

An Roinn Oideachais agus Scileanna

Department of Education and Skills

**Subject Inspection of Science and Biology
REPORT**

**Mohill Community College
Mohill, County Leitrim
Roll number: 76089V**

Date of inspection: 18 March 2010



**A N R O I N N | D E P A R T M E N T O F
O I D E A C H A I S | E D U C A T I O N
A G U S S C I L E A N N A | A N D S K I L L S**

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

SUBJECT INSPECTION REPORT

This report has been written following a subject inspection in Mohill Community College. It presents the findings of an evaluation of the quality of teaching and learning in Science and Biology and makes recommendations for the further development of the teaching of these subjects 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, and examined students' work. Following the evaluation visit, the inspector provided oral feedback on the outcomes of the evaluation to the principal and acting deputy principal. 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.

SUBJECT PROVISION AND WHOLE SCHOOL SUPPORT

In March 2009, Mohill Community College moved to a new school building and its three new laboratories are bright, clean and well maintained. All have an adjacent preparation room and chemical store. In addition to the laboratories, one classroom is also timetabled for science classes. The science team has begun to organise the storage of chemicals according to the system recommended by the Second Level Support Service (SLSS) and this good practice should be extended across all chemical stores. It is praiseworthy that some experiment kits have been developed for the Junior Certificate practical work and this good work should be continued. The organisation of materials and equipment will also facilitate the compilation of an inventory of stock in the new laboratories.

All laboratories are equipped with appropriate health and safety apparatus including first aid kits, fire extinguishers and safety goggles. There are also emergency shut-off points for gas and electricity. It is recommended that an extractor fan should be added to each of the chemical stores. The science department should have a health and safety statement which includes evidence of individual risk analyses for each science room. As the move to the new building is now complete, it is essential that such a health and safety statement be developed as a matter of urgency. This should be framed on the requirements of the Health, Safety and Welfare at Work Act, 2005.

The time allocation to Junior Certificate Science and senior cycle Biology is good. Lessons are well spread throughout the week. Science is a core subject in the junior cycle and all classes are of mixed ability. There is an optional Transition Year (TY) programme which contains modules in Physics, Chemistry, Biology and Agricultural Science.

The classrooms visited contained a considerable number of science resources to enhance the teaching and learning of Science. Resources are obtained on request to school management by individual teachers. The school has good information and communications technology (ICT)

resources and interactive whiteboards are installed in all three laboratories and in the science classroom. It is noteworthy that each interactive whiteboard has a cover which also enables it to be used as a regular whiteboard.

The science teachers are appropriately deployed according to their qualifications. It is good to note that, where practicable, teachers retain their assigned science class groups from first year through to third year and similarly in senior cycle. Teachers are facilitated to engage in continuing professional development (CPD) and there has been good involvement in these activities to date.

Students in need of learning supports are primarily identified at the stage of transition from sixth class to first year. The process involves the completion of the student's profile by both the feeder primary school and the parents, and the school's entrance assessments that are used to pinpoint numeracy or literacy deficits. In addition, following the commencement of the school year, any teacher can report concerns to a member of the educational support team. The needs of identified students are then addressed through withdrawal from class for support in small groups.

PLANNING AND PREPARATION

Planning is supported by management through the provision of time for subject department meetings at the start and end of the school year. Further meetings are held as necessary. It is recommended that the minutes of the planning meetings be recorded and provided to senior management. It is good that regular informal planning meetings also take place among the team.

At the time of the evaluation, the science team had not appointed a co-ordinator. This is a position which should be undertaken on a rotating basis and which would involve chairing team meetings, disseminating information and liaising with school management on subject matters. Consideration should be given to agreeing a set period of rotation, say two years, which would allow each science teacher the opportunity to lead the team in the development of the subject department.

The subject department plan was reported by management to be a work in progress and was unavailable at the time of the inspection. An action plan should now be put in place to progress the drawing up of a department plan. Programmes of work and teachers' personal planning were not made available for inspection.

