



An Roinn Oideachais  
Department of Education

# Subject Inspection: Mathematics Report

## REPORT

Ainm na scoile/School name	Ardgillan Community College
Seoladh na scoile/School address	Castlelands Balbriggan
Uimhir rolla/Roll number	76129H
Dáta na cigireachta/ Date of evaluation	10-05-2023
Dáta eisiúna na tuairisce/ Date of issue of report	27/09/2023

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## 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; a response was not received from the board.

## Actions of the school to safeguard children and prevent and tackle bullying

During the inspection visit, the following checks in relation to the school's child protection and anti-bullying procedures were conducted:	
<i>Child Protection</i>	<i>Anti-bullying</i>
<ol style="list-style-type: none"><li>1. The name of the DLP and the Child Safeguarding Statement were prominently displayed near the main entrance to the school.</li><li>2. The Child Safeguarding Statement had been ratified by the board and included an annual review and a risk assessment.</li><li>3. All teachers visited reported that they had read the Child Safeguarding Statement and that they were aware of their responsibilities as mandated persons.</li></ol>	<ol style="list-style-type: none"><li>1. The school had developed an anti-bullying policy that meets the requirements of the <i>Anti-Bullying Procedures for Primary and Post-Primary Schools (2013)</i> and this policy was reviewed annually.</li><li>2. The board of management minutes recorded that the principal provides a report to the board at least once a term on the overall number of bullying cases reported (by means of the bullying recording template provided in the <i>Procedures</i>) since the previous report to the board.</li><li>3. The school's anti-bullying policy was published on its website and/or was readily accessible to board of management members, teachers, parents and pupils/students.</li></ol>

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

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# Subject inspection

<b>Date of inspection</b>	9 <sup>th</sup> and 10 <sup>th</sup> May 2023
<b>Inspection activities undertaken</b> <ul style="list-style-type: none"><li>• Review of relevant documents</li><li>• Discussion with principal and key staff</li><li>• Interaction with students, including focus groups</li></ul>	<ul style="list-style-type: none"><li>• Observation of teaching and learning during six lessons</li><li>• Examination of students' work</li><li>• Feedback to teachers</li><li>• Feedback to principal and relevant staff</li></ul>

The focus of this subject inspection was on Junior Cycle Mathematics only.

## School context

Ardgillan Community College is a co-educational school under the patronage of Dublin and Dún Laoghaire Education and Training Board (DDLETB). At the time of the evaluation it had an enrolment of 992 students. The school provided the Junior Cycle and Leaving Certificate programmes and an optional Transition Year (TY) programme.

## Summary of main findings and recommendations:

### Findings

- The quality of teaching, learning and assessment in the lessons observed was good overall, with some very good practices evident.
- Most teachers explored the underlying reasons behind the Mathematics taught. However, in some lessons there was scope to take a deeper approach to learning.
- In most lessons, students were attentive, engaged, active, discussing Mathematics and interested in the learning tasks.
- In a minority of lessons, the learning tasks were not sufficiently connected and this contributed to lack of clarity in the learning.
- Subject provision and whole-school support for junior cycle Mathematics was very good.
- The members of the mathematics department engaged in highly effective planning for the subject and preparation for teaching.

### Recommendations

- Teaching approaches which facilitate thorough exploration of the Mathematics taught should be further used in lessons.
- The practice of using an electronic notebook to create notes at times slowed the lesson dynamic. A set of exemplar notes should be created over time.
- Where lessons include a number of learning activities, teachers should ensure that the connections between the activities are clear, and that students understand each concept before moving on to the next element of the lesson.
- Most teachers used a wide range of effective assessment approaches to ensure that students understood the concepts taught. These valuable strategies should be further used throughout the mathematics department.

# Detailed findings and recommendations

## 1. Teaching, learning and assessment

- The quality of teaching and learning in the lessons observed was good overall, with some very good practices evident. The main methodologies used were high quality teacher instruction, pair and group work, and discovery approaches. Teacher explanations and instructions were clear in most lessons. In some lessons, there was a need for a clearer focus on specific learning intentions and on ensuring that students fully understood each concept before moving on and this should be addressed.
- All teachers demonstrated a strong interest in their students and an enthusiasm for teaching the subject. The relationships between the students and their teachers were positive.
- Most lessons progressed at a good pace. However, the practice of using electronic notebooks to create notes in class time needs to be reviewed. In some lessons, this practice slowed the lesson dynamic and reduced the teacher's mobility around the classroom. It is recommended that an exemplar set of notes be created over time.
- Most teachers explored the underlying reasons behind the mathematics taught. They asked students to consider 'why' as well as 'what' to do. In one lesson, for example, students factorised quadratic equations, solved to find roots, and multiplied the factors to get back to get the original equation. This valuable approach allowed the students to fully understand the ideas presented. There was scope in some lessons for teachers to include opportunities for students to more fully explore the concepts taught and to take a deeper approach to the learning.
- Some lesson plans included cross-topic linkages which facilitated the teaching of concepts in their appropriate mathematical context. A good example of this approach was seen where simultaneous equations were taught alongside graphing lines. This very good practice should be extended to all lessons.
- In most lessons, students were attentive, engaged, active, discussing Mathematics and interested in the learning tasks. Very high levels of engagement were noted when the students were working in pairs, comparing answers, and debating discrepancies. Students were also very engaged when they were presented with new material before the teacher provided an example. In these lessons, students were keen to know the answers and paid very close attention to teacher instruction.
- In a minority of lessons, the learning tasks were not sufficiently connected and this contributed to a lack of clarity in students' understanding. While it is important to have a variety of tasks to keep students interested and motivated, teachers should ensure that the connections between the different aspects of the lesson are clear. Additionally, as the lesson moves from one task to the next, teachers should monitor learning and modify teaching if students need more time before moving on to the next element of the lesson.
- The quality of assessment was very good in almost all lessons. All teachers used questioning very well to assess and involve students. However, care was needed in a few lessons in relation to the use of global questioning, with not all students answering. Very good practice was evident where teachers used mini-whiteboards to provide quick and comprehensive assessment of learning. These good assessment practices should be extended to all lessons.
- Students who found Mathematics difficult were noticed by their teachers and had their needs met. There was good differentiation in the approaches used in the majority of lessons. However, there was a need to provide additional challenge for the better able students at times; teachers should collaborate on ways in which this could be achieved without just providing extra work for students.
- There were good practices around giving and checking homework, in most lessons. However, in a significant minority of lessons the correction of homework took up too

