

## SUMMARY OF THE BRIDGE SHORT STAY SCHOOL'S NUMERACY POLICY.

### **AIMS & OBJECTIVES OF THE NUMERACY POLICY**

- To raise numeracy standards across the curriculum.
- To equip young people with the skills they need to succeed in life.
- To support other lessons need and uses of numeracy in their lessons.
- To remove a possible barrier to young people education.
- To ensure consistency of practice including methods, vocabulary, notation etc.
- To assist the transfer of pupils' knowledge, skills and understanding between subjects.

Objective of numeracy policy	Staff responsible or affected
All staff will be involved in promoting numeracy skills in relevant activities.	All staff
All staff will be able to demonstrate good numeracy skills to the students.	All staff
All staff will know where to access support and materials in relation to numeracy.	All staff
Students will be actively participating in numeracy daily.	All staff
Staff will be able to use correct mathematical vocabulary and support pupils in the correct use of mathematical vocabulary.	All staff
To prepare students for their financial futures, providing an education in spending, wages, banking, saving and loans.	Maths dep'
Staff will be aware of how common misconceptions can accidentally be reinforced.	All staff
Staff will question and correct students misconceptions with numeracy.	All staff

### **WHAT GOOD PRACTICE OF NUMERACY LOOKS LIKE IN A CLASSROOM.**

- Allowing pupils time to work out mathematical problems related to their work, rather than giving them the answer because it is not a maths lesson.
- Questioning incorrect mathematics if it occurs and helping to lead the pupil through the correct method.
- Displaying best practice by using correct methods and terms, i.e. not describing one half as bigger than the other.
- **Emitting a positive image of maths, not telling the pupils that you "don't like maths", "maths wasn't your subject at school" or that you're "not very good at maths". Helping a pupil tackle a maths problem with enthusiasm and a 'can do' attitude will make a big difference to how hard they will try.**
- Draw out students' understandings and use their explanations as teaching points and challenge all students to reach their mathematical potential.

## **RAISING THE PROFILE OF NUMERACY.**

### **Activities to consider:-**

- Numeracy focus posters in each tutor room.
- Illustrating the importance of, for example:- pupils being able to make sense of information in chart/ graphical form and be able to describe the 'story' behind the graph.
- Pupils being able to make sense of calculation answers, check the reasonableness of an answer and select the most appropriate method of solution.
- Key word posters e.g. the language of operations, pre-fixes.
- Posters produced in other subjects displayed in maths rooms e.g. pupils work from The Mill illustrating the use of mm in measurement.
- Sign posts around school giving the distance to other places e.g. the hall, specific classrooms, the post office etc.
- Stickers giving measurements of doors, windows, desks etc in imperial & metric units.
- Laminated cards made available in non-mathematics lessons to help students with key maths skills e.g. multiplication grid, division hints ...
- Examples and exercises used in mathematics lessons based on examples and the schemes of work of other subjects.
- Key Vocabulary/key facts to be provided in student working folders.
- Glossary of maths terms to be available in all teaching rooms.
- Numeracy challenge of the week for use in tutor periods.

## **CROSS CURRICULAR - MATHEMATICS IN OTHER LESSONS.**

### Science

Recognise and use expressions in standard form

- Measuring quantities as weights or capacity.
- Substituting numbers into a formula.
- Converting between units.
- Calculation of volume and area.
- Measure distances, diameters etc.
- Use a scale, i.e. temperature on a thermometer.
- Order results numerically.
- Calculate averages.
- Design a data collection sheet and record results.
- Margins of error, calculating accuracy of results.
- Use of graphs.
- Use numerical evidence to support a prediction.

For more information on mathematics in the AQA science syllabus check out this

link; <http://www.aqa.org.uk/resources/science/gcse/teach/maths-skills-in-GCSE-sciences>

### Food technology

- Measuring out ingredients, using the scales.
- How much more \_\_\_\_\_ is needed?
- Comparing the required weight/ volume of an ingredient with the size of the packet.
- Proportion, scaling up or down recipes.
- Dividing out portions.
- Converting units.
- Timings, if the cookies take \_\_\_ minutes what time will they be ready?

### Media, business and ICT

- Pupils could collect and classify data and enter it into data handling software.
- Pupils could produce graphs and tables, and interpret and explain their results.
- Discuss units of measure of memory, and prefixes.
- Profit/loss.
- Spotting patterns in consumer activities.
- Percentages in data comparisons.
- Scrutinising questionnaire results.

### Sport and outdoor pursuits

- Map reading skills and time of the day.
- Using and measuring distances in a variety of activities.
- Pupils keep score, add up score in games.
- Pupils use a formula to work out maximum heart rate, and percentages to calculate training heart rate.
- Calculate total length from number of laps.
- Questions on time, total time, time for one half, time remaining.
- Counting repetitions in the gym, using multiplication i.e. 4 sets of 10.

