Writing Activities

Pupils don't usually enjoy writing, especially if they have no ownership of what they write. Many may happily copy things down – a task requiring little mental effort, and which allows them to dream happily of what they'll do that evening after school. We can, however, use pupil writing more creatively, to enable them to make sense of the science they do. Some ideas follow, suitable for primary and secondary.

Having introduced these ideas to trainees they must then demonstrate they can use them. The *Active Learning* assignment (secondary) and the *Learning in Science* assignment (primary) at the end of this web unit (downloads 6.1 and 6.2) both encourage students to avoid giving writing activities to pupils unless they have first allowed their pupils to 'talk things through'. Ideally in primary school writing activities will be undertaken as part of the literacy programme, leaving the science sessions free for gaining experiences, experimentation and discussion.

Traditionally much lesson time is spent writing accounts of 'experiments'. In order to ensure accuracy, we resorted to asking pupils to 'write up' experiments in a standard way, often giving them help by dictating bits or writing them on the whiteboard. Is it necessary for every bit of practical experience to be written up in this way, even if we do include an *aim* and *predictions* to go alongside the *method, results and conclusion*? There are many reasons for allowing pupils to experience things practically, but, of these, only full or partial investigations need to be written up as investigations. More often the practical details are unimportant, and can cause confusion. A written record could focus on the scientific *ideas* that are being challenged or illustrated, or on the *description* of a phenomenon. Ideally the written record, if needed at all, can be given as a DART (see download 4).

Creative writing – some pitfalls and problems

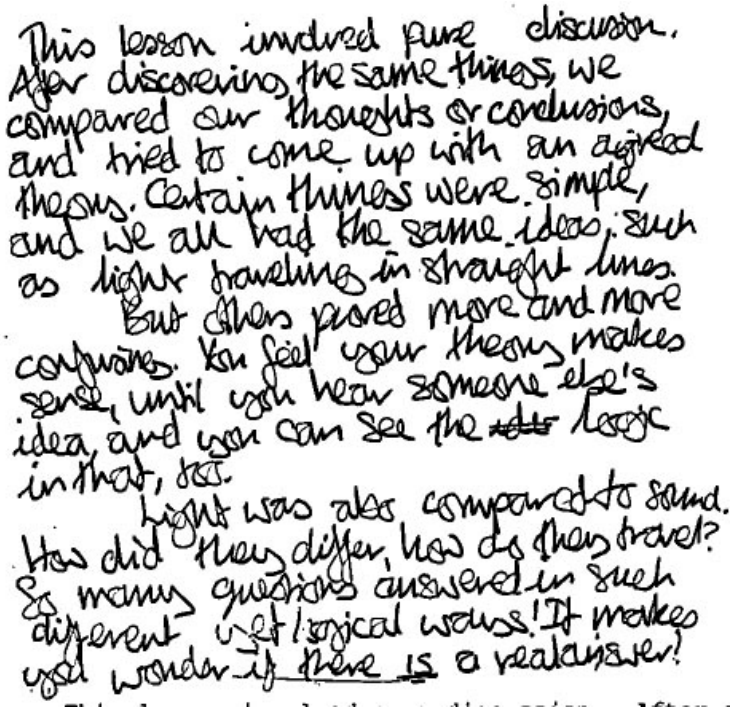
Published written work has to go through several drafts before going to press. The first 'draft' is likely to be a verbal discussion about what you intend to say. Writing in school science needs to go through the same process – begin by asking the pupils to *tell each other* what they predict, what they saw, what happened, etc. They may then be ready to express their own thoughts in their writing, or at primary level, be ready to allow a teacher to scribe for them.

The important factor, as always, is the *audience* (Sutton 1992, Chapter 10). Pupils writing for us as a teacher-as-examiner will wonder if they 'have got it right'. But if they are writing for a newspaper, their younger brother, the class that follows, or a web page, their sense of ownership gives them confidence to write what they really understand and believe. This may,

of course, contain misconceptions – and creative writing is a good *elicitation* technique too – but better they expose their misconceptions early than produce writing which isn't theirs and which they don't understand. Pupils may need two notebooks – one for drafting and another for finished work. For those with a laptop the drafting can be done straight onto the computer, but it is worth asking them to save their first drafts. This provides evidence that it is their work, and it is encouraging for the pupils to see the progress they made from initial ideas to finished work.

Learning logs, Concept maps, Poems, films, cartoons, posters, web pages...

Creative writing provides opportunity for the pupils to express their ideas (and make mistakes). Whether you ask them to write the film script, a cartoon strip, a scientific report for a 'conference', a poster for the science room wall or a web page for the school intranet, the message is the same. Pupils will be writing for an audience other than their teachers, and will take ownership of the task. However they will make conceptual errors and we need to point these out while praising their creative efforts. We need to warn our student teachers not to set these writing tasks too often – they must be marked for they will contain interesting misconceptions, and marking takes time.


This lesson involved pure discussion.
After discovering the same things, we
compared our thoughts or conclusions,
and tried to come up with an agreed
theory. Certain things were simple,
and we all had the same ideas, such
as light travelling in straight lines.
But others proved more and more
confusing. You feel your theory makes
sense, until you hear someone else's
idea, and you can see the logic
in that, too.
Light was also compared to sound.
How did they differ, how do they travel?
So many questions answered in such
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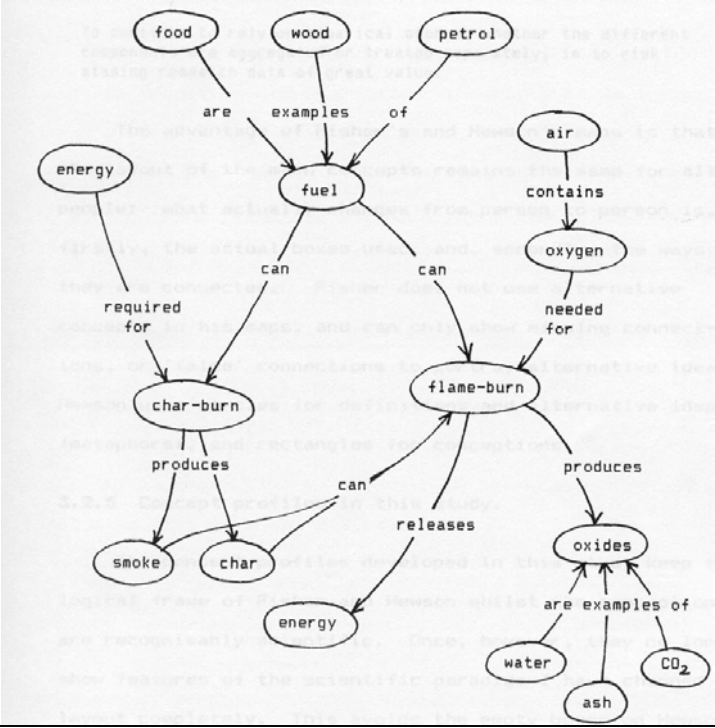
Learning log written by a Key Stage 4 pupil after a lesson on Light (from Figure 10.2 Ross at al., 2004)



Concept map of someone who understands the constructive process of burning (Figure 10.3 from Ross at al 2004)

Based on extracts from Chapter 10 *Children learning through writing* (pp 73-78) of
Ross, K., Lakin, E. and Callaghan, P. (2004) **Teaching Secondary Science**. (Second edition)
London: David Fulton

Ref:

Sutton C. R. (1992) Words, Science and Learning Buckingham: Open Univ. Press