Children, Young People, Education and Skills Policy

Title:	**Mathematics Policy**
Date:	**July 2018**
Author:	**Mathematics Adviser**

1. Overview

This policy provides a framework for mathematics education in Jersey, and the expectations required from all stakeholders.

2. Scope

This policy applies to all Schools and Colleges.

3. Responsibilities and distribution

Leaders are responsible for ensuring that all staff read and understand the policy and that all members of the education community are aware of their responsibilities under it.

4. Policy/Standards

Schools and Colleges will use this policy to guide their own mathematics strategy and strive to meet the expectations as stated.

5. Further information and related documents

The policy has supporting guidance intended to support schools and teachers to develop practice and improve pupil outcomes in mathematics.

Supporting papers are included on the education pages of SharePoint.

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1. Aspirations for Mathematics Education in Jersey

Nature and Purpose of Study

Mathematics is a structured way of thinking. It is a **challenging** discipline, able to spark **curiosity**. It requires **creativity**, the ability to make **connections** with prior learning, **collaboration** with others and the need to **communicate** results in a convincing and unambiguous way.

Mathematics underpins many aspects of our everyday lives. It provides the language to quantify information and to calculate further information from these quantities. Therefore, it supports learning in many fields of study, leading to the creation of a sustained, highly skilled workforce that drives innovation and develops the economy.

Developing a sound grasp of basic mathematics helps an individual to analyse information from which to make decisions. It provides a structured framework to develop metacognitive processes where an individual can think logically, critically and creatively.

Mathematics is a dynamic and developing subject. The curriculum must engage 21st century learners, who have grown up in the digital age, working with technology, and who therefore think differently. The learning of mathematics must adapt to these learners, as well as the advances in pedagogies and technologies that support the ability to perform complex calculations. This is essential if mathematics is to support employment and remain the cornerstone of science, technology, engineering, finance and the arts.

It is the goal of the mathematics curriculum to ensure all pupils develop a level of mastery of mathematics that will support their level of need and interest, pursuing mathematics to the highest possible level. Progression therefore needs to be coordinated throughout their 11 years in formal education.

1.1. What does this mean for pupils?

- All pupils have the opportunity to develop an appreciation of the scope of mathematics, by developing strategies to be able to process information and calculate efficiently.

  Through mathematics, pupils develop higher order thinking skills such as description, evaluation, analysis and communication. These are transferable skills a pupil will need in adult life and lead to developing the pupil's sense that mathematics is worthwhile.

- All pupils have the opportunity to develop a sense of enjoyment of the subject.

  By having a clear understanding of the nature of mathematics, all pupils know how to learn mathematics. They have opportunities and sufficient time to develop effective strategies and confidence in mathematics. They appreciate struggle, and develop resilience. Pupils experience the excitement of success and can be

reflective and curious. They see the need to develop talent in mathematics is as natural as the need to develop talent in literacy.

1.2. What does this mean for teachers?

- All teaching and support staff understand the nature of mathematics and promote a positive image of the subject.

  Teachers appreciate that mathematics relates to thinking and they understand the thought processes activated in the mathematical complexity of the challenges they pose. Teachers know how all pupils can progress through that complexity and they encourage pupils to pose and formulate problems, seeing mathematics as a way to develop talent in logical thinking over an ability to recall content and algorithms.

- All teaching and support staff believe that all pupils are capable of making progress in their understanding of mathematics. No pupil is left behind.

  There is high expectation set for all pupils. Teachers use terminology relating to prior experience and prior attainment rather than natural ability. They develop a pupil's mathematical talent in line with previously acquired talents and hand in hand with talents such as perseverance and collaboration. Teachers portray developing talent in mathematics is as natural as developing talent in literacy.

1.3. What does this mean for schools?

- All schools create opportunities for the planning, delivery of and reflection on the mathematics curriculum.

  All schools ensure that their teachers understand the aims of the mathematics curriculum and can effectively deliver its statutory requirements, while remaining focused on the larger outcomes of learning. They support teachers embarking on school based curriculum research and innovations, and the sharing of subsequent findings.

- All schools ensure that mathematics provision reflects best practice.

  All schools enable all teachers and support staff to understand, apply and contribute to the mathematics policies used in school. Schools identify and access high quality continual professional development to ensure teachers have the required mathematical subject knowledge and recent pedagogical research into best practice in the classroom.

1.4. What does this mean for the Department for Children, Young People, Education and Skills?

- All Department Advisers and Reviewers have a common understanding of the aims and objectives facing schools in delivering the Jersey Curriculum in relation to mathematics.

