An Roinn Oideachais agus Scileanna

Department of Education and Skills

Subject Inspection in Mathematics

REPORT

Ainm na scoile / School name	Loreto Secondary School, St Michael's
Seoladh na scoile / School address	Navan County Meath
Uimhir rolla / Roll number	64370T

Date of Inspection: 21-09-2017

AN ROINN OIDEACHAIS AGUS SCILEANNA | DEPARTMENT OF EDUCATION AND SKILLS

WHAT IS A SUBJECT INSPECTION?

Subject Inspections report on the quality of work in individual curriculum areas within a school. They affirm good practice and make recommendations, where appropriate, to aid the further development of the subject in the school.

HOW TO READ THIS REPORT

During this inspection, the inspector evaluated learning and teaching in Mathematics under the following headings:

1. Teaching, learning and assessment
2. Subject provision and whole-school support
3. Planning and preparation

Inspectors describe the quality of each of these areas using the Inspectorate's quality continuum which is shown on the final page of this report. The quality continuum provides examples of the language used by inspectors when evaluating and describing the quality of the school's provision in each area.

The board of management was given an opportunity to comment in writing on the findings and recommendations of the report, and the response of the board will be found in the appendix of this report.

SUBJECT INSPECTION

INSPECTION ACTIVITIES

Dates of inspection	20 and 21 September 2017
Inspection activities undertaken • Review of relevant documents • Discussion with principal and key staff • Interaction with students	• Observation of teaching and learning during ten class periods • Examination of students' work • Feedback to principal and relevant staff

School context

Loreto Secondary School, St Michael's, Navan is a voluntary Catholic secondary school with a current enrolment of 817 girls. Transition Year (TY) is optional for students.

SUMMARY OF MAIN FINDINGS AND RECOMMENDATIONS:

Findings

- The quality of teaching and learning was very good overall; students engaged and participated with enthusiasm and interest.
- In most lessons, teachers had appropriately high expectations for students' learning; there was scope in some lessons for additional challenge to be provided for higher-achieving students.
- A very good variety of methodologies was used including group work; there was scope to explicitly teach the skills of collaborative learning.
- Whole-school support for Mathematics is very good.
- Planning for Mathematics is of an exceptionally high quality.
- Where cooperative teaching was observed, the teachers involved had not formally agreed roles, discussed expectations or planned the lessons together.

Recommendations

- The highly effective teaching strategies observed in the evaluation should be shared using the experience gained through participating in the *Reflections on Practice* initiative.
- Further challenge should be provided for students where relevant.
- The skills of collaborative learning should be explicitly taught to optimise the value of group work.
- Planning for cooperative teaching should take place as soon as possible in order to ensure that classroom activities and tasks are designed to best meet the identified needs of students and are delivered using a suitably methodology.

