

Oral Presentations

Developing speaking and listening skills in science

The challenge of improving students' literacy in science has received much attention in recent times.

Teaching and learning sequences should be constructed to assist students to develop their skills in conveying ideas through the medium of oral expression. Given that students studying Stage 6 science courses are required to effectively communicate the theoretical concepts considered in the course¹, the cultivation of speaking skills beyond simple narrative has now become a priority issue. Effective oral communication is described in the content statements of the Science Stages 4-5 syllabus and all the Stage 6 science syllabuses².

Public speaking

In order for students of science to be fluent and communicative, they will need to develop speaking skills in explaining, predicting and hypothesising. The teacher should model the type of language to be used and provide the students with the opportunities to practise delivery skills, perhaps initially to their peers, in a less formal setting, and, eventually to a larger, formalised group in an assessment situation. Needless to say, the range of oral skills will vary tremendously between individuals, so the teacher should:

- emphasise the importance of listening, especially to peers
- be sensitive and alert to such issues as student self-confidence, reading ability, cultural background and level of knowledge
- introduce new words and explain or discuss their meanings as the need arise
- reinforce to students the value of constructive criticism.

What, then, constitutes good public speaking?

Register

A good communicator will be careful to choose the correct register. The register is the style and the level of the communication. It is chosen by the presenter after due consideration of the best interests of the audience.

A doctor, for example, would tend to communicate with a patient on a different level from, say, a nurse. In choosing register, students need to consider how the communication will take place (e.g. spoken or written), the nature of the material that needs to be conveyed, and the relationship between the speaker and the audience. Language choices should also be related to the type of information being disseminated. A set of "facts and figures" would probably be delivered using impersonal language, whilst a set of opinions may require a more personal approach.

Group discussions

Discussions within a group will allow students the opportunity to practise their own skills and to gauge their level of understanding in comparison with their peers. Group discussions need to be structured, and the language of group discussions needs to be understood. The teacher could assist by modelling the language most appropriate for:

- asking an open-ended question
- expressing agreement or disagreement
- mediating between two or more opposing points of view
- giving useful feedback
- expressing an opinion.

Presentations

All students should be given opportunities to prepare and deliver a presentation. In many cases, the content statements in the syllabus can be used or adapted in order to create a task. For example, in biology, a student may be asked to “discuss the implications of the existence of organic molecules in the cosmos for the origin of life on earth”³. The teacher will need to mentor the students to allow skill development and also provide adequate opportunity for practice. The elements that will require attention will most likely include:

- The nature of the topic
- Who constitutes the audience?
- What does the audience already know about the subject?
- Is the information appropriate?
- How can the information be organised?
- Will the audience be asked to participate in the exercise?
- Will visual aids or presentation software support the presentation?

Students can be videoed in order to facilitate self-evaluation. Speech patterns, speed, use of hands, facial expression, volume and mannerisms of speech should be monitored and corrected where necessary.

It is important to remember that, where a student is to be assessed on his or her mastery of a given skill, that skill must first be taught and given an opportunity to flourish before a reasonable assessment can be attempted.

Below is an example of an evaluation sheet for a presentation. This is similar to the one found in the Science Stages 4-5 Support Document⁴.

Presentation features	Assessment		
	Self	Peer	Teacher
Were the nature and purpose of the presentation made clear to the audience?			
Did the presentation begin at a place where the audience could understand the material?			
Were the audience taken beyond their previous level of understanding or knowledge to new heights by the presenter in: <ul style="list-style-type: none"> • explaining the meanings of new words and concepts? • giving information in a logical, organised sequence? • speaking clearly and with a well-modulated voice? • making the session interesting? 			

Was the presenter in control of the session?			
What constructive criticism could you offer for next time?			

¹ *Stage 6 syllabus* (all science courses), chapter 2

² 4/5.18(a) Select and use appropriate text type from...for oral and written presentations

6.13.1(a) Present information by selecting and using appropriate text types or combinations thereof, for oral and written presentations.

³ Biology Stage 6 syllabus, Module 8.4, Life on Earth, page 33

⁴ Science Stages 4-5 support document, page 172

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