Currently, an analysis of state examination results is not carried out. The science team is encouraged to compile and analyse examination data and use it to identify strengths and areas for improvement, thus contributing to team planning and review.

TEACHING AND LEARNING

All teachers began lessons by explicitly sharing the learning objective with students. This good practice brought clarity and focus to class work. In each of the lessons observed by the inspector, teachers had prepared and set out resources and materials for their teaching. These included handouts, worksheets, toys, measuring apparatus, DVD, plants and magnets which contributed to the enhancement of the learning experience. In one lesson, a range of resources such as a sheep's

skull, fungi and lichen were used effectively to enhance a lesson on classification. Almost all students engaged in the work being done in class and it was clear that students were making progress. This was evident from both the quality of students' responses and interactions in the lessons as well as work in their notebooks.

The pace at which students were guided through lesson material by teachers was appropriate. There were some good instances of lesson content being related to students' own experiences, enhancing their motivation and enjoyment of the subject. In one lesson, the teacher made good use of a DVD to recap on experiments on light before moving on to the current lesson topic of energy changes. A range of everyday items, including some children's toys, were used to illustrate these changes and this helped to make the lesson content more relevant to the students. In a lesson where students were measuring the length of a curved line, using a piece of thread and an opisometer, they were encouraged to estimate the length of the line in advance. This is praiseworthy practice and helps in the development of hypothesis formation.

Some lessons were structured around the teacher presenting work via PowerPoint presentation, overhead projector transparency or whiteboard. Students were asked to write down class notes into notebooks or hardback books. In some lessons there was an over-emphasis on the teacher's inputs and this resulted in the lesson being overly teacher-led. In recognition of students' different preferred learning styles, a wider range of methodologies should be explored and introduced into these lessons.

Some teachers asked a number of very good, probing questions which challenged students' understanding. This commendable practice can help students to consolidate their learning, maintain engagement with the topic and foster a problem-solving approach. It is recommended, therefore, that all teachers increase the use of higher-order questions and support students in developing these important skills.

An atmosphere of mutual respect was observed at all times between teachers and students and classroom management was effective. Teachers were affirming of students' efforts and students were comfortable answering questions, thus providing evidence of a supportive learning environment.

ASSESSMENT

The good practice of administering common end-of-term examination papers is in place. It is noteworthy that the science team allocates a percentage of the final mark in these examinations for the standard of the mandatory practical books.

The marking of class work, homework and class tests is used to assess students' short to medium-term progress in Science and Biology. A review of a random sample of students' notebooks indicated their work to be tidy, well maintained and relevant to the syllabus. In some cases, notebooks were well monitored by teachers. However, there is scope for development in this area, as some student's notebooks had not been annotated by the teacher. The science team should discuss best practices in relation to the assessment of students' notebooks. All students should be reminded of the importance of follow-up on corrections made. Common agreed practices for assessment should be discussed by the science team and compiled in an assessment policy for Science.

Students' progress is reported to parents in formal written reports, issued twice in the school year, and at parent-teacher meetings that take place once in the school year for each year group.

SUMMARY OF MAIN FINDINGS AND RECOMMENDATIONS

The following are the main strengths identified in the evaluation:

- The time allocation to Junior Certificate Science and senior cycle Biology is good.
- Science is a core subject in the junior cycle and all classes are of mixed ability.
- The school has good ICT resources and interactive white boards are installed in all science classrooms.
- Teachers are facilitated to engage in continuing professional development (CPD) and there has been good involvement in these activities to date.
- All teachers began lessons by explicitly sharing the learning objective with students.
- An atmosphere of mutual respect was observed at all times between teachers and students and classroom management was effective.
- The good practice of administering common end-of-term examination papers is in place.

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

- It is essential that a health and safety statement be developed as a matter of urgency.
- With regard to planning, minutes of planning meetings should be recorded, a subject coordinator should be appointed and the subject department plan should be progressed.
- Teachers should ensure that there is an appropriate balance between teachers' instruction and students' activity to avoid the lesson being overly teacher-led.
- Common agreed practices for assessment should be discussed by the science team and compiled in an assessment policy for Science.

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