DETAILED FINDINGS AND RECOMMENDATIONS

TEACHING, LEARNING, AND ASSESSMENT

- The quality of teaching and learning was very good overall. All lessons were well structured around clear learning intentions that were shared with students at the outset and checked at appropriate points in the lesson. In most cases, new learning built very effectively on prior understanding. Warm-up activities were used very successfully at the beginning of some lessons. These valuable practices should be shared through collaborative lesson planning.
- Learner experience in almost all lessons was characterised by very high-quality engagement, active interest and participation. Students interacted purposefully with teachers and peers, and made confident contributions in groups and to the class as a whole. They demonstrated very good understanding of the mathematical concepts taught and a proficiency in using mathematical language.
- Students widely demonstrated an ability to explain their reasoning, test their ideas, predict and refine predictions, think and concentrate. In most lessons, students listened attentively and were noted to enjoy Mathematics. These highly effective learner outcomes should be more widely promoted.
- In most lessons, teachers had appropriately high expectations for student learning and these were reflected in the lesson content and in the use of effective differentiation strategies. Highly effective practice was noted where the tasks allowed students to work at their own pace, where high-achieving students were challenged by the learning activities and where students experiencing difficulty received support. In some lessons, there was scope for further challenge, in the form of extension activities, to be provided for some students.
- In one lesson while teacher instruction was of a good standard, students worked on undifferentiated tasks that were too easy for some and too difficult for others. Some students disengaged and other students demonstrated an over-dependence on teacher support. The tasks set for learning should include a range of activities that build on solid understanding, gradually increase in difficulty, and allow students to be as independent as possible.
- In most instances, students worked together and learned from each other through actively engaging in discussion, spontaneously, or by direct instruction from the teacher. Building on this effective practice, it is recommended that the skills of collaborative learning be explicitly taught to optimise the value of group work. This measure might include assignment of specific roles, formal reporting to the whole group or the use of mini white-boards to display answers or agreed group solutions.
- A variety of valuable methodologies was observed including, group and pair work, discovery, and investigation. Most lessons included a combination of more than one methodology and this worked best where there was good balance between teacher instruction and student activity. There was scope at times for a better balance.
- In some lessons, information and communication technology (ICT), in the form of geometry software, video clips and electronic slides, was used effectively to enhance learning. Opportunities, in some other lessons, for the use of ICT were not availed of and this is an area for development.
- The quality of assessment was very good in all lessons. Mini-white boards, ‘traffic lights’, and very good monitoring and questioning were used to assess student progress. Very good practice was observed when teachers adapted instruction on foot of assessment.

- Students demonstrated confidence in asking and answering questions. Very good use was made of incorrect answers and negative examples to highlight common mistakes. In one lesson, the value to learning of making mistakes was explicitly referred to and this is very good practice.
- Students responded very well to the encouragement and affirmation provided by their teachers.

SUBJECT PROVISION AND WHOLE SCHOOL SUPPORT

- Whole-school support for Mathematics is very good. Concurrent timetabling is provided to enable students to study the subject at a level appropriate to their ability. A very good range of resources, including ICT, is provided for the subject.
- The members of the mathematics department actively participate in continuing professional development (CPD) sourced both from outside the school and within. Some mathematics teachers have participated in *Reflections on Practice;* an initiative to promote collaborative lesson planning and peer review. The school has a plan in place to provide CPD on good cooperative-teaching practice; this is a welcome development.
- The layout of some of the classrooms, where desks were arranged to facilitate group work, contributed positively to students experience and enjoyment of learning. Rooms should be set out for group work at appropriate times, in order to communicate an expectation that students will work together in mathematics lessons.
- Valuable extracurricular opportunities are provided for students to experience Mathematics for fun. Teachers provide extra support to students preparing for the certificate examinations.

PLANNING AND PREPARATION

- Planning for Mathematics is of an exceptionally high quality. The planning documentation includes programmes of work for each year group and level, assessment-for-learning strategies, and the school's current self-evaluation priorities. The learning outcomes from each strand of the syllabuses are also included, alongside methodologies and resources to support learning. The plan is shared electronically and it is very good that *hyperlinks* are included to direct teachers to relevant resources.
- A comprehensive analysis of students' achievement in the certificate examinations and ongoing in-school testing is included in the planning documentation. This analysis is used to very effectively inform planning for Mathematics. For example, patterns noted in students' performance in certain syllabus strands resulted in a stronger emphasis on geometry. The impact of any actions taken is evaluated and amendments are made accordingly.
- The Mathematics plan includes a section on action planning. The provision of sufficient challenge for higher-achieving students was identified as requiring attention and a pilot initiative was implemented to develop measures to address this issue. This excellent approach to action planning should be applied to extending the professional learning from engaging in *Reflections on Practice* as means to further share lesson ideas and develop resources for learning collaboratively, and to extend the implementation of measures to address identified issues.
- In-class learning support was delivered in two of the classrooms visited. However, it was evident that the teachers involved had not formally agreed roles, discussed expectations and planned the lessons together. It is recommended that this work be carried out as soon as

possible in order to ensure that classroom activities and tasks are designed to best meet the identified needs of students and are delivered using a suitably methodology.

The draft findings and recommendations arising out of this evaluation were discussed with the principal and subject teachers at the conclusion of the evaluation.

