An Roinn Oideachais agus Scileanna

Department of Education and Skills

Subject Inspection in Mathematics and Applied Mathematics

REPORT

Ainm na scoile / School name	Crescent College Comprehensive
Seoladh na scoile / School address	Dooradoyle Rd Dooradoyle Limerick
Uimhir rolla / Roll number	81014R

Date of Inspection: 20-09-2016

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 and Applied Mathematics under the following headings:

1. Learning, teaching 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 of the school was given an opportunity to comment on the findings and recommendations of the report; the board chose to accept the report without response.

Subject Inspection

INSPECTION ACTIVITIES DURING THIS INSPECTION

Dates of inspection	19-09-2016 and 20-09-2016
Inspection activities undertaken • Review of relevant documents • Discussion with principal and key staff • Interaction with students	• Observation of teaching and learning during thirteen class periods; nine single periods and two double periods • Examination of students' work • Feedback to principal, deputy principal and relevant staff

SCHOOL CONTEXT

Crescent College Comprehensive is a co-educational post-primary school located in Limerick City. The programmes offered are the Junior Certificate, an optional Transition Year (TY) and the established Leaving Certificate. Enrolment currently stands at 893 students.

SUMMARY OF MAIN FINDINGS AND RECOMMENDATIONS:

FINDINGS

- Good or very good learning and teaching was observed in all lessons.
- There was considerable consistency evident in lesson structure as well as a commitment to a high standard of mathematical rigour.
- Students demonstrated high levels of enthusiasm, particularly in lessons where active learning was central to the methodology used.
- Subject provision and whole school support for Mathematics and Applied Mathematics is very good.
- The deployment of teachers to Mathematics is very well managed.
- Planning and preparation for the teaching of Mathematics and Applied Mathematics is of a very high standard; however, there is undue emphasis on the coverage of content from the senior-cycle syllabuses in the TY plan.

RECOMMENDATIONS

- In some lessons, students should be given more time to work with the content of the lesson either individually or in consultation with their peers.
- The project-based element of the TY plan should be further developed into a series of key assignments which would allow students to apply the theory they have learnt in an authentic way.

DETAILED FINDINGS AND RECOMMENDATIONS

1. TEACHING AND LEARNING

- Good or very good learning and teaching was observed in all lessons. Teachers have created calm and welcoming learning environments in which engagement with and enjoyment of Mathematics are fundamental components of the student experience.
- Most of the lessons observed were very well structured and students' learning experiences were crafted through very careful planning of lesson activities. Where this was most successful, teachers incorporated a variety of activities into lessons, allowing students to engage deeply with the content of the lesson.
- The use of pair-work was a feature of many lessons and was very effective in stimulating discussion and promoting self-reflection among students with regard to their strengths and areas for improvement.
- In a minority of lessons, there was an over-emphasis on whole-class teaching methodologies. In such cases, students would benefit from additional time to work through lesson activities without teacher intervention at a whole-class level. The further use of the collaborative approaches that were observed in many lessons is recommended for these classes.
- The judicious use of information and communications technology was a feature of all lessons. It facilitated the efficient demonstration of mathematical concepts and was used as a very effective lesson-preparation tool in many cases. Teachers demonstrated high levels of confidence and competence in using the available technology.
- Of particular note during the evaluation was the strong emphasis placed by teachers on the use of correct mathematical procedures and in particular, the use of accurate mathematical language. This approach was supported further by a department-wide emphasis on the prominent display of subject-specific terminology.
- Students' work was very well presented in the majority of copybooks reviewed. Homework is issued regularly and while homework is typically corrected as a whole-class activity, this was achieved efficiently in all cases with a strong emphasis on the identification of problem areas. Students demonstrated high levels of diligence in making corrections to their work where necessary.

2. SUBJECT PROVISION AND WHOLE SCHOOL SUPPORT

- Subject provision and whole-school support for Mathematics and Applied Mathematics is very good. Timetabled provision is in line with syllabus requirements and there is a generous provision of between six and seven periods per week for fifth and sixth-year Mathematics.
- First-year and TY students are taught in a mixed-ability setting in line with best practice. In other year groups, students are taught in level-specific classes where concurrent timetabling facilitates the movement of students between levels where necessary. Students are encouraged to study at the highest level possible. Evidence of this is the very high proportion of students taking the higher-level papers in the certificate examinations.
- The deployment of teachers to Mathematics is very well managed. There are currently nine teachers assigned to the teaching of Mathematics in the school and most of these teachers are exclusively teaching Mathematics. This facilitates close collaboration between teachers and creates a very strong core of mathematical expertise in the school.

- Students experiencing difficulty with numeracy are catered for through a flexible model of support. At present, a combination of small group and one-to-one withdrawal is used to support students. Team teaching has been used in the past and should remain an option into the future when it is deemed appropriate.
- The mathematics department is very well resourced. Each classroom is equipped with an interactive whiteboard and a variety of additional mathematics-related resources is available to teachers for use in lessons.

3. PLANNING AND PREPARATION

- The standard of planning and preparation for Mathematics and Applied Mathematics is very good. Comprehensive subject plans have been developed for both subjects and these plans provide a clear overview of how the subjects are provided for in the school.
- The mathematics department is co-ordinated on a rotating basis in line with good practice. Department meetings are held regularly throughout the year and the minutes of these meetings are retained with the subject planning documentation. The necessary operational focus of department meetings should evolve to include further discussion in relation to learning and teaching practices in order to further facilitate the dissemination of best practice.
- Schemes of work for each year group and for each level of study have been developed collaboratively. These schemes of work are stated in terms of learning outcomes and many are exceptionally well developed. For some strands of the syllabus, teachers have included some very good guidance in relation to teaching approaches, resources and assessment modes to be used. Over time, this approach should be extended to all strands. Using the scheme of work as a focal point for cataloguing the resources, methodologies and assessment modes that are in use by the teachers of Mathematics and Applied Mathematics will streamline the sharing of ideas among teachers.
- In the plan for Applied Mathematics, a lot of thought has gone into identifying where linkages to the mathematics syllabus occur. This is a very good resource for all teachers as it signals where connections between the two subjects can be exploited for the benefit of students' learning.
- While the TY plan contains a project-based element, there is a strong emphasis on the coverage of content from the syllabuses for the certificate examinations. It is recommended that the TY programme for Mathematics evolve into a series of key assignments in which students can apply the theory that they have learnt in an authentic way. Such an approach would also give students further scope for self-directed learning as well as further collaboration with their peers.

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.

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 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. Overall, learners have access to a basic level of provision. 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;

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