

**An Roinn Oideachais agus Scileanna**

**Department of Education and Skills**

**Subject Inspection of Science**

**REPORT**

**McHale College  
Achill, County Mayo  
Roll number: 72070D**

**Date of inspection: 19 October 2010**



**AN ROINN OIDEACHAIS AGUS SCILEANNA | DEPARTMENT OF EDUCATION AND SKILLS**

**REPORT**  
**ON**  
**THE QUALITY OF LEARNING AND TEACHING IN SCIENCE**

---

**SUBJECT INSPECTION REPORT**

This report has been written following a subject inspection in McHale College, Achill. It presents the findings of an evaluation of the quality of teaching and learning in Science and makes recommendations for the further development of the teaching of this subject in the school. The evaluation was conducted over one day during which the inspector visited classrooms and observed teaching and learning. The inspector interacted with students and teachers, examined students' work, and had discussions with the teachers. The inspector reviewed school planning documentation and teachers' written preparation. Following the evaluation visit, the inspector provided oral feedback on the outcomes of the evaluation to the principal and subject teachers. 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 PROVISION AND WHOLE SCHOOL SUPPORT**

Science is well supported by school management and the school has a strong science department with all of the science specialities represented in the qualifications of its staff. Science is a core subject taken in classes of mixed ability. Timetabling of the subject is generally appropriate and will improve still further with the proposed provision of double class periods for practical work for all classes from September 2011.

Science is in the school's core curriculum in junior cycle and Biology and Agricultural Science are provided in senior cycle. Science is provided for in the school's newly-commenced Transition Year (TY) and students choose between courses in Agricultural Science and Biology. Once TY has been in operation for a number of years the school should review the model they are using for providing Science within it with a view to including Physics and Chemistry, perhaps initially as modules.

Resources for teaching and learning in the science subjects are adequate and there is provision through the subject coordinator for keeping them up-to-date. The school has very good information and communication technology (ICT) provision.

While the school's laboratory facilities are adequate for a school of the size of McHale College, because the laboratory also functions as a base room for one of the teachers, access for student practical work can be difficult. Access to the laboratory requires much pre-planning and this is a hindrance to the use of the investigative approach in student practical work. This issue should be kept under review and addressed as much as is possible in the planned school building development.

Access to continuing professional development (CPD) for the science teachers is problematic, in particular due to the difficulty of accessing suitable provision. The science department should investigate this further, in co-operation with school management through using the Professional

Development Service for Teachers (PDST) website. It may be that some professional development can be provided on an in-school basis using the skills of individual teachers. At a whole-school level professional development from the Junior Certificate School Programme Support Service and the Special Education Support Service (SESS) should also be investigated in the area of differentiated approaches to teaching and learning.

The school has a safety statement and teachers show very good practice in carrying out annual safety assessments. In reviewing safety, attention needs to be given to the repair of the fume cupboard, ventilating the chemical store and insulation of the heating cylinder in that room.

Students from the school have been brought to attend the Young Scientist and Technology Exhibition as part of the science teachers' strategy to develop students' skills in carrying out project work. As a possible step on the way to participation in the Young Scientist, the school is encouraged to participate in Scifest.

### **PLANNING AND PREPARATION**

The science department works in a cohesive manner and meets regularly. The impact of this is evident on planning for curriculum and assessment as the department has developed common outline programmes of work and common assessments for each year group. The role of the department coordinator focuses mainly on the laboratory and equipment.

To further increase the benefit to be gained from working together the department should build on the work being carried out individually by its members. It should do this first through developing further the documentation of its resources that is included in the subject plan. Using the school's intranet ICT resources for learning and teaching in Science should be stored in a manner that will be accessible to each teacher.

The science teachers should build on the work already done with regard to planning for a joint science curriculum. The benefits of this to students and teachers would be consistency in the teaching and learning of Science and provision for continuity for students in the event of changes of teacher. In order to have a greater emphasis on student learning, curriculum planning at a subject department level should be centred on learning objectives, with the science syllabus learning objectives providing a framework for this work. In implementing this planning the science teachers could use headings that would include learning objectives, content, methodologies, timescale, resources, and assessment.

