An Roinn Oideachais

Department of Education

Subject Inspection in Science & Physics

REPORT

Ainm na scoile / School name	Coláiste Mhichíl
Seoladh na scoile / School address	Sexton Street Limerick
Uimhir rolla / Roll number	64200R

Date of Inspection: 09-11-2020

An Roinn Oideachais
Department of Education

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 Science & Physics 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.

CHILD PROTECTION

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	12 March & 9 November 2020
Inspection activities undertaken • Review of relevant documents • Discussion with principal and key staff • Interaction with students	• Observation of teaching and learning during four lessons • Examination of students' work • Feedback to principal, deputy principal and relevant staff

This evaluation was paused due to the school closures arising from the Covid-19 pandemic. While many of the inspection activities took place in March 2020, two class visits and the overall feedback meeting occurred in November 2020.

School context

Coláiste Mhichíl is an all-boys voluntary secondary school in Limerick city that operates under the trusteeship of ERST – Edmund Rice Schools Trust. Enrolment stood at 330 in March 2020 when the evaluation began. Science education forms a strong element of the curricular programme at both junior and senior cycles. The school participates in Delivering Equality of Opportunity in Schools (DEIS), the Department's action plan for educational inclusion.

SUMMARY OF MAIN FINDINGS AND RECOMMENDATIONS:

Findings

- The quality of teaching in the science lessons was good overall, while the quality of teaching observed in a physics lesson was satisfactory.
- Teachers were generally well prepared for their lessons, with some scope to develop the use of learning intentions.
- The quality of learning was good, although only some lessons had good levels of student activity and engagement.
- Whole-school support and subject provision for the sciences are very good; Science is a core subject at junior cycle and Physics, Biology and Chemistry are offered as subject options at senior cycle.
- The school has three well-resourced science laboratories; however, the amount of physics equipment for practical work is insufficient.
- The science department's planning is good, with scope for further developing the schemes of work and the analyses of state certificate examination results.

Recommendations

- Learning intentions should be used more consistently to check on learning during lessons and teachers should agree a strategy for how students will use them to reflect on their learning.
- Lesson planning needs to focus on active learning and increasing student engagement.
- The science department needs to use the school budget provided to obtain the necessary physics equipment for students' practical work.
- The schemes of work need to link learning intentions to more detailed and specific teaching and learning methodologies and provide a variety of assessment modes for units of work.

DETAILED FINDINGS AND RECOMMENDATIONS

1. TEACHING, LEARNING, AND ASSESSMENT

- The quality of teaching observed in the science lessons was good overall, with some satisfactory practices noted in some cases. The quality of teaching observed in a physics lesson was satisfactory.
- The preparation for lessons was generally good. Learning intentions were shared with students at the outset of the lessons. Teachers should check, as the lesson progresses, to see if the intended learning is taking place. This will assist teachers in gauging the pace of work required for each class group. Students should be encouraged to use the learning intentions to reflect on their own learning.
- Effective methodologies were used by teachers and students during some lessons. These included clear instructions to students, use of science resources and digital technology, practical work and independent tasks. Enquiry-based learning was a feature of some lessons and students were asked to predict outcomes in some cases.
- The quality of learning was good overall. Students were generally engaged in their learning and in some cases contributed well in discussions in lessons. Most lessons had a good balance between the time spent on teacher instruction and student activity, although in some lessons an over-reliance on presentation software, as well as a disproportionate amount of lesson time being spent on whole-class corrections, led to unnecessary periods of student inactivity. The good practice of sharing notes and resources with students online, evident in some instances, should be used more widely so as to provide more time in lessons for active learning.
- Classroom management was very good overall. Student-teacher interactions were very positive and student behaviour was very good. The laboratories for the science lessons had good-quality charts and scientific posters on the walls and some samples of students' work on display, creating an environment that was conducive to learning.
- All classes were of mixed ability. Where they were observed, the differentiation strategies in lessons were good; however, in some cases no differentiation strategies were evident. Teaching and learning activities should be planned purposefully so that active learning opportunities for all students are provided as well as an appropriate level of challenge for the more able students.
- The quality of assessment was good overall. Questioning strategies were good in most cases. In some instances, however, chorus responses dominated or the same few students responded to most questions. The students in the physics lesson did not have practical copybooks for the mandatory experiments and there was no evidence that these experiments were taking place in the school. This matter needs to be addressed urgently so that students can track their progress through the required elements of the curriculum.
- Homework is assigned and corrected regularly. Moving forward, there is a need to provide written formative feedback to students on their learning. Teachers should avoid the practice where whole-class correction of homework takes up a disproportionate amount of the lesson time and look to include other assessment-for-learning practices to monitor student progress and understanding.
- Good literacy and numeracy strategies were observed during lessons. Difficult terminology was explored and importance was placed on scientific units when required. Students, in general, demonstrated good oracy skills.

2. SUBJECT PROVISION AND WHOLE SCHOOL SUPPORT

- The quality of whole-school support and subject provision for the sciences is very good. Science is a core subject in junior cycle and students may be offered Physics, Chemistry, and Biology in senior cycle. The uptake of Physics is low; the senior management team and science department should investigate strategies to further promote Physics in order to improve the uptake in the future.
- The time allocation for Physics and Science is in line with syllabus guidelines.
- The school has three well-maintained laboratories for the science subjects and the students have very good access to these rooms for practical work. The board and senior management provide the science department with an annual budget for equipment and supplies. There is an urgent need for the teachers to use this budget to purchase physics equipment and apparatus so that the students can perform the required practical work in the school.
- Chemicals are stored appropriately. Health and safety equipment, such as first-aid kits and fire extinguishers, is available. Students have sufficient access to laboratory coats and safety glasses for practical work.
- Senior management facilitates teachers in respect of continuing professional development (CPD). Teachers give of their time to support, and students are encouraged to take part in, extra-curricular activities such as SciFest, a science book club, Science Week, the Futurewize programme and a number of local educational excursions such as visits to Ardnacrusha Hydroelectric power station and nearby Limerick universities. Such endeavours are commended.

3. PLANNING AND PREPARATION

- The quality of planning is good. Minutes of meetings are maintained and provide evidence that teachers have engaged with the training provided for the new science specification. State certificate examinations results are analysed annually by the science teachers. Further analysis of the results using information relative to the school's context could be used to set targets and devise strategies for year-on-year improvement. Any targets and strategies decided upon should be discussed at meetings and recorded in minutes.
- The science schemes of work are good. They contain useful information in relation to timeframes and expected learning. Going forward, the teachers should look to group more of the learning outcomes of the different strands of the specification to create units of work. The unpacked learning intentions for these units should be linked to more detailed and specific teaching and learning methodologies, and a variety of assessment modes, that incorporate the skills of the classroom-based assessments.
- The physics and the TY schemes of work should be revisited to provide additional detail regarding learning intentions, specific teaching and learning methodologies and assessment modes. This would enable the schemes to be used more readily as working documents.

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 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;