

An Roinn Oideachais agus Scileanna
Department of Education and Skills

Subject Inspection in Mathematics

REPORT

Ainm na scoile / School name	Dundalk Grammar School
Seoladh na scoile / School address	The Crescent Dundalk Co Louth
Uimhir rolla / Roll number	63920A

Date of Inspection: 12-03-2020



**An Roinn Oideachais
agus Scileanna**
Department of
Education and Skills

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.

During the inspection visit, the following checks in relation to the school's child protection procedures were conducted:

1. The name of the DLP and the Child Safeguarding Statement are prominently displayed near the main entrance to the school.
2. The Child Safeguarding Statement has been ratified by the board and includes an annual review and a risk assessment.
3. All teachers visited reported that they have read the Child Safeguarding Statement and that they are aware of their responsibilities as mandated persons.

The school met the requirements in relation to each of the checks above.

SUBJECT INSPECTION

INSPECTION ACTIVITIES

Dates of inspection	10-03-2020 and 12-03-2020
Inspection activities undertaken <ul style="list-style-type: none">• Review of relevant documents• Discussion with principal and key staff• Interaction with students	<ul style="list-style-type: none">• Observation of teaching and learning during seven lessons• Examination of students' work• Feedback to principal, deputy principal and relevant staff

School context

Dundalk Grammar School is a co-educational fee-charging school with an enrolment of 555 students: 227 girls and 328 boys. It provides the Junior Cycle, a compulsory Transition Year, and the Leaving Certificate programmes.

SUMMARY OF MAIN FINDINGS AND RECOMMENDATIONS:

Findings

- The overall quality of teaching and learning was very good; there were many highly effective practices observed which are worth extending and sharing through mechanisms in the school.
- In general, students were fully engaged, they participated well and demonstrated enjoyment of Mathematics; some students were under-challenged by the learning tasks and at other times were not independent learners.
- Very high-quality assessment to support learning was a significant strength of all lessons.
- Subject provision and whole-school support for Mathematics are very good; the assessment review group, learning improvement co-ordinators, and after-school mathematics provision are all highly supportive of achievement in the subject.
- There are very good, flexible processes for allowing students to change level in Mathematics but the decisions around levels occur at the end of first year which is too early.
- The quality of subject planning is very good; the teachers show a reflective and thoughtful approach to planning for students' learning, are supportive of each other and generous in sharing expertise and resources.

Recommendations

- Further opportunities should be provided to enable students to be more independent learners and to develop confidence in their own ability to do and create Mathematics.
- A wider range and diversity of teaching approaches and activities should be used to ensure that students are working at an appropriate level of challenge for their needs and ability.
- Students should be kept in mixed-ability class groups until the end of second year.
- The existing mechanisms in the school, such as the school self-evaluation (SSE) process and the *Lesson Study* project, should be further used to share teaching and learning practice.

DETAILED FINDINGS AND RECOMMENDATIONS

1. TEACHING, LEARNING, AND ASSESSMENT

- The overall quality of teaching and learning observed was very good. All lessons were well planned with a variety of resources prepared to support learning. Teachers demonstrated professionalism in their approach to teaching and in their openness to feedback and advice for improvement.
- In most lessons, students were fully engaged, they participated well and demonstrated enjoyment of Mathematics. In some lessons, students were under-challenged by the learning tasks. Teachers should provide a wider range and diversity of activities and approaches to ensure that all students are working at a level that suits their needs and ability.
- Students were thinking and concentrating well in most lessons and were actively encouraged to discuss Mathematics and articulate their reasoning. This practice is valuable and should be extended to all lessons.
- In most lessons, teachers and students worked as a team and students were developing problem-solving and critical-thinking skills. However, in some lessons, there was an over-emphasis on direct teacher instruction, students were more passive and the main activity was listening; a better mix of approaches was necessary in these lessons.
- Very high quality assessment to support learning was a significant strength of all lessons. Teachers observed students as they worked and provided assistance and encouragement as necessary. Assessment was used to inform and at times redirect lessons to ensure that students' needs were identified and met.
- Highly-effective learning was noted when teachers allowed students plenty of time to process learning and develop answers. This approach enabled students to develop resilience and persistence and to experience the joy of discovering mathematical connections for themselves. At other times students were too readily assisted by their teachers. Strategies to encourage independent learning should be further included in lessons.
- Exceptionally good questioning was noted in a few lessons. Teachers used higher-order questions to tease out concepts and develop students' thinking as they circulated the classroom. In some lessons, students created questions for each other; this practice allowed students to take an alternative perspective and develop additional mathematical skills. Further use of these questioning approaches would be beneficial in lessons.
- Mini-white boards were used as a highly effective learning tool in one lesson. The teacher surveyed the mini-white boards and noted the full selection of student responses on the board. Excellent use was then made of correct and incorrect answers to prompt very rich conceptual discussions. Through this activity the students demonstrated exceptionally deep understanding of the concepts taught and a very high level of engagement, achievement and enjoyment of learning.
- Explanations were clear and conceptual in almost all lessons. In a few cases, explanations were not clear enough or conceptual enough. Methodologies such as group and pair work, while beneficial in terms of student collaboration should be supported by solid, clear explanations and these explanations should focus on why rather than what to do.
- Relationships between students and their teachers were observed to be warm and supportive. Interactions were respectful and lessons were purposeful.

