

Inquiry based learning – a Blooms Approach

Science at Patrician Brothers Blacktown has incorporated into its education a set of guidelines that all teachers are expected to utilise in their classroom practice. The basic premise is that students should seek understanding through their own questioning rather than by being presented facts.

The teaching style uses Bloom's Taxonomy of thinking as a central pivot around which lessons and activities are designed. Teaching with this approach necessitates that the teacher constantly look for situations where more advanced thinking can be stimulated. It requires a teaching ability to maintain whole class participation, keep everyone thinking in the same direction, while at the same time pursuing tangential learning opportunities as they arise. Students are encouraged to produce their own answers rather than 'feeding' from those given by the teacher. The teacher adjusts questions and provides stimulus designed to slowly manoeuvre the class in the required direction; simply giving solutions is resisted.

Students are encouraged to remain engaged in the process, contribute often and listen to the contributions of others. Risk taking in answering is encouraged even if it leads to mistakes – much can be learned from mistakes. The class acquires understanding from each other at a pace set by the ability of the class. The teacher questions in a decreasing spiral that slowly incorporates all students in the class.

It must be said that the degree to which this teaching style can be pursued depends considerably upon the intellect of the class concerned. Being a new and different way of learning for some individuals, it can create special challenges for the teacher.

- Teaching will often avoid giving students direct answers, but rather present problems in a manner that will encourage them to discover or think about their own answers. Answers arrived at by a student's own thought processes are retained much better than those learned using recall.
- It is firmly believed that Science has very important knowledge but involves more than just the learning of facts. A student cannot become proficient in the subject without acquiring ability in the numerous skill areas – see 'Reportable areas'. There are 89 different skills listed in the Board of Studies syllabus, each with its own set of learning events. These skills represent abilities that will be lifelong in their application.
- The learning process in Science at our school recognises that students operate at different mental levels. Lessons incorporate activities that cater to the various thinking capabilities. These range from simple recall and comprehension tasks to complex application and analysis and the more sophisticated synthesis and evaluation. Teachers ascertain appropriate levels for the students in their charge and cater to their needs.
- Teaching encourages students to be metacognitive in their learning. Often students give answers that seem to "just come to them". Metacognitive learning emphasises that a student must be aware of, and explain, the thought processes leading to an answer so the same thinking can be consciously used in future learning events.
- Students are encouraged to ask their own questions and give opinions without being asked.
- Students are rarely required to copy notes straight from the blackboard. This type of learning operates at a recall level and does not encourage higher levels of thinking.

- Students utilise a process diary rather than an exercise book. They carry out activities in the diary that are designed around the higher thinking levels. This diary logs important learning, skills and understanding gained during class. It is organised so that it can be used at home to revise classroom experiences.
- Teachers plan lessons in an attempt to maximise the number of first hand (experiment) and secondary source (pen and paper) activities presented to students. These activities are designed to incorporate the necessary knowledge and skill learning which will be gained by 'doing' rather than 'copying'.
- Experiments are often conducted with minimal instruction requiring students to invent, adjust and modify in response to their own undertakings.
- Homework items have been selected because they are student centered allowing home time to be spent in the same pursuit of learning.