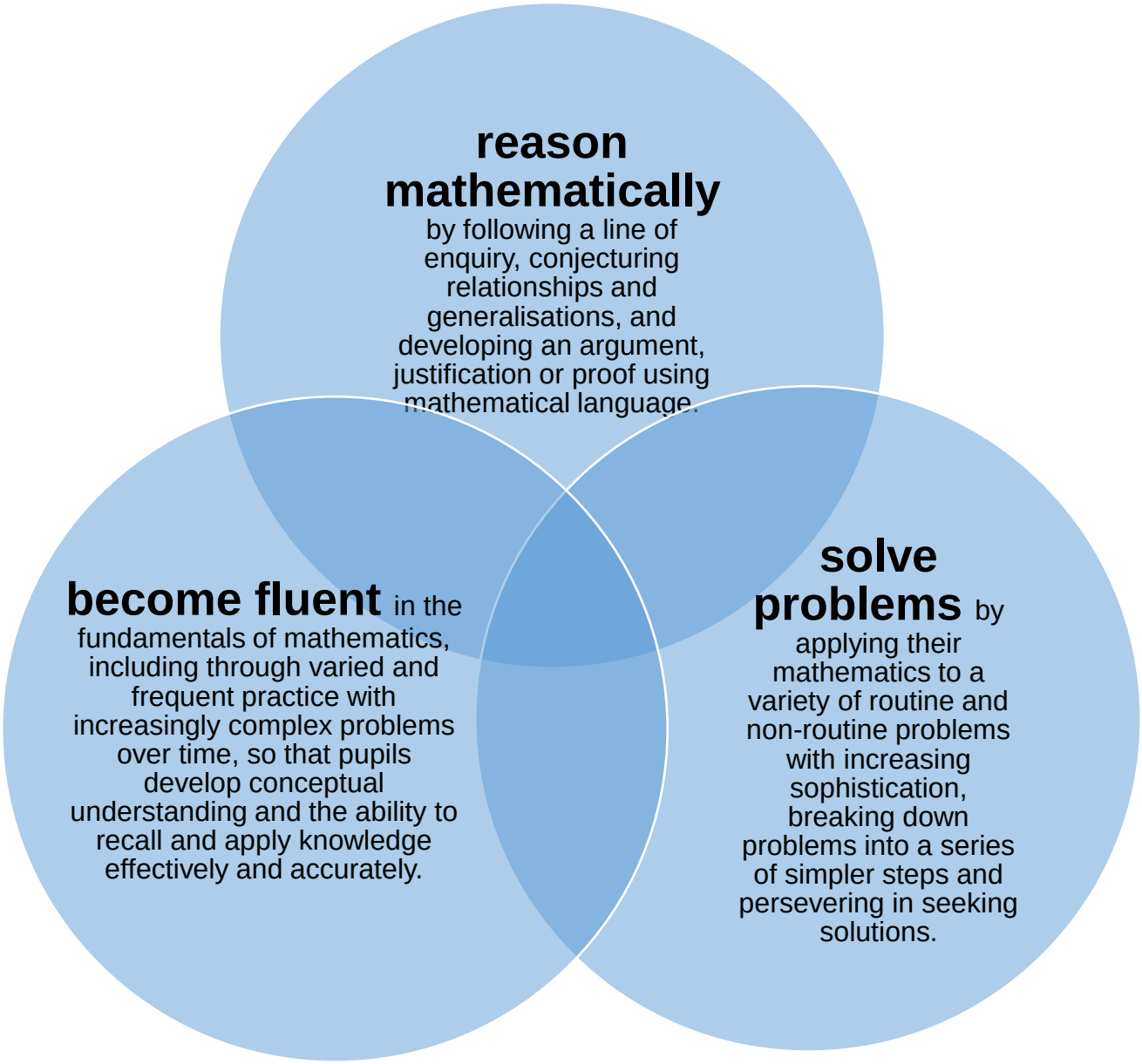
  The Department ensures that all Advisers and Reviewers, including off-island (Lead) Reviewers, have the necessary awareness of current pedagogical best

practices in the teaching of mathematics. The Advisers support schools to identify best practice and to remain up to date with current educational best practice.
Support and training needs are regularly reviewed with schools, in order to build capacity and sustainability in the teaching workforce.