much class time. It is recommended that more efficient approaches to checking homework be used further.

- There was good practice in relation to developing students' literacy skills in Mathematics with good attention to mathematical language and key words in all lessons.
- The students, in their focus group meeting, stated that they valued clear explanations, and active methodologies that focused on discovering Mathematics. They appreciated that teachers shared resources electronically which made it easier to catch up after an absence. They also described the practice of teachers providing differentiated homework in a discreet manner as being particularly valuable.
- The students favoured group work and figuring out problems together, particularly when in the groups they got different answers and the teacher asked them to work out why. They felt their learning benefitted from experiencing Mathematics through real-life examples. Mnemonics to help them remember important formulae were also described as being beneficial. They valued when teachers provided the learning intentions and success criteria. They preferred note making, which required them to think, over note taking. They felt it was very beneficial when their teachers made sure all students understood the lesson concepts before moving on.
- In relation to the junior cycle Classroom Based Assessments (CBAs), the students described them as sometimes being a distraction from day-to-day learning in Mathematics. For some of the students, teacher instructions in relation to the CBAs were not sufficiently clear.

## 2. Subject provision and whole-school support

- At the time of the evaluation, subject provision and whole-school support for junior cycle Mathematics was very good. Timetable allocation to Mathematics was in line with the Junior Cycle Guidelines. First years received four forty-minute lessons per week and there were five lessons per week provided in second and third year.
- First years were assigned to mixed-ability groups for Mathematics and this good practice allowed them to settle in before decisions regarding levels were made. They were assigned to mixed-ability higher and ordinary level classes from second year onwards. There were good systems around change of level, with students and parents having a strong voice in this process.
- Provision of resources for Mathematics was very good. There was very good access to digital technology and general classroom resources. The mathematics classrooms were along one corridor, which was designed as a very stimulating mathematics environment.
- Provision for students experiencing difficulty with Mathematics was very good. The main mode of delivery of support in Mathematics was through one-to-one or small-group withdrawal for lessons with a qualified Mathematics specialist for students who have exemptions from Irish or do not do languages. In-class support was provided for students who did not have time out of other subjects.
- There was a very high level of collaboration and communication between the mathematics and special educational needs (SEN) departments. There was a drop-in mathematics support centre, run by the school's Science, Technology, Engineering, and Mathematics (STEM) prefects and facilitated by mathematics teachers.
- Provision for students of the special classes was very good. Some of the students excelled at Mathematics and others found the subject more challenging. A combination of integration into mainstream lessons and more individual provision in the special class was provided. Level Two Learning Programmes (L2LP's) were provided for students who had been identified as requiring this high level of support. Learning in L2LPs was integrated into mainstream provision, and also took a cross-curricular approach with elements of L2LP Mathematics being integrated into cookery, and shopping, for example.

### 3. Planning and preparation

- The quality of planning and preparation for Mathematics was very good. The members of the mathematics department worked very well as a team and collaborated on planning for the subject. The mathematics plan was designed around units of learning that took a cross-topic approach to learning and this is good practice. There was scope to add further cross-topic connections, and this should be done over time. The plan was accessible electronically to all members of the teaching and SEN teams. There was good practice around sharing resources for learning.
- The analysis of student outcomes in the Junior Cycle which included a five-year trend analysis, indicated very good uptake of higher level junior cycle Mathematics and very good achievement. Commendably, the subject plan noted very high grades at ordinary level with a view to keeping these at a minimum; this good practice ensured that the department's focus was on encouraging higher-level uptake. The subject plan also included a section on school self-evaluation for Mathematics, which is good practice.
- There were many opportunities provided by teachers to encourage students to experience Mathematics for fun. The school took part in quizzes and competitions, such as, the *Pi Quiz*, *Mathematics Olympiad*, *Junior Problem Solving Quiz*, and *Peter's Problem*. Students also took part in *Mathematics Enrichment* lessons provided by University College Dublin. The school celebrates events such as *Pi Day* and *Maths Week*.
- First-year students took part in a valuable initiative which involved receiving support in Mathematics from the transition year (TY) students' *Paired Maths* programme.

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

## 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 quality of the school's provision of each area.

Level	Description	Example of descriptive terms
Very Good	<i>Very good</i> 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 <i>outstanding</i> 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	<i>Good</i> 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	<i>Satisfactory</i> 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	<i>Fair</i> 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	<i>Weak</i> 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;