Appendix

School response to the report

Submitted by the Board of Management

Part A: Observations on the content of the inspection report

The Board of Management is pleased to note the very positive nature of this report. In particular it applauds

- the affirmation of the high quality of teaching and learning in mathematics as 'very good overall' with 'highly effective teaching strategies observed'
- The observation that 'the quality of assessment was very good in all lessons'
- the validation by the inspector of student experience of learning which 'was characterised by very high-quality engagement, active interest and participation'
- the fact that student enjoyment of maths was recognised by the inspector as a 'highly effective learner outcome'
- the recognition of the 'exceptionally high quality' of planning for maths
- the appreciation of the 'excellent approach to action planning' evident in the department plan
- the approval of the use of analysis of student achievement in state and school assessments to 'very effectively inform planning for maths'
- the endorsement of actions taken by the maths department as part of its action planning initiatives and described by the inspector as 'an excellent approach to action planning'
- the finding that 'whole school support for maths is very good' with 'a very good range of resources, including ICT, provided for the subject

Part B: Follow-up actions planned or undertaken since the completion of the inspection activity to implement the findings and recommendations of the inspection

The Board welcomes the applicability of the key recommendations to inform planning for Teaching & Learning across all disciplines in the school.

- These recommendations will be shared with all teaching staff in the current half term
- CPD will be provided at whole staff level in the skills of collaborative learning
- An action plan to develop even further *Reflections on Practice* has been added to the maths plan for implementation in new Junior Cycle lesson planning 2018
- A team representing SEN and Maths has now attended CPD in cooperative learning further to verbal feedback from the inspector. These teachers will bring that additional expertise to the department to further inform planning
- The Board of Management will continue to provide the resources necessary to support staff in its efforts to implement all recommendations of this report.

THE INSPECTORATE'S QUALITY CONTINUUM

Inspectors describe the quality of provision in the school using the Inspectorate's quality continuum which is shown below. The quality continuum provides examples of the language used by inspectors when evaluating and describing the of quality the school's provision of each area.

Level	Description	Example of descriptive terms
Very Good	***Very good*** applies where the quality of the areas evaluated is of a very high standard. The very few areas for improvement that exist do not significantly impact on the overall quality of provision. For some schools in this category the quality of what is evaluated is ***outstanding*** and provides an example for other schools of exceptionally high standards of provision.	Very good; of a very high quality; very effective practice; highly commendable; very successful; few areas for improvement; notable; of a very high standard. Excellent; outstanding; exceptionally high standard, with very significant strengths; exemplary
Good	***Good*** applies where the strengths in the areas evaluated clearly outweigh the areas in need of improvement. The areas requiring improvement impact on the quality of pupils' learning. The school needs to build on its strengths and take action to address the areas identified as requiring improvement in order to achieve a *very good* standard.	Good; good quality; valuable; effective practice; competent; useful; commendable; good standard; some areas for improvement
Satisfactory	***Satisfactory*** applies where the quality of provision is adequate. The strengths in what is being evaluated just outweigh the shortcomings. While the shortcomings do not have a significant negative impact they constrain the quality of the learning experiences and should be addressed in order to achieve a better standard.	Satisfactory; adequate; appropriate provision although some possibilities for improvement exist; acceptable level of quality; improvement needed in some areas
Fair	***Fair*** applies where, although there are some strengths in the areas evaluated, deficiencies or shortcomings that outweigh those strengths also exist. The school will have to address certain deficiencies without delay in order to ensure that provision is satisfactory or better.	Fair; evident weaknesses that are impacting on pupils' learning; less than satisfactory; experiencing difficulty; must improve in specified areas; action required to improve
Weak	***Weak*** applies where there are serious deficiencies in the areas evaluated. Immediate and coordinated whole-school action is required to address the areas of concern. In some cases, the intervention of other agencies may be required to support improvements.	Weak; unsatisfactory; insufficient; ineffective; poor; requiring significant change, development or improvement; experiencing significant difficulties;