2. Standards and Achievement Mathematics Policy

2.1 Aims:

The Jersey Curriculum for mathematics aims to ensure that all pupils:



2.2 Expectations:

a. All pupils in Jersey are expected to have the opportunity to:

- move through the programmes of study at broadly the same pace.
- explore, learn, practice, record and reflect.
- represent, visualise, analyse and generalise.
- develop a sense of number (including approximation), shape and size, mathematical structure, pattern, likelihood.
- pose questions, formulate strategies, calculate values, and verify solutions.
- communicate ideas.
- use technology in as a proactive learning and problem solving tool.
- develop effective learning traits of participation, communication, confidence, resilience, fluency, independence, curiosity, retention in mathematics lessons.
- receive additional support to meet expectations where needed.
- be continually challenged and gain an appreciation of the nature and scope of mathematics.
- make rich connections across mathematical ideas and apply strategies in other subject areas.
- become independent learners.

b. All teachers and support staff in Jersey are expected to:

- relate mathematics to thinking and the context of solving problems based on a pupil's prior gained expertise;
- commit to the belief that every pupil can become talented in mathematics, unless there is a significant educational need;
- avoid linguistic terms that imply fixed ability such as gifted or weak;
- be curious and enjoy challenges;
- They have a deep understanding of the depth and breadth of the problems they set their pupils and share these with other colleagues;
- have an awareness of the demands of long term and working memory. They appreciate the cognitive load placed on pupils, in the tasks that they set;
- teachers appreciate procedural fluency and conceptual reasoning go hand in hand, developed by making small steps of progress within a pupil's zone of proximal development.

All teachers are also expected to:

- have the knowledge, confidence and skills to solve mathematical problems that are based in the Jersey Curriculum of at least two years either side of the pupils they are teaching;
- have the necessary understanding of the most effective pedagogical approaches that allow pupils to gain an understanding of mathematical concepts;
- fill any gaps in their own understanding.

Pedagogical approaches should be based on:

- personal teaching and learning techniques that have been proven to achieve a high rate of success with pupils at all levels;
- research that has demonstrated measurable benefits;
- reflective practice.

c. All schools in Jersey are expected:

- to support teachers in implementing the current legal requirements of the Jersey Curriculum, EYFS Development Matters and follow the programmes of study;
- to promote the positive image of mathematics learning that relates to mathematics outside school;
- develop effective planning models where staff develop and share good practice/questions;
- to support continuing professional development for teachers improving mathematics subject knowledge and pedagogy, in conjunction with Advisers at the Department for Children, Young People, Education and Skills;
- to use assessment to inform planning which is adapted to meet pupils needs in line with the Jersey Assessment Frameworks;
- to monitor progress through book scrutiny, lesson observation and pupil and staff interview and questionnaires;
- to skillfully collect and use data to support challenging target setting and types of intervention;
- to internally moderate and support external moderation;
- to use JSRF self-evaluation to develop a school action plan;
- report to parents, both formally and informally;
- to detail their policies and procedures in a live document used by all staff, based on the Island wide policy expectations and guidance;
- to share expectations and policies on the school website.

d. The Department for **Children, Young People, Education and Skills** are responsible for:

- publication and currency of the central policy and central guidance material;
- notification to schools of any changes to this policy or other initiatives impacting on this policy;
- provision of advice on the interpretation and implementation of the policy;
- monitoring, evaluating, reviewing and reporting on the implementation of this policy;
- supporting schools, where appropriate, in developing teacher expertise in line with the policy guidance;
- central CPD training to support increasing the capacity for the effective teaching of mathematics on Jersey;
- supporting SMTs in school with action planning as a consequence of self-evaluation or whole school review outcomes;
- supporting the opportunities for leaders of mathematics to network and collaborate;

- collecting and interpreting whole Island data and directing the strategic focus of support and challenge based on these outcomes so that schools develop the capacity to continually improve.

3. Evidence of Expectation

What?	How Proven?
All schools have robust systems in place for the delivery and monitoring of mathematics. This may include the role of a Subject Leader.	Systems to deliver and monitor mathematics, identified in the SDP, are open to scrutiny by the mathematics Adviser, Senior Advisers and School Reviewers. Schools may adapt or adopt the Jersey exemplar role description appendix 1.
All schools have effective mathematics learning spaces actively used by all pupils (and teachers)	Impact of the mathematics learning spaces on pupil achievement is evident to school leaders and Advisers.
Appropriate curriculum access is available to all pupils. All teachers have an obligation to plan lessons for pupils based on prior attainment. Teachers should use appropriate assessment to set targets, which are deliberately ambitious.	Individual pupil attainment/progress data and targets are available for scrutiny by mathematics Adviser, Senior Advisers and School Reviewers and demonstrate good progress towards+ ambitious targets. Interventions demonstrate measurable improvement in mathematics.
All secondary pupils are given the opportunity to achieve a qualification equivalent to Level 2.	Pupils who have failed to achieve a mathematics GCSE or Level 2 functional skills are given the opportunity to continue their studies at Key Stage 5. Evidence is documented, agreed with Adviser, on individual cases if this provision is not considered appropriate.
Primary pupils are only given the opportunity to progress beyond Year group expectations with Adviser agreement. Extending pupils should primarily focus on increasing the breath and application of their learning.	Evidence is documented, agreed with Adviser, on individual cases including a planned future progression route through the curriculum.
All schools have an updated mathematics policy, understood by all	A consistent approach to mathematics is evident throughout the school that supports

