

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

**Subject Inspection in Science & Physics**

**REPORT**

<b>Ainm na scoile / School name</b>	Kilkenny College
<b>Seoladh na scoile / School address</b>	Castlecomer Road Kilkenny
<b>Uimhir rolla / Roll number</b>	61570M

**Date of Inspection: 10-11-2016**



**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 Science & Physics 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 was given an opportunity to comment in writing on the findings and recommendations of the report; a response was not received from the board.

#### INSPECTION ACTIVITIES DURING THIS INSPECTION

<b>Date(s) of inspection</b>	10-11-2016
<b>Inspection activities undertaken</b> <ul style="list-style-type: none"><li>• Review of relevant documents</li><li>• Discussion with principal, deputy principal and key staff</li><li>• Interaction with students</li></ul>	<ul style="list-style-type: none"><li>• Observation of teaching and learning during seven class periods</li><li>• Examination of students' work</li><li>• Feedback to principal, deputy principal and relevant staff</li></ul>

#### SCHOOL CONTEXT

Kilkenny College is a co-educational secondary school with a current school enrolment of 846 students. The school offers the Junior Certificate, the established Leaving Certificate, the Leaving Certificate Vocational Programme (LCVP) and a compulsory Transition Year (TY) programme. The college caters for boarders.

#### SUMMARY OF MAIN FINDINGS AND RECOMMENDATIONS:

##### FINDINGS

- Student learning was of a high standard overall; students were motivated to learn and demonstrated this in their positive approach to classwork and homework.
- Teachers ensured that students were purposefully engaged in inquiry-based learning experiences that were supportive and challenging.
- Teachers demonstrated competence and proficiency in the skills and knowledge of their subject area and, in the main, selected teaching approaches appropriate to students' learning needs.
- Individual teacher planning for lessons was good; collaborative subject planning and TY planning have evident weaknesses.
- The overall subject provision for Science and Physics is good; however, some timetabling and TY programme deficits need to be addressed.
- Assessment strategies were good overall though possibilities for improvement of students' written records exist.

##### RECOMMENDATIONS

- School management and teachers should ensure that the collaborative Science and Physics plans and schemes of work are significantly improved.
- School management and teachers should review TY science provision, subject choice and timetabling, taking account of Department guidelines and relevant circulars.
- Teachers should plan for improved assessment strategies and extend the use of formative written feedback as a means of improving the quality of students' written records.

#### 1. TEACHING AND LEARNING

- The overall quality of teaching ranged from good to very good.
- Student learning was of a high standard overall. Students were motivated to learn and demonstrated this in their positive approach to classwork and homework. There was a very good atmosphere observed in all lessons, and students enjoyed their learning. When

examined, students displayed very good levels of knowledge and understanding and could explain the purpose of the learning tasks they were engaged in.

- Lesson intentions were set out, shared with students and revisited in most lessons. This good practice should be extended in such a way that students have the opportunity to provide quality feedback to teachers on their learning. In this way, teachers can ascertain if the lesson intentions were achieved by all students.
- Practical lessons were conducted in a safe environment. Students developed critical thinking skills and problem-solving skills as they worked individually, in pairs and in groups. Students were actively engaged in learning and were purposefully involved in meaningful learning activities. Students took the opportunities provided by their learning experiences to apply and develop key skills. In the majority of lessons, teachers were aware of students' individual learning needs and differentiated activities as necessary.
- Teachers ensured that students were purposefully engaged in inquiry-based learning experiences that were supportive and challenging in most lessons. There were short clear inputs from the teacher in many cases to aid student understanding. Teachers' classroom management skills were very good overall.
- Teachers demonstrated competence and proficiency in the skills and knowledge of their subject area and in the main selected teaching approaches appropriate to students' learning needs. Teachers enabled students to make meaningful links between lesson material and relevant applications in real life. Teachers maintained a good balance between their own input and productive student engagement and response in most lessons. In some lessons, teacher demonstrations could have been developed as student group tasks while in other lessons extended use of inquiry-based learning would have optimised student activity.
- Teachers purposefully developed relevant literacy and numeracy skills during lessons. Extending the practice of recording keywords and important concepts on the board is recommended.
- Information and communication technology (ICT) successfully aided learning in some lessons through the appropriate use of photographs, slides and applets. Mind maps were used in some cases to focus recall and understanding and to successfully collate student input.
- Assessment strategies were good overall though possibilities for improvement of students' written records exist. Teachers should plan for improved assessment strategies and extend the use of formative written feedback together with oral feedback as a means of improving the quality of students' written records.
- Teachers facilitated productive class discussion by encouraging students to contribute their opinions and experiences. Good questioning strategies facilitated this process. Students reflected on their learning and consolidated their level of understanding by engagement in meaningful worksheet tasks and assigned homework.

## **2. SUBJECT PROVISION AND WHOLE SCHOOL SUPPORT**

- The overall subject provision for Science at junior cycle and Physics at senior cycle is good. Science is offered as a core subject at junior cycle. Physics, Chemistry, Biology and Agricultural Science are options at senior cycle. The uptake of the science subjects is very high.
- Time allocation to the science subjects meets curricular guidelines and is very good overall. Some class groups do not have a double period and are timetabled for Science twice on the same day. This timetabling deficit should be addressed.
- TY students choose their Leaving Certificate subjects in third year. School management should consider delaying this process until the end of fourth year in line with best practice and Department TY guidelines and circulars. This recommendation was made in a previous subject inspection report but has not been addressed to date by school management. It is acknowledged that students are facilitated by the school to change subjects in TY.

- The science laboratories and teacher preparation areas are well organised and maintained. Laboratory ICT facilities are good and support student learning. The school has addressed health and safety concerns regarding chemical storage outlined in a previous inspection report.
- Students are encouraged to partake in a number of co-curricular and extra-curricular activities including the weekly Science Club, Chemistry Clinic, Aberdeen Angus Competition and the Stanford University Folding Protein project. These activities successfully raise the profile of Science in the school.
- There are seven teachers in the science department. All teachers are encouraged and supported by school management to partake in relevant continuing professional development (CPD) courses. It is important that all teachers remain upskilled in light of the introduction of the new science specification as part of the Junior Cycle Framework. Teachers should also consult [www.jct.ie](http://www.jct.ie). Records of planned and completed teacher professional development should form part of science department planning for all teachers.

### **3. PLANNING AND PREPARATION**

- The overall quality of collaborative subject planning for Science and Physics does not reflect current good practice as observed in the classroom, has evident weaknesses and requires significant improvement in many relevant areas. This formed the basis of a recommendation made in a previous physics inspection report.
- The existing subject plans have sections outlining organisational details, some literacy and numeracy actions and resources utilised, and an analysis of examination results. Current schemes of work simply outline lists of topics referenced for each year group.
- The recommended development of these plans should encompass agreed teaching approaches, reflections on state examination results, new assessment practices and modified collaborative schemes of work. School management and teachers should ensure that a collaborative science plan and scheme of work are drawn up to encompass the new junior cycle specification for Science.
- The TY plan for Physics contains mainly material from the Leaving Certificate and requires significant review. Use of the transition unit template which focuses on skills development may further aid TY planning development. This resource is available on [www.ncca.ie](http://www.ncca.ie).
- The quality of individual teacher planning for lessons was good overall.

## 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
<b>Very Good</b>	<b>Very good</b> 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 <b>outstanding</b> 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
<b>Good</b>	<b>Good</b> 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
<b>Satisfactory</b>	<b>Satisfactory</b> 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
<b>Fair</b>	<b>Fair</b> 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
<b>Weak</b>	<b>Weak</b> 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;