, functions. These are skills required for studying scientific subjects at a more advanced level but are not necessary for everyday living. They do however develop areas of the brain needed for problem solving, creativity and logical thinking.

Opportunity to include Numeracy

People's dates of birth/death	Lord Byron 1788-1824, what age was he when he died? How long ago did he live?
Estimate numbers	How many plays did Shakespeare write? How many words in a play? How many UK servicemen served in Afghanistan
What ifs?	If the spectators who watched the Olympic athletics linked up side by side how many motorways would they fill?
Page numbers	If you use page numbers rather than give chapter or section or other way to describe where in book students must look then give a clue to the number rather than the number itself.

Use of =	Only use one = on a line. Aim to make the = line up under each other. Mathematics sentences such as: 2 x 4 + 5 = 2 x 4 = 8 + 5 = 13 should be written as 2 x 4 + 5 = 8 + 5 = 13
Multiplication	Use of a calculator is acceptable for say 124 x 47 but if no calculator is available then other methods are recommended. "Traditional" column method, "Grid Method" or "Chinese Method"

Traditional

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  124
   47
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 4960
  868
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 5828
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Grid

100	20	4	
4000	800	160	4960
700	140	28	868

			5828

Estimating	Even if a calculator is to be used, make an estimate of the solution first Example 23.5 x 115 approx 20 x 100 = 2000 actual is 2702.5
Digits after the decimal point	37.19 must be spoken as thirty seven point one nine. Not thirty seven point nineteen.

Terminology

Calculations	By calculations we mean the four operations – addition, subtraction, multiplication and division. These four operations can be used to calculate with positive and negative numbers, fractions and decimals, numbers in standard form and indices.
Operations	These are addition, subtraction, multiplication, division. If a calculation has more than one operation involved then they must be done in a pre-defined order; often referred to as BIDMAS or BODMAS.
Positive and Negative Numbers	Numbers greater than zero should be called positive. Numbers less than zero should be called negative. "Minus" is an operation meaning subtraction it is not an abjective.
Bar Charts	If charting non continuous data in bar charts then there should be gaps between the representations of each bar.
Histograms	If charging continuous data then the bars touch each other. Bar charts and histograms are often confused with each other.