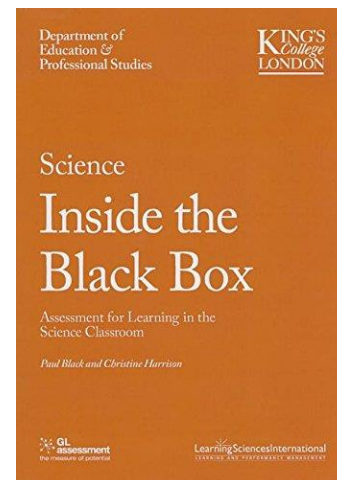




**Science inside the black box – Assessment for learning in the science classroom**, Paul Black and Christine Harrison, GL Assessment, London, 2004

*Science inside the black box* is one of the *The Black Box Assessment for Learning* series of booklets. Other relevant titles in the series are shown in Figure 1 below. This booklet offers advice to science teachers on using assessment to promote students' learning as opposed to using assessment to rank students on the basis of test scores. The authors back up this 'assessment for learning' with research evidence and do not shirk from criticising the established use of assessment for accountability, test scores or certifying competence that make little contribution to learning. Their point is that learners are much better served if assessment is used to support their learning.



Many science teachers will be familiar with 'assessment for learning' and 'teacher learning communities' – the key mechanism for implementing and embedding assessment for learning strategies. This booklet provides a useful summary and reminder to refresh teachers' thinking as well as being an introduction to assessment for learning. The research background and findings are put in the context of the aims and expectations of science teaching. Feedback and dialogue between learner and teacher lie at the heart of effective learning and the principles of that are helpfully outlined. That is then followed by the four main ways of using assessment for learning which the researchers found to be both workable and productive with science teachers. They are: questioning and dialogue, feedback, self and peer assessment and formative use of summative tests. They are usefully explained using science examples. The authors use the terms formative and summative assessment, terminology which has now fallen out of favour somewhat as it lead to people thinking these were distinct forms of assessment rather than the uses to which assessment can be put. A closing section discusses how to develop a plan for assessment for learning where teamwork is essential; what we now refer to 'teacher learning communities'.

**Figure 1 – Other titles in the *Black Box Assessment for Learning* series**

- *Inside the black box – Raising standards through classroom assessment*, 1998. First in the series, a summary of the main findings on the research on the impact of classroom assessment on learning.
- *Assessment for Learning – Beyond the black box*, 1999. Follows up *Inside the black box* identifying what needs to be done to move from assessment of learning to assessment for learning.
- *Working inside the black box – Assessment for learning in the classroom*, 2002. This booklet sets out the detail to help teachers implement the ideas of assessment for learning by using concrete examples of work in the classroom that results in improvement.
- *Inside the black box of assessment – Assessment of learning by teachers and schools*, 2013. This booklet aims to help teachers to develop the quality of the assessments they use to gain an overview of learners overall progress – the assessment of learning.

All of the booklets are available from GL Assessment except for *Assessment for Learning – Beyond the black box* free PDF from <http://www.nuffieldfoundation.org/assessment-reform-group>.