**Numeracy Policy**

St John the Baptist’s College (SJBC henceforth) is committed to raising standards of numeracy in all its pupils, so that they develop the ability to use this core skill effectively in all areas of the curriculum and, most importantly, are prepared with the necessary skills to cope confidently with the demands of further education, employment and adult life.

**1. What is Numeracy?**

Numeracy is a proficiency that involves confidence and competence with numbers and measures. It requires an understanding of the number system, a repertoire of computational skills and an inclination and ability to solve number problems in a variety of contexts. Numeracy also demands a practical understanding of the ways in which information is gathered by counting and measuring, and is presented in graphs, diagrams, charts and tables.

**1.2 Key Stage 3 Numeracy Requirements**

SJBC recognises that Mathematics and Numeracy is a compulsory Area of Learning at Key Stage 3. It gives pupils a wider understanding of how the world around them works and prepares them for making decisions, solving problems and processing everyday information.

At Key Stage 3, Mathematics and Numeracy has two subject strands: Mathematics and Financial Capability.

Numeracy helps pupils to develop important skills such as calculating, logical thinking and investigating. It enables pupils to:

* understand quantity and measures;
* appreciate patterns and relationships;
* explore size and shape; and
* analyse data and chance.

The Numeracy expectations of students entering and leaving Key Stage 3 have been laid out in Appendix 1 of this document.

**1.3 Key Stage 4 Numeracy Requirements**

The Council for Curriculum, Examinations and Assessment (CCEA henceforth) does not regard numeracy as compulsory for pupils at Key Stage 4, and therefore there is no prescribed minimum content for Mathematics and Numeracy at Key Stage 4. However, this Numeracy policy, as with the SJBC Numeracy Action Plan, applies to all of our students and has been designed to provide all students with the appropriate numerical and problem solving skills so that they may be empowered to excel.

**1.4 Aims of the St John the Baptist’s Numeracy policy**

● To raise the profile of numeracy across the school.

● To support the transfer of pupils’ knowledge, skills and understanding between subjects by

ensuring consistency of practice including methods, vocabulary and notation.

● To address underachievement and positively challenge high achieving students

● Make numeracy teaching an overt part of every curriculum area where it naturally arises.

**1.5 Numeracy expectations regarding the Department of Mathematics**

The Maths Department are expected to lead by example by continuing to create a positive and attractive environment which celebrates numeracy.

The following is a non-exhaustive list of how the Maths department raises numeracy standards across the college.

● Run the Numeracy Ninjas programme in Year 8 (and in other year groups where necessary) to fill gaps in pupils’ basic mental calculation strategies and also to empower them with the numeracy skills and fluency required to fully access GCSE Maths concepts when they move to Key Stage 4 study

● Use PTM and GL data to identify pupils who require additional intervention to plug numeracy gaps. This intervention will be led by maths teachers whenever possible.

● Additionally, PTM and GL data will be used to identify potential high achievers and gifted and talented students. Additional provision will be made in order to stretch and challenge these students as well as positions of responsibility, in the role of numeracy leaders, being offered.

● Introduce and run the Times Tables Rock Stars programme in Year 8 (and in other year groups where necessary) to improve pupils’ speed and accuracy in recalling their times tables, an essential skill to free up working memory to solve other problems.

● Introduce and run the RM EasiMaths programme for pupils with SEN or additional needs who may require additional support to learn their times tables and other underpinning maths concepts effectively.

● Seek opportunities to use topics and examination questions from other subjects in mathematics lessons and vice versa.

● Be aware of the mathematical techniques used in other subjects and provide guidance and training to other departments so that a sound, coherent and consistent approach is used in all subjects, using preferred methods.

● Provide information to other departments about common misconceptions and errors which may occur during teaching of specific topics.

● Provide guidance to other departments on what numeracy skills pupils are expected to have acquired by any given stage, so that teachers know whether a skill needs teaching for the first time or reinforcing.

The above steps will ensure pupils meet or exceed the NI Curriculum Numeracy expectations of a KS3 pupil when they complete KS3 in SJBC.

**1.6 All other subjects**

● Create a positive and attractive environment which celebrates numeracy.

● Ensure that they are familiar with correct mathematical language, notation, conventions and techniques relating to their own subject and encourage pupils to use these correctly

● Be aware of appropriate expectations of pupils and difficulties that might be experienced

with numeracy skills.

● Explore possibilities for cross-curricular links with the Department of Mathematics through INSET sessions. (Please also see section 1.8 of this document).

**1.7 Mathematics and Numeracy across the Curriculum**

Mathematical skills can be consolidated and enhanced when pupils have the opportunity to apply and develop them across the curriculum. Poor skills, in particular, hold back a pupil's progress and lower their self-esteem. All teachers should consider pupil’s ability to cope with the numerical demands of everyday life and provide opportunities for pupils 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.

* 1. **Specific mathematical links with other subjects**

In order to achieve the aims of the SJBC Numeracy Policy specific mathematical links with other subjects have been made clear below and in staff training. The following in a non-exhaustive list;

|  |  |
| --- | --- |
| Department  | Mathematical content  |
| Art  | Symmetry; other transformations; paint mixtures as a ratio  |
| Geography  | Representing data; finding averages; use of spreadsheets  |
| History  | Timelines; sequencing events  |
| Digital Literacy  | Collecting and representing data  |
| Modern Foreign Languages  | Dates; counting in other languages  |
| PE  | Collecting real data; timing; measuring  |
| Science | Formulae; calculating means and percentages; calculating with positive, negative and decimals; substitution; rearranging formulae; collecting and representing data.  |
| Technology and Design  | Measurement; properties of shape; scaling and ratio.  |
| English  | Identifying important information in a text will help pupils to better understand problem solving questions |
| Music  | Sequencing  |

Where teachers struggle to see explicit Mathematical links with a specific topic Numeracy can still be incorporated into the class i.e. students can calculate the percentage of marks awarded to each question on past papers in any subject and fractions, percentages and ratios can be explored through roll call.

