

Teacher Assessment in Wales – the TAPS Cymru Project



Figure 1 Mini-plenary at Edwardsville

Bethan Jones, Ruth Coakley, Lisa Fenn, Sarah Earle and Dan Davies show the versatility of the TAPS project and how it can be aligned with more than the National Curriculum for England

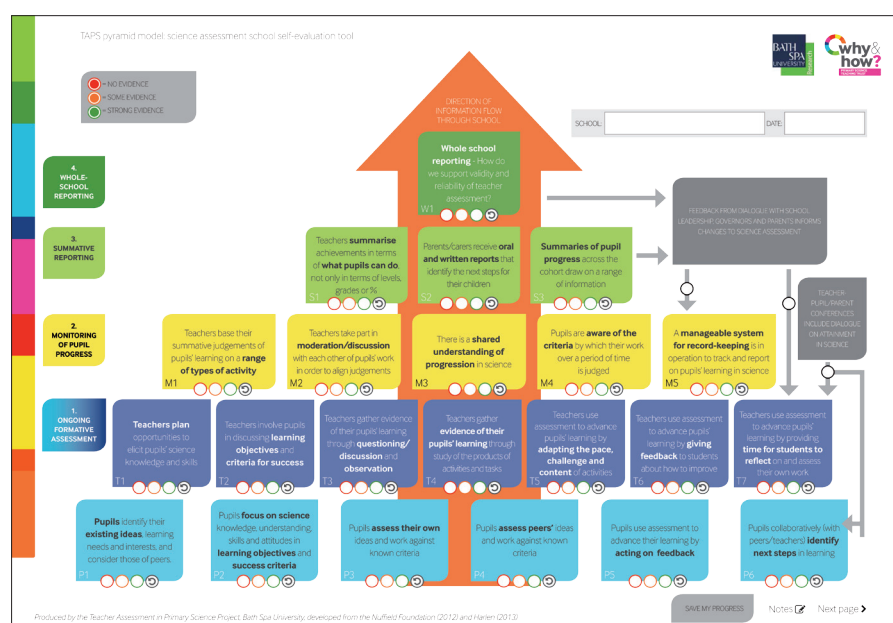
Introduction

Making accurate, manageable assessments of children's scientific understanding, skills and progress is one of the biggest challenges facing primary teachers. In Wales, where Statutory Assessment Tests (SATs) at age 11 were phased out in 2005, teacher assessment has been the only source of pupil attainment data in science for a much longer period than in England, which has necessitated the development of cross-phase moderation and a greater use of e-portfolio systems such as *Incerts* to track children's progress. Nevertheless, the primary science team at Cardiff Metropolitan University felt that teachers in Wales would benefit from the approaches to classroom and whole-school assessment developed by the Teacher Assessment in Primary Science (TAPS) project at Bath Spa University between 2013 and 2016, particularly the 'pyramid self-evaluation tool' (see Figure 2), which helps schools to recognise their strengths and weaknesses in teacher assessment, and the Focused Assessment tasks available on the

Primary Science Teaching Trust (PSTT) website (see www.pstt.org.uk). Because the education system in Wales has diverged from England since devolution, including the introduction of a new 5-16 *Successful Futures* curriculum (Donaldson, 2015), which groups science with technology into a single 'Area of Learning and

Experience' (AoLE), we wanted to see whether the TAPS project resources would work in a Welsh context. Specifically, our aims for the 'TAPS Cymru' project were to: validate and adapt the 'pyramid self-evaluation tool' to be used in primary schools in Wales, including translation into Welsh and the provision of Welsh examples to accompany the online version of the tool on the PSTT website; and trial some of the TAPS Focused Assessment tasks in Wales and develop some new tasks for assessing children's science and technology learning in the new *Successful Futures* curriculum.

