

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

**Subject Inspection in Science & Physics**

**REPORT**

<b>Ainm na scoile / School name</b>	C.B.S. Thurles
<b>Seoladh na scoile / School address</b>	Rossa St Thurles Co Tipperary
<b>Uimhir rolla / Roll number</b>	65450W

**Date of Inspection: 06-March-2018**



**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. 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.

## SUBJECT INSPECTION

### INSPECTION ACTIVITIES

<b>Dates of inspection</b>	5 & 6 March 2018
<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</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 and relevant staff</li></ul>

### School context

C.B.S. Thurles is an all-boys voluntary secondary school under the trusteeship of ERST – Edmund Rice Schools Trust. The enrolment stood at 667 students at the time of the evaluation. The school offers the Junior Cycle and the established Leaving Certificate as well as an optional Transition Year (TY) programme and the Leaving Certificate Vocational Programme.

### SUMMARY OF MAIN FINDINGS AND RECOMMENDATIONS:

#### Findings

- The quality of teaching in Science and Physics ranged from satisfactory to very good, though the majority of lessons were of a very good standard.
- Teachers were well prepared for their lessons and good use was made of scientific resources and materials and there was effective use of information and communications technology (ICT).
- The quality of student learning was good overall and students in most lessons were encouraged to engage with enquiry-based teaching methodologies.
- Whole-school support and subject provision for the sciences is very good; Science is a core subject and the uptake of Physics in the school is very good.
- Almost all of the science lessons in junior and senior cycle take place in the four well-resourced laboratories in the school.
- The science department's planning is good; however, the schemes of work should be further developed.

#### Recommendations

- The science teachers should further develop their enquiry-based teaching methodologies and active learning should be a feature of all lessons.
- The school's health and safety policy, including risk assessments, is out of date and needs to be reviewed, updated and ratified.
- The Science and Physics schemes of work need to link the learning intentions of topics to specific teaching and learning methodologies, provide a variety of assessment modes, and include a section for teachers to review the schemes on an ongoing basis.

## DETAILED FINDINGS AND RECOMMENDATIONS

### 1. TEACHING, LEARNING, AND ASSESSMENT

- The quality of teaching during the evaluation ranged from satisfactory to very good with the majority of lessons of an extremely high quality. Most of the lessons had an appropriate balance of time spent on teacher instruction and student activity.
- Learning intentions of lessons were clear. The best lessons were where the resources and methodologies chosen were suited to achieving the learning intentions. Teachers should ensure that time is provided to check that intended learning is taking place. Students should be encouraged to use the learning intentions as a study aid to reflect on their own learning.
- A good range of methodologies was used during the observed lessons. These included checking on prior learning at the start of lessons, effective use of ICT by students and teachers, experimental work and note-making through student mind maps and discussion. The science teachers were trialling different methodologies for the new Science specification. These were centred on student activities to develop scientific skills and creative thinking. In some instances, better structures in areas such as timeframes, group sizes, effectiveness of the task, and ways in which feedback was sought, were needed. The teachers should ensure that they familiarise themselves with best practice in relation to any of the methodologies that they undertake in order to maximise the learning from the task.
- The quality of learning was good overall throughout the lessons with excellent levels of student understanding in some lessons. Students were generally engaged in their learning and showed good levels of interest and understanding of topics. While there was a good level of enquiry-based learning practices observed, these practices should be further developed. In some cases, an over-reliance on presentation software meant that students were passive for long periods of time through note-taking or teachers providing too much instruction, and these methodologies should be avoided. Some teachers were using ICT to share content with students online and this is commendable.
- All classes were of mixed ability and differentiation strategies were good. Teachers provided a suitable challenge to all students during lessons. Classroom management was of a very high standard and student behaviour was very good. The laboratories where lessons occurred had a good mixture of scientific charts, posters and students' work and all of these practices allowed for a very positive learning environment for student learning.
- The quality of assessment was good. Very effective questioning was used in most cases whereby students were given time to formulate answers, questions were distributed across the student cohort and teachers often used higher-order follow-up questions to engage the students in critical analysis. Good assessment for learning strategies were used at times, though there is scope for the science department to improve on these strategies, particularly in checking that learning intentions have been successfully attained by students.
- Homework is assigned and corrected and students are sometimes provided with written formative feedback for improvement. The teachers should agree on which aspects of students' work are best suited for providing this feedback consistently. Students should be encouraged to write up practical work in their own words so that they can develop their scientific reporting skills.
- Key terminology was often explained by teachers or researched by students. In the physics lessons, very strong cross-curricular links were made with learning from mathematics lessons and the importance of units was regularly stressed. Students showed good levels of oracy throughout lessons and were encouraged to project their voice when responding to their peers.

