



The thinking mat

# Getting to grips with assessment

**Sarah Eames discusses why assessment is not something that happens in the plenary at the end of a lesson; it starts with planning and should be embedded throughout your teaching**

The one thing I make sure that our teachers understand is that assessment isn't that bolt-on activity at the end of a teaching sequence. If you're doing it at the end of a lesson it's too late; it should be planned right from the beginning.

Before we start a teaching sequence, we need to make sure that we find out what our children already know about the objectives we'll be teaching, or what they remember from the previous lesson. At Sandfield, we set up a discovery activity for the children to do in groups. We have adopted a practical approach so there is, in fact, very little recording or individually written evidence in books. Of course, there's lots of teacher observation, checking in with pupils to make sure we understand what they think they know and can explain. Teachers

collate children's ideas by doing many activities on large sheets of paper and one of our favourite ways is using a thinking mat approach.

Children do a discovery activity in small groups and are encouraged to talk and discuss what they think they know; next, they write their own individual ideas on the thinking mat; finally, they discuss and put into the centre of the thinking mat anything that they all agree upon. It doesn't have to just be written, it could be drawings/sketches or simply keywords. As a teacher, I can readily see what seven groups have come up with and this is a lot more purposeful and meaningful – it's a quick and sure way to gauge where the learning is, pick up on areas least understood or spot potential misconceptions. As a teacher, we can then address these and drive their learning forward.

## Stimulating discovery

Discovery sessions are usually based around a stimulus that the teacher has set up – we use activities like the 'Dancing Raisins' from Explorify (see useful links).

When children are all doing something similar, watching what happens, talking about the science that is going on, you have a way in to learn about their understanding, but then you can take it deeper

into exploring their skills in working scientifically. We ask the children to think about what questions they have and how they could change the investigation. When, for example, the children were exploring the dancing raisins, they all wanted to change more than one variable, but that is valuable learning for us as teachers as the children have to understand that they can only change one variable at a time to truly gauge what happens.

Sometimes this discovery session might take 10 minutes, but I have to tell teachers that, if it takes the whole lesson, that really is OK as it's so valuable for the teaching and the learning that follows. Assessing children's starting points makes sure that we plan a teaching sequence that enables pupils to make good progress in both working scientifically and their knowledge and understanding. And it's OK too when children find out that

what they predicted didn't happen; in fact, this often creates more discussion than if it goes as expected. Children need to learn from that too – think about what is going on and why that may have happened.

### Using teacher-developed assessment materials to help

We also use some excellent research and teacher-developed assessment materials as well: PLAN [see article on page 11 for useful links] from ASE, and the TAPS materials too, especially for assessment of children's skills in working scientifically (see useful links below). At our recent Ofsted inspection, the inspector was keen to see these in use and understand how we could have confidence in our assessment, both formative and summative.

When we first looked at TAPS, we explored the rocket mice activity (see useful links) in a staff meeting session, then we all did it with our classes and discussed the progression in working scientifically throughout the school, from Early Years to Year 6 (age 11). Teachers looked at the objectives in the National Curriculum and discussed their expectations for the task and their year group. We expect our Year 6 pupils to be able to work scientifically independently – but it's still a challenge and we are not quite there yet in some areas. There's the issue of children needing to apply their maths skills, such as plotting graphs completely independently instead of using a proforma to save time. When you look at the outcomes, you have to be clear about what you are assessing and what you are assessing for: is it the maths, or working scientifically? What does that mean for your practice in school?

The ASE PLAN materials really support, as they give a clear structure and exemplify what is needed to be secure in children's understanding, plus they provide exemplars of evidence or annotated work, which gives teachers confidence and ensures that their professional assessments are valued. Teachers can get caught up in thinking that they need to show lots of written evidence of children's learning, but we should consider a range of evidence alongside our professional judgement: talking to children is as important, if not more so, as looking in books to get the whole picture for assessment. Less is really more here. We should be asking open-ended questions: 'What have you found?', 'Why do you think that?'. The 'how' and 'why' questions are really important.

You shouldn't need to produce evidence for the sake of it; schools need to develop a science policy that is clear about the assessment expectations of the teacher. Book looks are only one part of the picture and evidence needs to be triangulated, from talking to the children in pupil voice meetings to discussing with the class teacher about how the science lessons have gone. Each school is different, but confidence comes when there is a secure and robust assessment system.



