SMSC at Beecroft Academy

KS1 and KS2 Mathematics

Spiritual Development in Mathematics

Explore beliefs and experience; respect faiths, feelings and values; enjoy learning about oneself, others and the surrounding world; use imagination and creativity; reflect.

*Ofsted definition of '**spiritual** development'*

Pupils' spiritual development is shown by their:

- *ability to be reflective about their own beliefs, religious or otherwise, that inform their perspective on life and their interest in and respect for different people's faiths, feelings and values*
- *sense of enjoyment and fascination in learning about themselves, others and the world around them*
- *use of imagination and creativity in their learning willingness to reflect on their experiences.*

School Inspection Handbook from September 2015

There is a sense of wonder in the exactness of mathematics as well as a sense of personal achievement in solving problems. Spiritual education provides the opportunity to experience the awe and wonder of mathematics that is shown to and/or investigated by children.

- Mathematics can be used to explain the world and the mathematical patterns that occur in nature such as the symmetry of snowflake patterns or the stripes of a tiger, Fibonacci sequence.
- The investigations that enable pupils to find the missing piece of information required to find the area of a circle (pi). (Celebrated on or as close to 14th March, by us each year.) There is a sense of wonder in the exactness of mathematics as well as a sense of personal achievement in solving problems.
- Further mathematics can also be used to consider the idea of infinity, this can occur as a discussion in conjunction with Pi Day, as pi is an infinite number.
- The use of ICT and the *nrich* website provide pupils with opportunities to develop further investigative skills within mathematics.

Moral Development in Mathematics

Recognise right and wrong; respect the law; understand consequences; investigate moral and ethical issues; offer reasoned views.

*Ofsted definition of '**moral** development'*
Pupils' moral development is shown by their:

- *ability to recognise the difference between right and wrong and to readily apply this understanding in their own lives, recognise legal boundaries and, in so doing, respect the civil and criminal law of England*
- *understanding of the consequences of their behaviour and actions*
- *interest in investigating and offering reasoned views about moral and ethical issues and ability to understand and appreciate the viewpoints of others on these issues.*

School Inspection Handbook from September 2015

Moral education concerns the use and interpretation of data that is becoming more prevalent in society. Pupils are given the opportunity to be aware of the use and misuse of data in all issues including those supporting moral argument.

- National Skipping Day (next one will be Friday 18th April 2017) will enable all pupils to collect data with which they can feedback the mean, mode and median scores based on their class/school.
- Spend time on various projects where they try to use Maths in real life contexts, applying and exploring the skills required in solving various problems.
- Projects focus on applying their data analysis skills in a real-life context.
- Mathematics use in everyday context, use of the books (in school library): Using Maths: be a vet; Using maths: be a stunt man; Using maths: Extreme Sports challenge; Using Maths: Architecture.

Social Development in Mathematics

Use a range of social skills; participate in the local community; appreciate diverse viewpoints; participate, volunteer and cooperate; resolve conflict; engage with the 'British values' of democracy, the rule of law, liberty, respect and tolerance.

Ofsted definition of 'social development'
Pupils' social development is shown by their:

- *use of a range of social skills in different contexts, for example working and socialising with other pupils, including those from different religious, ethnic and socio-economic backgrounds*
- *willingness to participate in a variety of communities and social settings, including by volunteering, cooperating well with others and being able to resolve conflicts effectively*
- *acceptance and engagement with the fundamental British values of democracy, the rule of law, individual liberty and mutual respect and tolerance of those with different faiths and beliefs; they develop and demonstrate skills and attitudes that will allow them to participate fully in and contribute positively to life in modern Britain.*

School Inspection Handbook from September 2015

Social education in Maths concerns pupils being given the opportunity to work together. Experimental and investigative work provides an ideal opportunity for pupils to work

collaboratively. Mathematics also allows children to apply their own intuitive feelings and check these against what they have learnt in order to make more sense of the world.

- *'Nrich' and 'CAME'* tasks provide pupils with opportunities to work collaboratively.
- Pupils can look at their local environment or that of a city such as London and investigate the buildings, their shape(s), structure and consider which shape is the strongest. Enable pupils to use resources to make a structure to test their theory (could be worked in with DT).
- Discuss and debate on the use and abuse of statistics in the media (which of these might the Government use when they look at average salaries – is it fair? Pupils should provide reasons and suggest the correct 'average: mean, mode and median.)
- Pupils conducting an opinion survey on a moral issue such as bringing back hanging. Produce a display to show how the children voted, and represent the data collection using graphs and pie charts.
- Use the 'Crystal Maze' activities - supporting their peers in solving tasks. (KS1/KS2)
- Use of the CAME tasks. (UKS2)
- Explain history of maths – universal application. It is just the language that differs. MFL students can usually access maths lessons however, assistance might be required for translation of shape parts, etc.

Cultural Development in Mathematics

Appreciate cultural influences; appreciate the role of Britain's parliamentary system; participate in culture opportunities; understand, accept, respect and celebrate diversity.

*Ofsted definition of '**cultural** development'*
Pupils' cultural development is shown by their:

- *understanding and appreciation of the wide range of cultural influences that have shaped their own heritage and those of others*
- *understanding and appreciation of the range of different cultures within school and further afield as an essential element of their preparation for life in modern Britain*
- *knowledge of Britain's democratic parliamentary system and its central role in shaping our history and values, and in continuing to develop Britain*
- *willingness to participate in and respond positively to artistic, musical, sporting and cultural opportunities*
- *interest in exploring, improving understanding of and showing respect for different faiths and cultural diversity and the extent to which they understand, accept, respect and celebrate diversity, as shown by their tolerance and attitudes towards different religious, ethnic and socio-economic groups in the local, national and global communities.*

School Inspection Handbook from September 2015

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Cultural education concerns the wealth of mathematics in all cultures and the opportunities pupils are given to explore aspects of personal culture and identity through mathematics. Recognition is given to symmetry patterns, number systems and mathematical thinking from other cultures.

- Recognition is given to symmetry patterns, Islamic geometric patterns, Rangoli designs, number systems and mathematical thinking from other cultures.
- Mathematics is used in conjunction with RE when looking at tessellations in architecture of mosques and symmetry.
- Use the 10Ticks resources in the staff area to use different methods of multiplication: Egyptian, Russian and Chinese methods (also Napier's Bones).
- Use the 'Crystal Maze' for both KS1 and KS2 activities to enhance pupils understanding of cultural symbols and patterns.
- Link to numbers and how they work and the patterns therein including Roman numerals. (These are tested in the KS2 SATs).
- Use mathematics is used to communicate climate change and represent this using graphs.
- Allowing discussion on the cultural and historical roots of mathematics.

- Pupils investigating different number sequences and where they occur in the real world

- Pythagorus theorem (UKS2).

- Explain history of maths – universal application.

- Conduct a research project on a famous mathematician e.g. Alan Turing, Pythagorus, etc.

- Consider time: Gregorian calendar/Mayan calendar/MYA.

- In Summer Term, pupils are encouraged to look at exchange rates in preparation for their holidays abroad and 'swap' sterling for other currencies; this is also reinforced with the use of line graphs to show the 'exchange' rate. This could also result in compare and contrast holiday destinations and their value for money.