

1 Peter 2: Verse 17 – 23

*Treat everyone you meet with dignity. Love your spiritual family. Revere God. This is the kind of life you've been invited into, the kind of life Christ lived. He never did one thing wrong, not once said anything amiss.*



# Whole School Numeracy Policy

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*Our Academy Vision is “Living Well Together with Dignity, Faith and Hope”. We aspire to take dignified decisions and afford dignity to all members of our community, regardless of background or circumstance. Our position as a Voluntary Aided Church Academy means that the Christian faith has a central role in all of our actions and decisions. We strive for excellence in all that we do, enabling our students to transform their lives and to hope for happy and successful futures.*

*At All Saints Academy, our vision translates into our everyday practice. The values of dignity and hope are particularly relevant when we consider the importance of having a sound understanding of numeracy and how this contributes to an independent and fulfilling life. Good numeracy skills are intrinsically linked to self-esteem and feelings of self-worth.*

## **Introduction**

At All Saints Academy we believe that numeracy is not the sole responsibility of the mathematics department. Most other subjects can, in fact contribute to the development and enhancement of students numeracy skills including their ability to describe and explain their strategies and reasoning.

This policy exists to provide a framework for supporting our stated aim of “*Living Well Together in Dignity, Faith and Hope*”, and this translates into our everyday practice.

Numeracy skills enable students to understand and interpret numerical and analytical information. This facilitates improvement in students' abilities to make their own judgments and to draw sensible conclusions from information.

If students' numeracy skills are not developed and used they may well be denied the opportunity to develop the level of understanding of some topics or subjects at the level expected for their age.

Without basic numeracy skills, students can lack both personal and social adequacy which is a recipe for failure and low esteem.

All Saints Academy Dunstable is committed to ensuring opportunities and access for all and values the abilities and achievements of all our students. We aim to identify, make provision and make reasonable adjustments where possible, for students with Special Educational Needs. All Saints Academy is an Academy that aims to promote a community which is inclusive and accessible by all. We strive to ensure students flourish and show compassion for one another and for the wider local community.

We also aim to create and maintain awareness within the Academy of the needs of students with special educational needs and/or disabilities, so all members of the Academy share the responsibilities. We recognise the value of parents/carers in supporting their children and will look to engage them in planning to meet the needs of individuals.

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## **2.0 PURPOSE**

The purpose of this whole school numeracy policy is:

- To develop 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 assist the transfer of pupils' knowledge, skills and understanding between subjects.

## **2.1 Developing, improving and raising standards.**

In order to reflect our vision, particularly the value of dignity, we are striving to raise standards in numeracy across the Academy. This cannot be solely judged in increased test percentages. There is a need to evaluate the pupils' ability to transfer mathematical skills into other subject areas, applying techniques to problem solving. Their confidence in attempting this is initially as important as achieving the correct solution. The Senior Leadership Team also has a commitment to the implementation and evaluation of this work. They are aware of the need to create time for liaison, particularly between Middle and Curriculum Leaders, to sustain the cross curricular links forged between subject areas through our creative curriculum. The effectiveness of these links will reduce the replication of work by teachers and pupils.

Pupil interviews and work sampling will be the main processes for evaluating the success of our practice.

## **2.2 Consistency of Practice.**

### **Teachers of Mathematics should:**

1. Be aware of the mathematical techniques used in other subjects and provide assistance and advice to other departments so that a correct and consistent approach is used in all subjects.
2. Provide information to other subject teachers on appropriate expectations of students and difficulties likely to be experienced in various age and ability groups.
3. Through liaison with other teachers and sequencing of the curriculum, ensure that students have appropriate numeracy skills by the time they are needed for work in other subject areas.
4. Seek opportunities to use topics and examination questions from other subjects in mathematical lessons.

