An Roinn Oideachais agus Scileanna

Department of Education and Skills

Subject Inspection in Science & Physics

REPORT

Ainm na scoile / School name	Coláiste Mhuire Co-Ed
Seoladh na scoile / School address	Castlemeadows Thurles County Tipperary
Uimhir rolla / Roll number	72490C

Date of Inspection: 18-09-2019

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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 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	17 & 18 September 2019
Inspection activities undertaken • Review of relevant documents • Discussion with principal and key staff • Interaction with students	• Observation of teaching and learning during five lessons • Examination of students' work • Feedback to principal, deputy principal and relevant staff

School context

Coláiste Mhuire Co-Ed is a co-educational post-primary school under the auspices of the Tipperary Education and Training Board. It participates in Delivering Equality of Opportunity in Schools (DEIS), the Department's action plan for educational inclusion. Enrolment stood at 358 post-primary students at the time of the evaluation. A broad curriculum is provided including the junior cycle programme, the Junior Certificate School Programme, an optional Transition Year (TY), the Leaving Certificate, the Leaving Certificate Applied programme and the Leaving Certificate Vocational Programme. The school also provides Post-Leaving Certificate (PLC) courses for 131 students.

SUMMARY OF MAIN FINDINGS AND RECOMMENDATIONS:

Findings

- The quality of teaching was good overall in the lessons observed.
- Teachers were generally well prepared for their lessons, with some scope to develop the use of learning intentions.
- The quality of learning was good overall; planning for group activity and the use of extension exercises had scope for development in some instances.
- Whole-school support and subject provision for the sciences are very good, with Science as a core subject and Physics introduced two years ago.
- There is a commendably high uptake of science subjects; this has an impact on the use of science laboratories.
- The schemes of work that the science department has produced are good, with scope for some development.

Recommendations

- Learning intentions should be used more consistently to check on learning during lessons and teachers should agree a strategy for students to use them to reflect on their learning.
- To maximise learning, group activities should be structured with clearly defined timeframes, assigned roles and feedback sessions, and extension exercises should be used if needed.
- The board and senior management should seek to prioritise the development of additional laboratory facilities given the high level of curriculum provision in the sciences.
- The schemes of work need to link learning intentions to more detailed and specific teaching and learning methodologies.

DETAILED FINDINGS AND RECOMMENDATIONS

1. TEACHING, LEARNING, AND ASSESSMENT

- The quality of teaching observed in Science and Physics was good overall, with very good practices in a number of instances. Most teachers presented well prepared lessons and learning intentions were made known to students at the start of the lesson. The majority of lessons incorporated a variety of assessment for learning (AfL) methodologies to check if the intended learning had taken place. All teachers should ensure that lessons include sufficient time to check that students are achieving the intended learning successfully.
- The mainstream teachers have availed of continuing professional development (CPD) and have engaged meaningfully with different practices and methodologies to support enquiry-based learning for the new Science specification.
- Effective methodologies were used by teachers and students during lessons. Student use of digital technology was a feature of many lessons. Teachers provided clear instructions for tasks and students worked well, both independently and in groups. At times, investigations were used to generate student discussion. There is scope to allow for greater student choice in terms of investigation design and the procedures undertaken during scientific investigations.
- The quality of learning was good overall. Students were engaged in their learning and showed good levels of interest and understanding of topics. All lessons had a good balance between the time spent on teacher instruction and student activity. In some cases, group activities could have been improved by providing better structures in areas such as setting timeframes, assigning roles, and in seeking feedback. Students that complete activities ahead of time should be provided with extension exercises in order to provide them with a greater challenge and to continue to engage them in active learning.
- Classroom management was very good and teacher-student interactions were very positive. The laboratories and demonstration rooms had suitable scientific charts, posters and samples of students' work on display, creating an environment that was conducive to learning. Teachers should encourage students to use learning intentions as a study aid and reflection tool to improve their own learning.
- All classes were of mixed ability. Currently, fifth and sixth-year students of Physics are taught together to support the initial introduction of the subject into the curriculum. In the main, the differentiation strategies used in lessons were good. Very good use was made of a traffic-light system of colours to indicate to the teachers whether students required additional support. There was very good use of online digital classrooms to share notes and materials with students. In some cases, note-taking occurred for short periods of time. This practice should be avoided in favour of more consistent use of the online classroom and, consequently, the provision of more time in lessons for active learning.
- The quality of assessment was good overall. Teachers used very good questioning strategies throughout the evaluation and students provided good responses. Homework is assigned and corrected regularly and some evidence of formative feedback was observed. While there was some variety in the type of homework, the science department should look to provide a greater variety and ensure that homework is linked more often with the skills that will be assessed in relation to classroom-based assessments.
- Very good literacy and numeracy strategies were used in lessons. Key terminology was explained; students regularly used and were taught scientific terminology; and an importance was placed on accuracy and the use of units. In general, students showed good oral communication skills throughout the evaluation.

2. SUBJECT PROVISION AND WHOLE SCHOOL SUPPORT

- The quality of subject provision and whole-school support for the sciences is very good. Science is a core subject in junior cycle and students can be offered Physics, Chemistry, Biology, and Agricultural Science in senior cycle. Physics was introduced into the curriculum two years ago and, encouragingly, the uptake is good overall. The senior management team and the Physics teacher are commended for accommodating the small uptake in this initial year by combining fifth and sixth-year students of Physics.
- The time allocation for Physics is in line with syllabus guidelines. Science is allocated three single periods in all years of the junior cycle. Depending on available resources in the future, senior management could consider providing Science for four periods a week in one of the years of the junior cycle.
- The school has two well-maintained laboratories for the science subjects. Currently, most science lessons take place in these rooms, but a significant minority does not. As the uptake in Physics and Chemistry is expected to increase over the next number of years, the two laboratories will come under further pressure to provide access to practical work for all courses. The board, along with senior management, should seek to prioritise the development of additional laboratory facilities in order to allow for more space for practical work and investigations.
- 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). Students are encouraged to take part in extra-curricular activities such as SciFest, the BT Young Scientist and Technology Exhibition, Tipperary Festival of Science during Science Week, and a number of local educational excursions. The school has also developed good links with local agencies and third-level institutes to further promote the sciences.

3. PLANNING AND PREPARATION

- The quality of the science department's planning is good. A co-ordinator is appointed to the department and this position is rotated periodically. Minutes of meetings are maintained and some reflection on methodologies and discussion of practice are recorded; this should be expanded upon. In addition, it is advised that strategies for improvement make reference to the analysis of certificate examinations and the specific context of the school. Any strategies used should be discussed on a regular basis and recorded in minutes of meetings.
- The schemes of work produced by the science department are good. They contain useful information in relation to timeframes, expected learning, types of assessment and teachers' reflections. Going forward, the schemes should link the learning outcomes to more detailed and specific teaching and learning methodologies. The science teachers should try to incorporate greater links across all the strands of the specification as part of units of work.

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.

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;