## Top tips for getting to grips with assessment!

1. Look at your own practice first, reflect on your lesson and decide if it has enough assessment opportunities. Does your planning have a clear assessment focus? Do the children have enough opportunities to achieve it?
2. Look at the resources out there – PSTT, TAPS, ASE PLAN materials are the first step, most of them are freely available (and you might then realise it's worth joining the ASE too!).
3. Use Explorify! Pick an activity and look at the assessment opportunities that are there. Look at the possibilities from using it, record yourself, and look at the pupils' responses, reflect on their responses and see what you can learn from how they respond. Teachers probably don't always realise that's what they're doing all the time; assessing and planning their next step – that's our job as teachers!! Teachers probably do more assessment than they realise but, when you stop and reflect, you'll then think of other things that you could put in place to make it more focused, too.

## Consistency in assessment

We have a broad and balanced curriculum at Sandfield. Our Headteacher is really supportive and keen for science to have a strong place in the school, and it really is a core subject. She has high expectations about the science across the school and, in turn, expects me to lead science fully, and this also allows me to do many things across the school, and outside, which support my own professional development too – keeping up-to-date and learning from others is very important.

I'm lucky at Sandfield as I get regular release time to lead science. Teachers complete a questionnaire at the beginning of the autumn term and CPD is planned from this. Teachers usually choose a 'team teaching' approach instead of wanting to observe a science lesson that I teach, or have me observe them teaching. This team teaching approach is rewarding for all involved: as the Science Lead, I plan the lesson with the

class teacher, we teach it together and afterwards we reflect on the lesson, the assessment opportunities, how we used questioning, etc. We seem to get more out of it that way – it not only empowers me as Science Lead, but also empowers teachers.

We are using the PLAN materials together as they provide such a clear framework when you plan your teaching – we compare the annotations with things we've done. I target teachers in a (very nice!) way, perhaps working with less experienced teachers differently from others, offering coaching, and mentoring teachers rather than singling anyone out. It's about being professional, and teachers know when they need some support and can ask me.

Explorify has been one of the things that has really helped to give teachers confidence in their science; they realise they can teach science. They go from being not very 'sciencey' to feeling more confident about their teaching, and adapting their teaching, and I see

that in their classes as they're using the activities – the pupils' responses in early morning work, for example.

## Moderating within a cluster of schools

I lead a Primary Science Teaching Trust (PSTT) cluster in Leicester, and several other networks. It is important that, in these, we moderate our assessments and discuss what we think is secure for that year group. In our last moderating meeting, we looked at written evidence for the Year 4 (age 9) science objectives, we shared books, often picking up new ideas, and looked at the evidence for a range of working scientifically skills plus the knowledge and understanding of individual children. It was important for us to develop a shared understanding of what secure understanding science looks like in Year 4: the vocabulary, the skills, types of enquiry and maths. Again, ASE PLAN resources are extremely helpful in this.

As a class teacher, it's not just about an understanding of the progression that our children are making in science; science also means that we are more aware of the interests of our children and we can build upon their science capital. Explorify can really help with this too and, when participating in Explorify sessions, the children really show what their interests are and as teachers we can pick up on these and value them. We watched the Explorify video where a vulture was seen eating the bones ('Takeaway Dinner' – see useful links below)]. One of the children knew about vultures, and this gave him a platform to talk about what they were doing – as a result, I was able to write a food chain on the board. As a teacher, I'm going to look more carefully at using Explorify to see if we can find out more about children's interests and learning. With Explorify, children can use higher order thinking skills and those who have a lot of science capital can still be challenged to think more widely and more deeply.

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## Useful links and references

'Dancing Raisins' activity:

<https://explorify.wellcome.ac.uk/en/activities/whats-going-on/dancing-raisins>

TAPS resources: <https://pstt.org.uk/resources/curriculum-materials/assessment>

Rocket mice activity: <https://www.stem.org.uk/resources/elibrary/resource/419662/rocket-mice>

'Takeaway Dinner' activity: <https://explorify.wellcome.ac.uk/en/activities/whats-going-on/takeaway-dinner>