staff and actively shared with parents and carers.	good pupil progress and has been developed from the school's self-evaluation outcomes. It should address each of the areas covered in the guidance notes to this policy. Policies are available on the school's website. Policies have a clear timetable of review.
All schools have a calculation policy (including the use of technology), understood by all staff, which is actively shared with parents and carers.	
Moderation is carried out regularly to ensure standardization.	Internal moderation meetings support the external moderation process, with teachers in all years confident about pupil attainment and progress. This is evidenced through the external moderation report.
All schools have identified CPD needs in mathematics, including both teaching pedagogy and subject knowledge.	Internal/external CPD provision documented. Regular meetings/visits with the mathematics Adviser/Lead Teacher.

4. Change History

Version	Date Issued	Issued by	Reason for Change
Update 1.1	1/6/18	Andy Parkinson	To link more closely to current pedagogy, curriculum and assessment

APPROVAL

Presented to :	Approved by :	Date :
Secondary Headteachers		
Primary Headteachers		
Senior Management Team		03/07/2018
Standards and Achievement Team		13/06/2018

ADDITIONAL INFORMATION

Planned Review date :	Distribution :	
Associated Policies	**Name**	**Reference**

Issued by	Children, Young People, Education and Skills
Author	Adviser (Mathematics)
Date	First issued: Revised edition: Approved by SMT date 03/07/2018

5. Appendices

Appendix 1

Sample Job Description for School Mathematics Leader/Head of Mathematics

- Create a vision for the learning of mathematics in the school.
- To develop effective schemes of learning, including policies for calculation and use of mathematics across the whole school.
- To develop a knowledge within the school of how relevant technologies and applications support learning.
- To be responsible to the head teacher for the monitoring of teaching, assessment and planning of mathematics within the school.
- Monitor mathematics teaching to support staff, including classroom observation, book scrutiny, planning scrutiny and pupil voice.
- To use data to track pupil progress and, in consultation with the head teacher, set realistic but challenging targets in Mathematics.
- To champion and monitor closely the learning and achievement of specific groups such as EAL, SEN, JP, providing additional support where appropriate.
- Deriving, implementing and monitoring intervention strategies, where necessary.
- To keep up to date with current knowledge of good practice, including research and attending appropriate in-service training for mathematics.
- Ensuring staff are up to date with current knowledge of good practice.
- To respond to needs identified through monitoring by highlighting in-service training opportunities for colleagues or providing in-house support such as joint planning, demonstration lessons and joint delivery of lessons.
- To manage resources and facilities for mathematics
- To liaise with other primary and secondary colleagues to support transition.
- To liaise effectively with other agencies, where required.
- Lead by example, demonstrating quality teaching and learning in their own classroom.
- Prepare, organise and lead INSET, with the support of the head teacher and Adviser for Mathematics.
- Create and carry out an annual audit plan of mathematics, leading to the contributions to the forward strategic direction of mathematics in the SDP, including analysis of whole school data and trends.
- Work co-operatively with the SENCO in providing advice and support for staff.
- Work with the head teacher to plan, organise and lead events for parents about mathematics
- Discuss regularly with the head teacher, Senior Advisers and Mathematics Adviser the implementation of strategies to raise standards within the school

Appendix 2

These sample policy headings are to support schools in developing their own policy that reflects both the Standards and Achievement policy and their school context

1. Nature of Mathematics

2. Aims

3. Pedagogical Approaches
   - 3.1. Calculation Policy
   - 3.2. Curriculum design
   - 3.3. Lesson planning
   - 3.4. Discussion, mental, written working
   - 3.5. Feedback and assessment

4. Resources
   - 4.1. Calculators
   - 4.2. Technology
   - 4.3. Textbooks
   - 4.4. Displays
   - 4.5. Manipulatives

5. Intervention
   - 5.1. Jersey Premium
   - 5.2. English as an Additional Language
   - 5.3. Special Educational Need

6. Wider School Strategies
   - 6.1. Grouping and differentiation
   - 6.2. Homework
   - 6.3. Parental Engagement
   - 6.4. Numeracy across the curriculum

7. Transition and Lifelong Learning