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

- Whole-school support and subject provision for the sciences is very good. Science is a core subject in junior cycle and Physics is one of four science subjects that students can choose to study in senior cycle. The uptake of Physics is very good with two class groups in both years of the Leaving Certificate programme. The students in TY get to sample all the science subjects throughout the year.
- The time allocation for Science and Physics is in line with specification and syllabus guidelines; however some class groups in first year and second year do not have a double period for practical work. The senior management should continue to review this practice in line with resources available.
- The school has four well-resourced laboratories and will undergo a renovation of some of these rooms in the near future. Almost all science lessons occur in the laboratories due to good timetabling and teacher collaboration. All the laboratories have first-aid facilities and safety equipment.
- The school's health and safety policy, including risk assessments of rooms and corridors, is out of date. The management team should review, update if needed and ratify the policy on an annual basis.
- Teachers encourage students to engage with extra-curricular activities such as the BT Young Scientist and Technology Exhibition, SciFest, Science week and visits to the Cabragh Wetlands Trust. The school has also engaged with a project involving nine local primary schools looking to improve ICT learning for students, which has a strong focus on Science.

## **3. PLANNING AND PREPARATION**

- The quality of planning is good. A co-ordinator with agreed duties is appointed and this position is rotated periodically. Minutes of meetings are maintained and there is evidence of teachers sharing and discussing practices and methodologies and this is very good practice.
- Senior management supports continuing professional development (CPD) of teachers and any CPD undertaken is documented. The teachers should also document the use of their professional time. Some teachers have begun to observe lessons of their colleagues in a structured manner with a view to enhancing their own practice in relation to the new Science specification.
- The schemes of work for the sciences are good though there is scope for further developing these documents. The schemes should link learning intentions to specific teaching and learning methodologies, and a range of assessment modes for topics should be agreed upon in which student attainment of learning intentions can be checked. Teachers should use the schemes as working documents and review them on an ongoing basis so that meetings are more efficient and allow for greater discussion of teaching practices and methodologies.
- State certificate examination results are analysed annually by the science department. Drawing on the context provided in these results, they should 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.

#### **4. CHILD PROTECTION**

During the evaluation, the following checks in relation to the school's child protection procedures were conducted:

1. The school principal is aware that revised child protection procedures for primary and post-primary schools came into effect on 11 December 2017 and arrangements are in place to begin the process of implementing these procedures.
2. The name of the designated liaison person for child protection matters was prominently displayed near the main door of the school.
3. The school has a Child Protection policy in place.
4. All teachers are aware that they are mandated persons and of their responsibilities in that regard.

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

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 board of management of the school was given an opportunity to comment in writing on the findings and recommendations of the report, and the response of the board will be found in the appendix of this report.

# **Appendix**

**SCHOOL RESPONSE TO THE REPORT**

**Submitted by the Board of Management**

### **Part A Observations on the content of the inspection report**

The Board welcomes this comprehensive report and the recognition of the ongoing commitment of teachers in C.B.S. Thurles to the educational attainment in Science and Physics. Positive student engagement in learning was observed during the inspection and this is at the core of the work of our school on a daily basis. The positive student – teacher relationships, built on mutual respect and teacher knowledge of their students, as commended in the report are an integral part of the teaching and learning process in the school. The board is pleased that these relationships were recognised. Student engagement in learning because of the very good preparation by teachers as acknowledged in the report reflects the school’s mission statement as we seek to inspire our students to reach their potential.

### **Part B Follow-up actions planned or undertaken since the completion of the inspection activity to implement the findings and recommendations of the inspection**

The Board of Management is fully committed to the ongoing development of the education of all the students in our care and it welcomes the recommendations of the report in this regard. In advance of the publication of this report, the board has worked closely with senior management in supporting staff continuous professional development. The school’s Health and Safety Policy, including Risk Assessment will be reviewed, updated and ratified by the Board with the commencement of the new academic year. A review of the schemes of work in the Science Department will ensure a continuation of the excellent levels of student understating identified in the report.

## 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
<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;