2. SUBJECT PROVISION AND WHOLE SCHOOL SUPPORT

- Subject provision and whole-school support for Mathematics are very good. There is a very good range of resources available for the subject including digital technology. Students' achievement in Mathematics is given high priority by senior management and school structures. A highly successful 'Mathematics Academy' runs after school for students wishing to receive additional tuition.
- Students are assigned to mixed-ability classes in first year. They are then placed in higher and ordinary level classes from the beginning of second year onwards. The change process is very student-centred which is good practice but the necessity to make the decision at this early stage requires review. Students should be kept in mixed-ability groups through second year to enable them to develop further before decisions about levels are made.
- The school has chosen assessment as its focus for SSE. An assessment review group has been established to evaluate the quality of assessment in the school and to devise and share effective and innovative practice. There was much evidence in the lessons observed of highly-effective assessment and many innovative practices worth sharing and developing through the school's SSE process.
- Learning improvement co-ordinators have been assigned to each year group. Their work is to monitor students' academic progress and to address issues as they arise. Evidence from the results analysis trends over the last number of years shows a steady rise in uptake of higher-level Mathematics.
- A wide range of continuing professional development (CPD) opportunities is availed of by the members of the mathematics department. One teacher has completed a *Lesson Study* project with teachers from a neighbouring school; this project involved the teacher visiting the other school, and collaboratively designing and observing lessons. The *Lesson Study* experience presents the school with an excellent mechanism for developing teaching and learning and full use should be made of this opportunity.
- Extra-curricular activities are provided to encourage students to appreciate Mathematics and develop their mathematical skills in a fun environment. The school has achieved success through participation in the Mathematics Olympiad and the BT Young Scientist Exhibition.

3. PLANNING AND PREPARATION

- The quality of subject planning is very good. There is an online platform for sharing resources and ideas which is very well used by teachers. The teachers are currently moving from topic-based planning to a more thematic approach; this is in keeping with the new Junior Cycle framework and with how the subject is examined in the State examinations.
- The teachers are currently reviewing the material taught in first year to ensure that students become enthusiastic and are stimulated by their early mathematical experiences in the school. This very good practice will see teachers annotate their plans to identify areas of the programme that require adjustment and to create alternative approaches and links to other areas of the syllabus. A template should be used to capture these areas for development to inform discussion at subject department meetings.
- The mathematics department completes a comprehensive analysis of student achievement in the State examinations and commendably this is used to inform planning for learning.

The draft findings and recommendations arising out of this evaluation were discussed with the principal, deputy 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

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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 of Management wishes to acknowledge the instances of highly effective practices that were highlighted during the mathematics inspection on Thursday 12th March 2020.

The Board further recognises the exceptional quality of the teachers in their assessment to support learning in mathematics and in instilling an enjoyment of their subject.

The Board nevertheless accepts the main findings and recommendations as outlined in the Maths Subject Inspection report.

The Board intends to support the school in addressing the findings and recommendations in the following ways:

- Progress further in-house CPD to assist all maths teachers in enabling students to become more independent learners
- Employ a variety of teaching and learning pedagogy, through in-service that will support students in their learning. For example, through the effective planning of lessons to incorporate more active learning methodologies
- To evaluate the strength and weaknesses of delaying the streaming of maths to the end of 2nd Yr in Junior Cycle.
(currently evaluated at the end of 1st Yr)
- In the use of SSE (school self-evaluation) and PoR (Post of Responsibilities), such as the Learning Improvement Coordinators (LICs), to identify under achievement in students in all areas of learning

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 <i>very good</i> 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;