In developing further its TY science plan the present outline plans for Biology and Agricultural Science should be expanded so that more detail is given. The aims and the learning outcomes to be achieved in the two subjects should be included. The department should consider having an emphasis within the programme on student activity and having an overall theme for TY Science.

Individual planning of the lessons observed was good. In planning lessons, as well as deciding on the content to be taught, teachers should also indicate the student learning that is to be achieved.

Lessons observed were well prepared and all necessary resources were to hand.

## **TEACHING AND LEARNING**

Teaching was good in each of the lessons observed with a variety of teaching methodologies being used. In particular very good use was made of ICT in lessons. In one lesson in particular, students' learning was greatly helped through the methodologies used, which ranged from teacher talk, the use of written board material, followed by animated diagrams and teacher demonstration. Lessons were well introduced through stating the content to be covered. In order to have a greater focus in lessons on students' learning, teachers should make use of learning objectives in introducing lessons. By using learning objectives that state what students should be able to do following the lesson, students can be given a focus for their work. Use of learning objectives also facilitates assessment of the learning that has taken place as a result of the lesson. A further important aspect is the need for teachers to spend time towards the end of each lesson in reviewing the lesson.

In most lessons observed students learning was helped through teachers linking students' prior knowledge to the subject material of the lesson. While in some lessons there was a good variety of question types used, in others the use of a short wait time before allowing students to answer would have helped in making the questioning more effective.

It was clear that the investigative approach is being used for student practical work in some classes. However it needs further promotion in others so that students' interest in science is increased through involvement in the collaborative planning and design of experiments. To build further on the investigative approach small-scale projects could be organised for first-year or second-year students. This will also assist students in developing the skills required for the Coursework B project.

Classroom management and the overall atmosphere in each of the lessons observed were excellent. Student-teacher relationships were very good.

While students were learning well in the lessons observed this would have been more obvious and that learning would have been enhanced had they been contributing to the lesson to a greater extent. Examples of this would be through asking questions, putting forward their ideas and carrying out independent tasks, such as researching topics.

Students' laboratory notebooks were well organised and are checked regularly. To increase the benefit to students of this, teachers should routinely comment on them and all other student work giving feedback on that work and guidance on how it can be made better.

The school is in JCSP and an integral part of this involvement should be the inclusion of students with a wide range of abilities in lessons so that their learning needs are met. While there was some evidence of this in some lessons there is a need to extend it further through the use of keywords and differentiation strategies in all lessons.

## **ASSESSMENT**

Students' performance of practical work is assessed as part of the school examinations. This shows very good practice on the part of teachers. It is also very good practice that students' outcomes in the state examinations are routinely analysed. This is related to the school's participation in Delivering Equality of Opportunities in Schools (DEIS). Attention may need to be

given to making use of the results of this analysis to a greater extent in informing teaching and learning and in setting targets for student achievement.

#### **SUMMARY OF MAIN FINDINGS AND RECOMMENDATIONS**

The following are the main strengths identified in the evaluation:

- Science is well supported by school management.
- The school has very good information and communication technology (ICT) provision.
- Classroom management and the overall atmosphere in each of the lessons observed were excellent. Student-teacher relationships were very good.
- The school has a safety statement and teachers show very good practice in carrying out annual safety assessments.
- The science subject department works in a cohesive manner and meets regularly.
- Teaching was good in each of the lessons observed with a variety of teaching methodologies being used. In particular very good use was made of ICT in lessons.

As a means of building on these strengths and to address areas for development, the following key recommendations are made:

- The school should review its science provision within Transition Year (TY) with a view to including Physics and Chemistry, perhaps initially as modules.
- In reviewing safety, attention needs to be given to the repair of the fume cupboard, ventilation of the chemical store, and insulation of the heating cylinder in that room.

A post-evaluation meeting was held with the teachers of Science and the principal at the conclusion of the evaluation when the draft findings and recommendations of the evaluation were presented and discussed.

*Published, April 2011*