What fraction of the class is absent?

What percentage of the class is present?

Is more than 75% of the class present today?

What is the ratio of boys to girls today?

**1.9 Visual Numeracy**

In common areas the walls running alongside the corridor have visual maths problems displayed (addition/multiplication etc.) these are changed throughout the year.

Every department is also encouraged to have visual, Numeracy rich displays i.e the History department put up key dates, the Geography department put up distances, the Home Ec. department weights/ volumes etc.

**2.0 General advice**

The transfer of skills is something that many pupils find difficult. It is essential to start from the basis that pupils realise it is the same skill that is being used; sometimes approaches in subjects differ so much that those basic connections are not made.

**2.1 Calculators**

In order to improve numeracy skills, it is essential that pupils should be encouraged to use

non-calculator methods whenever possible. All should have calculators when they are necessary.

**2.2 Methods**

It is important that all departments are consistent with methods used for calculations to avoid confusion. This does not disallow the possibility of introducing a new method in order to improve understanding or part of a lesson designed to investigate alternative methods. The SJBC Numeracy Handbook is available to be consulted regarding consistent methods for commonly taught cross curricular topics.

**2.3 Problem Solving**

It is widely accepted that ‘problem solving is at the heart of mathematical activity and is important for students’ learning of Mathematics at all levels of education’ (Stylianides & Stylianides, 2014). It is now a requirement for post-primary teachers in the UK to ‘promote problem solving in Mathematics and Numeracy’ (CCEA, 2020). With this in mind Numeracy approaches in SJBC will focus on problem solving and promoting solution curiosity. Taking the emphasis off correct and incorrect answers will in turn alleviate maths anxiety which is in keeping with the SJBC pastoral policy. Suitable pedagogy methods for this problem solving approach will be delivered through INSET sessions and further information is available in the SJBC Numeracy Handbook.

**3.0 Numeracy clubs and Numeracy leaders**

The Key Stage 3 and Key Stage 4 Numeracy clubs will be run at lunchtime by the Numeracy Coordinator who will be assisted by selected Numeracy Leaders. In addition to this role the Numeracy Leaders have been appointed to:

* be a support to the class teacher
* provide peer mentoring to students within the class
* give help to peers
* help to drive Numeracy across the school with participation in CALC activities, UK Mathematics Challenge, Numeracy Fun Day etc.

**3.1 Important Numeracy Dates**

The following is a non-exhaustive list of important dates in which Numeracy events will be organised across the school;

* Maths Week Ireland (October)
* Pi Day (March 14th)
* National Numeracy Day (May)

**4.0 Monitoring and Evaluation**

To ensure that the aims and expectations laid out are being implemented, it is

important that monitoring and evaluation is on-going and regular.

* Increased Numeracy awareness will be monitored by effective numeracy-rich displays, including pupil’s work throughout the school and in classrooms.
* Schemes of work will have all the relevant Numeracy content high- lighted

 and addressed and where appropriate, suitable IT information included.

* The Numeracy Coordinator will monitor the effectiveness of Numeracy Withdrawals and pupils’ progression in Numeracy/Mathematics by the use of standardised testing and class teacher feedback. This will be done at the start and at the end of each academic year.

**Appendix 1 - Pupil expectations entering and leaving Key Stage 3**

**Part A**

**Year 8 Pupils should:**

Have a sense of the size of a number and where it fits in the number system;

Know number bonds by heart e.g. tables, doubles and halves;

Use what they know by heart to work out answers mentally;

Calculate accurately and efficiently using a variety of strategies, both written and mental;

Recognise when AND when not to use a calculator; using it efficiently if needs be;

Make sense of number problems, including non-routine problems, and recognise the operations needed to solve them;

Explain their methods and reasoning using correct mathematical terms;

Judge whether their answers are reasonable, and have strategies for checking;

Suggest suitable units for measuring;

Make sensible estimates for measurements;

Explain and interpret graphs, diagrams, charts and tables;

Use the numbers in graphs, diagrams, charts and tables to predict.

**Part B**

**Year 10 pupils should:**

Have a sense of the size of a number and where it fits into the number system;

Recall mathematical facts confidently;

Calculate accurately and efficiently, both mentally and with pencil and paper, drawing on a range of calculation strategies;

Use proportional reasoning to simplify and solve problems;

Use calculators and other ICT resources appropriately and effectively to solve mathematical

problems, and select from the display the number of figures appropriate to the context of a

calculation;

Use simple formulae and substitute numbers in them;

Measure and estimate measurements, choosing suitable units and reading numbers correctly from a range of meters, dials and scales;

Calculate simple perimeters, areas and volumes, recognising the degree of accuracy that can be achieved;

Understand and use measures of time and speed, and rates such as £ per hour or miles per litre;

Draw plane figures to given specifications and appreciate the concept of scale in geometrical

drawings and maps;

Understand the difference between the mean, median and mode and the purpose for which each is used;

Collect data, discrete and continuous, and draw, interpret and predict from graphs, diagrams, charts and tables;

Have some understanding of the measurement of probability and risk;

Explain their methods, reasoning and conclusions, using correct mathematical terms;

Judge the reasonableness of solutions and check them when necessary;

Give their results to a degree of accuracy appropriate to the context.