

## Mathematics Policy

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### Context

#### Implications of an acquired brain injury

'Maths is probably the most conceptual subject tackled in schools which makes it extremely difficult for pupils with an ABI, who find abstract ideas difficult. It is also a subject where sequencing is important. The steps in algorithms are very precise, yet these pupils have trouble thinking sequentially. Many young people try to learn all maths as skills – remembering 'how' to work out a problem by rote. This is often unsuccessful after an ABI because of the difficulties with memory.'

SHIPS Project

The achievement of mathematical competences depends not only upon the acquisition of knowledge on numerical concepts, calculation procedures and arithmetical rules, but also upon the development of specific cognitive skills, such as those related to problem-solving and visuospatial processing. Such functions are often impaired in cases of brain damage during childhood, depending on variables such as the extent and location of cerebral lesions.

Symptoms can be grouped into four categories: language symptoms; recognition or perceptual symptoms; mathematical symptoms; and attention symptoms.

People with **language symptoms** have trouble naming mathematical terms; understanding word problems; or understanding such mathematical concepts as "greater than" or "less than."

People with **recognition symptoms** have difficulty reading numbers and such operational signs as the plus or minus signs, or aligning numbers properly in order to perform accurate calculations.

**Mathematical symptoms** include deficiencies in the ability to count; to memorize such basic arithmetical data as the multiplication tables; or to follow a sequence of steps in problem solving.

**Attention symptoms** are related to failures in copying numbers and ignoring operational signs or a lack of understanding of the factors or operations involved in solving the problem.

This policy should be read in conjunction with the school's vision, values and aims.

#### Mathematics is important because:

- it is a way of making sense of the world around us
- it is a search for patterns and relationships
- it is a creative activity, involving intuition and discovery
- it provides a means of communicating information or ideas
- it is a way of solving problems
- it is important and useful in other fields of knowledge

### **Our aims for mathematics:**

We aim to provide a curriculum that promotes enjoyment and enthusiasm for learning through practical activity and exploration. For some pupils this will take place through the development of key skills, concepts, strategies and personal qualities.

### **HOW THIS SUBJECT IS TAUGHT**

#### Facts and Skills

- Using appropriate mathematical terms
- Applying mathematical notation
- Remembering conventions
- Knowledge of facts
- Using number operations
- Acquiring practical skills
- Using mathematics as a means of communication
- Using calculators in appropriate contexts

#### Concepts

- Acquiring basic concepts
- Using appropriate data
- Appropriateness and accuracy of results
- Seeing relationships between concepts
- Applying skills and concepts to real life situations

#### Strategies

- Estimating
- Looking for patterns
- Making and testing hypotheses
- Proving or disproving results
- Approximating
- Working systematically
- Reasoning logically
- Selecting appropriate materials

#### Qualities

- Enjoyment
- Interest and motivation
- Creativity and imagination
- Cooperation with others
- Confidence
- Flexibility
- Persistence
- Independence

### **National Curriculum**

Mathematics is part of our core subject curriculum and all pupils working within National Curriculum requirements have an individual curriculum plan with clear Personalised Learning Goals (PLGs). Our baseline assessments inform these PLGs, lessons and sequencing plans. Lessons are planned and delivered in accordance with either the National Primary or Secondary Frameworks. Lessons involve: mental and oral sessions (focusing on number work); the teaching of written methods of calculation; investigation work and problem solving, including real life application of maths. For some pupils, progression will not be linear and pupils may need to overlearn, relearn or repeat areas several times before moving on owing to the nature of their brain injury.

### **Early Years Foundation Stage**

Mathematics is one of the four specific areas in addition to the three prime areas in the revised EYFS Framework. Mathematics in EYFS covers:

Exploring counting

Pouring and filling

Puzzle and shape sorting

Number rhymes and songs

Patterns

Grouping/sizing

Animal- babies-adults

### **ER (Early Recovery) including pupils with Disorders of Consciousness**

Mathematics may be used as a context to teach specific core skills with the focus on developing sensory responses to stimuli and communication skills, for students who are not yet engaged in subject specific study.

### **Pre- Key Stage Standards**

Mathematics is topic based and is used for students who are engaged in subject appropriate study but may not yet be reaching NC standards.

### **Post 16**

Individual learning programmes based on qualification specifications (KS4/5) or year group progression, presented using materials and activities appropriate to the students chronological age, whatever the level.

Some students may also complete coursework linked to the AQA unit awards scheme, which can include mathematics-based units of study linked to life skills, independent living, or vocational skills.

Some students may complete coursework via their community VLE, if the student is ready for this.

## **HOW THE SUBJECT IS ASSESSED & PROGRESS TRACKED**

All pupils are baseline assessed in the first three weeks to ascertain what level they are working at. We compare this information to that received from pupils home-schools on entry to STC. This allows us to assess what new gaps the students have, what learning has been retained and what learning would be new for the pupil.

All Pupils follow a personalised programme based on their individual levels of attainment whilst also focusing on their SEN requirements following their acquired brain injury. Levels of attainment and SEN areas of difficulty are identified during initial, baseline assessments.

Individual targets are typically based on:

### **Primary Class:**

Attention and concentration

Information processing

Flexible thinking skills

Memory  
Planning and organisation  
Problem solving  
Reasoning and abstract thinking  
Monitoring and insight

**EYFS:**

Students' progress is measured through their PLG targets.

**Early Recovery:** (including pupils with Disorder of Consciousness)

Mathematics is not assessed as a discrete subject. Progress is tracked through personalised learning goals and core skills targets.

**Secondary and Post 16**

Self-assessment and teacher assessment using a combination of:

GCSE criteria and Entry level  
Mixed questions  
Assessment packs using assessment criteria at EL1, 2 and 3.  
Times tables  
Number bonds  
Days of the week  
Months of the year  
Units and measures  
Using and applying