Talking for a purpose: How can we develop constructive talk in science learning?

Research taster

How can we generate useful talk that builds science knowledge? Questions that explore students' understanding (diagnostic probes) can help to stimulate teacher-student dialogue in science lessons. These questions require students to make predictions about science phenomena and then to select an explanation consistent with the science. If organised through structured group work, or generically in teacher planning, the probes can provide a focus for classroom talk between teachers and students.

Your evidence

You may find it helpful to record details about your interactions with your students. You could record data over the whole or a part of the lesson. Because there's so much going on in lessons teachers find a recording of some kind helps them get to the important bits. Or you may like to have a colleague make observations and feed back to you. A grid may help you record the information. The key feature is the extent to which your questions give students the opportunity to provide scientifically appropriate explanations.

You could note:

- Stage of the lesson
- Question
- Did the student provide an appropriate explanation?
- Did you prompt or cue, and if so how?

Moving forward

Could you encourage your students to elaborate their answers by coupling open questions to the more factual ones and by asking them to explore a range of possible explanations before closing on the one that's the best fit? For example could you use the readings on two ammeters at different points in a simple series circuit to focus discussion? Would it be helpful to use questions like "What can you say about the readings on the two ammeters?" followed by "How would you explain this?"

Find out more

To find out more the role of talk in science lessons you may like to read the following:

Alexander, R.J. (2006) Towards Dialogic Teaching: rethinking classroom talk, 3rd edition, 57pp, York: Dialogos. (First edition 2004).

Reports of the Towards Evidence-Based Practice in Science Education (2000-2003) project. They are accessible at: http://www.tlrp.org/proj/phase1/phase1bsept.html