### **Teachers of Other Subjects should:**

1. Ensure that they are familiar with correct mathematical language, notation, conventions and techniques, relating to their own subject, and encourage students to use these correctly.
2. Be aware of appropriate expectations of students and difficulties that might be experienced with numeracy skills.
3. Provide information for mathematics teachers on the stage at which specific numeracy skills will be required for particular groups.
4. Provide resources for mathematics teachers to enable them to use examples of applications of numeracy relating to other subjects in mathematics lessons.

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#### **4.3 Areas of Collaboration.**

**In order to reflect our vision effectively, staff have a sense of mutual responsibility, mutual trust and support. Staff liaise closely with each other to ensure the concept of education being a gift can flourish. As a result, the following areas of collaboration are consistently encouraged.**

##### **Mental Arithmetic Techniques:**

All departments should give every encouragement to pupils using mental techniques but must also ensure that they are guided towards efficient methods and techniques when a written or calculator method is required.

##### **Written Calculations:**

Pupils are now expected to use long multiplication and long division, not other methods.

##### **Whole school Policy on the use of calculators:**

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 understand the four arithmetical operations and recognise which to use to solve a particular problem;
- Pupils have the technical skills required to use the basic functions of a calculator constructively and efficiently, the order in which to use keys, how to enter numbers as money, measures, fractions, etc;
- 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  $(3.2 - 1.65 \times (15.6 - 5.77))$ , BIDMAS

#### **Vocabulary.**

**The following are all important aspects of helping pupils with the technical vocabulary of Mathematics.**

- i. Use of display for key words.
- ii. Using a variety of words that have the same meaning e.g. add, plus, sum etc.
- iii. Encouraging pupils to be less dependent on simple words e.g. exposing them to the word multiply as a replacement for times
- iv. Discussions about words that have different meanings in mathematics from everyday life e.g. take away, volume, product etc.
- v. Highlighting word sources e.g. quad means four, lateral means side, so that pupils can use them to help remember meanings. This applies to both prefixes and suffixes to words. Pupils should become confident that they know what a word means so that they can follow the instructions in a given question or interpret a mathematical problem. For example a pupil reading a question including the word perimeter should immediately recall what that is and start to think about the concept rather than struggling with the word and then wondering what it means and losing confidence in their ability to answer the question. The instant recall of vocabulary and meanings can be improved through retrieval tasks such as flash card activities.. Try to do this twice a half term (or once every topic) with each group – this may be key vocabulary at the start of a unit of work or recalling vocabulary from previous mathematics.

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#### **4.4 The Transfer of Pupils' Knowledge, Skills and Understanding between Subjects.**

It is vital that as the skills are taught, the applications are mentioned and as the applications are taught the skills are revisited. The mathematics team will deliver the curriculum, knowledge, skills and understanding through the schemes of work, using direct interactive teaching. They will make references to the applications of mathematics in other subject areas and give contexts to many topics. Other curriculum teams will build on this knowledge and help pupils to apply them in a variety of situations. Liaison between curriculum areas is vital to pupils being confident with this transfer of skills and the maths team willingly offers support to achieve this.

Detailed below are some examples different ways maths and numeracy may be encountered in other Curriculum areas.

ART – symmetry; use of paint mixing as a ratio context.

ENGLISH – comparison of 2 data sets on word and sentence length.

FOOD TECHNOLOGY – recipes as a ratio context, reading scales.

GEOGRAPHY - representing data, use of spreadsheets.

HISTORY – timelines, sequencing events.

ICT – representing data; considered use of graphs, bar charts for discrete data, histogram data.

MFL – dates, sequences and counting in other languages; use of basic graphs and surveys to practice foreign language vocabulary and reinforce interpretation of data.

MUSIC – fractions.

PHYSICAL EDUCATION – collection of real data for processing, estimation, time and measurement.

RELIGIOUS EDUCATION – interpretation and comparison of data gathered from secondary sources (internet)

SCIENCE – calculating with formulae, graphing skills.

TECHNOLOGY – measuring skills, units of area and volume, scale practical equipment, and proportion.