### English

- When reading a book, discuss the current page and how many pages it is till page \_\_\_?
- In a text, if a quantitative reference is made, discuss the numbers and calculations that could involve (e.g. Benny scored twice as many hoops as Tom, you could ask what Benny's score was if Tom scored 4)
- Descriptive writing piece about information presented in statistical form.
- Pupils could present their conclusion of a piece of writing that they have read graphically.
- Time lines can be used to show a sequence of events in a piece of literature

### Art

- Isometric drawing. Plans and Elevation.
- Polygons and polyhedrons.

- Ratios when mixing inks, dyes and paints.
- Calculating the area and/or perimeter of shapes and canvases.
- Using scale factors to alter the size of an image.

#### **CROSS CURRICULAR – GENERAL NON-SUBJECT SPECIFIC.**

- With timed tasks get the pupils to read the time from the analogue clock, ask them what time it will be when they finish their \_\_\_\_ minute task, or if you give them a finish time ask them how many minutes they have left.
- Can you present the data or information you are using in lesson as a graph or chart?
- When lending equipment you can question a pupil on how many \_\_\_\_\_ are left.
- Numeracy focus posters in each tutor room. Illustrating the importance of, for example:- pupils being able to make sense of information in chart/graphical form and be able to describe the 'story' behind the graph. Pupils being able to make sense of calculation answers, check the reasonableness of an answer and select the most appropriate method of solution.
- When discussing the pupils current working level and target level ask the pupils how many sub levels there is between and how long they have, then ask the pupil to work out how long they have to progress each sub level.
- When filling in a pupils target sheet get them to calculate their total or average, then compare this to the expected value.
- At the end of the lesson ask the pupil to count up how many questions they have answered or paragraphs they have produced.

#### **COMMON MISCONCEPTIONS RELATED TO MATHEMATICS.**

- One half can be bigger or smaller than the other half. It can't, if something is halved, then it is split into two equal portions.
- Multiplying always makes a number bigger (and similarly dividing always makes a number smaller) It doesn't, if you multiply by a number less than 1 (i.e. a negative number or a positive decimal) then the answer will be smaller than the original value.
- -4 is bigger than -1, this one is often corroborated verbally by inaccurate use of mathematical language. When discussing this with pupils use temperature as a context to help them understand.
- $5 \times 0 = 5$  or  $17 \times 0 = 17$  or  $0.2 \times 0 = 0.2$  etc. Any number multiplied by zero equals zero, five lots of nothing is nothing.
- Squaring is the same as multiplying by 2, often confused because the symbol for squaring is a superscript 2. Squaring is multiplying the number by itself, i.e  $5^2 = 5 \times 5 = 25$
- When subtracting you always subtract the smaller number from the greater number. This is incorrect, you could be doing a calculation where you are

supposed to have a negative number or when doing the column method of subtraction you may need to 'borrow'.

- When adding fractions you just add the numerators then add the denominators. This is incorrect, first you need the denominators to be the same value, then you can add the numerators but the denominator will stay the same.

#### **KEY MATHEMATICAL WORDS.**

- Numerator: The number on the top of a fraction.
- Denominator: The number of the bottom of a fraction.
- Sum: The answer obtained by adding.
- Product: The answer obtained by multiplying.
- Operator: A mathematical action, includes adding, subtracting, finding a fraction of etc.
- Cancel: Simplifying by dividing by common factors.
- intersect at a point; two intersecting planes intersect in a line.
- Factor: A number which you can divide by and get a whole number answer
- Linear: A one-dimensional expression or equation

This website; <http://www.amathsdictionaryforkids.com> is brilliant for any more definitions you want to know.

#### **NUMERACY CHALLENGE OF THE WEEK**

##### Objective:

- A weekly numeracy puzzle to be worked on as part of tutorial.

##### Implementation:

- Provided by maths teacher, on shared drive in the maths folder, sub-folder numeracy puzzle or on the internet, link provided.
- Answers to be submitted to Maths teacher at the centre by end of each week.
- A display board in each centre should show the numeracy puzzle of the week, and last week's puzzle with answers. Also you could keep a tally of how many each tutor group has completed.
- For visual puzzles, photographic evidence may be needed to show that the group completed the puzzle.

##### Outcomes:

- For pupils to engage in a numeracy challenge as part of a group.
- To encourage some healthy competitiveness into numeracy.
- To encourage pupils to engage in numeracy outside of the maths room.
- To strengthen pupils problem solving skills.
- To develop pupils confidence and pride in maths.

## **CONTENTS OF THE FULL NUMERACY POLICY.**

- 1) Definition of numeracy.
- 2) Aims.
- 3) Objectives.
- 4) What numeracy looks like.
- 5) Raising profile of numeracy.
- 6) Cross curricular - maths in other lessons.
- 7) Cross curricular – general non-subject specific.
- 8) Common misconceptions in numeracy
- 9) Key words.
- 10) Financial numeracy.
- 11) Numeracy and pupils with ALN.
- 12) Numeracy puzzle of the week
- 13) Resources and support.
- 14) Assessment and monitoring of numeracy and pupil progress.
- 15) Reviewing numeracy policy with success criteria.

The full numeracy policy is available on the cloud.

Ratified at the management committee meeting 4th October 2016

Review Frequency: 2 years