Figure 2 TAPS pyramid self-evaluation tool



The TAPS pyramid self-evaluation tool

The TAPS pyramid school self-evaluation tool provides a framework to support science subject leaders in identifying strengths and areas for development in school assessment systems. It is based on an analogy between the flow of assessment data in a primary school and the flow of energy between levels of a 'pyramid of biomass' in a biological ecosystem, developed by Harlen *et al* (2012). This flow of information is represented by the orange arrow on the TAPS pyramid. The blue 'Pupil' and 'Teacher' layers at the base of the pyramid encapsulate the principles of Assessment for Learning (AfL). They include boxes that focus on: clear learning objectives or success criteria; use of questioning, feedback and next steps; and peer- and self-assessment. The yellow 'Monitoring' and green 'Summative Reporting' layers concern the systems by which AfL data are summarised to track pupil progress and report on it to parents and carers, the next teacher and external stakeholders. The suggestions in each box, which are supported by examples in the online version of the tool, aim to strengthen the validity, reliability and manageability of these systems, and can be used by schools to benchmark their own approaches to teacher assessment in science.

Working with primary schools in Wales to develop TAPS Cymru

We worked with six 'project schools' – two of which were Welsh-medium – and five 'associate' schools:

- Blaenycwm Primary School, Brynmawr, Blaenau Gwent
- Coed y Gof Primary, Cardiff
- Edwardsville Primary, Merthyr Tydfil
- Fochriw Primary, Caerphilly
- Garnteg Primary, Pontypool
- Marlborough Primary, Cardiff
- Pencae Primary, Cardiff
- Penllergaer Primary, Swansea
- St Fagans Primary, Cardiff
- St Paul's Primary, Cardiff
- Tongwynlais Primary, Cardiff

During three 'cluster days' in November 2016, March and June 2017, we introduced co-ordinators and class teachers for science, design & technology and computing (the subjects making up the new science

and technology AoLE) from the above schools to the pyramid self-evaluation tool and asked them to use it to evaluate teacher assessment in their own schools. Their judgement was that, despite the tool having been developed within an English context, it accurately describes best practice in teacher assessment in Wales and can be used to evaluate and improve their own schools' systems and approaches with little adaptation. During Cluster Day One, they experienced and adapted existing TAPS Focused Assessment tasks, before trialling them in their own classrooms between Days One and Two. During Day Two, they planned and developed new 'science and technology' tasks for sharing on Day Three. Between cluster days, university staff worked with participating teachers in their classrooms to trial the new and existing tasks, and to identify examples of best practice to illustrate the 'boxes' in the pyramid tool. These will be incorporated into the online version of the tool to ensure that it represents teacher assessment practice in England and Wales.

TAPS pyramid examples from Wales

Altogether, the TAPS Cymru schools have generated over 70 examples of excellent practice in primary science teacher assessment to illustrate boxes at all levels of the TAPS pyramid. These will be made available on the PSTT website; here are a few 'sneak previews':

Pupil voice at Pencae (Pupil layer)

At the start of a topic at Ysgol Pencae, pupils identify their current ideas and raise questions to lead the learning during the topic. For example, in Year 1 the class teacher records pupils' questions on

a Pupil Voice Wall (Wal Llais Plant – see Figure 3; also <http://tinyurl.com/TAPSPencae>). During lessons, the teacher refers back to the Pupil Voice Wall to show how the pupils' questions are being considered. In Key Stage 2, pupils complete KWL grids to consider what they Know, Want to find out and, at the end, what they have Learnt.

Year 1 pupils at Pencae engaged with a series of bridges activities for their science and technology Focused Assessment task. This ensured that pupils were clear about the focus on science knowledge and their understanding and skills were developed. During an initial whole class carpet session the class explored and discussed pictures of different bridges, which helped them to understand the purpose of a bridge and also supported the development of their scientific vocabulary. Many pupils adopted the various names of the bridges (*trawst, bwa and consertina*). One group worked with the teaching assistant in the outdoor forest area of the school, hunting down suitable natural resources with which they experimented, and used the most appropriate to construct bridges. Pupils were clear about the design structure and, through trial and error, everyone succeeded in building a bridge. The teaching assistant recorded the work through photographs.

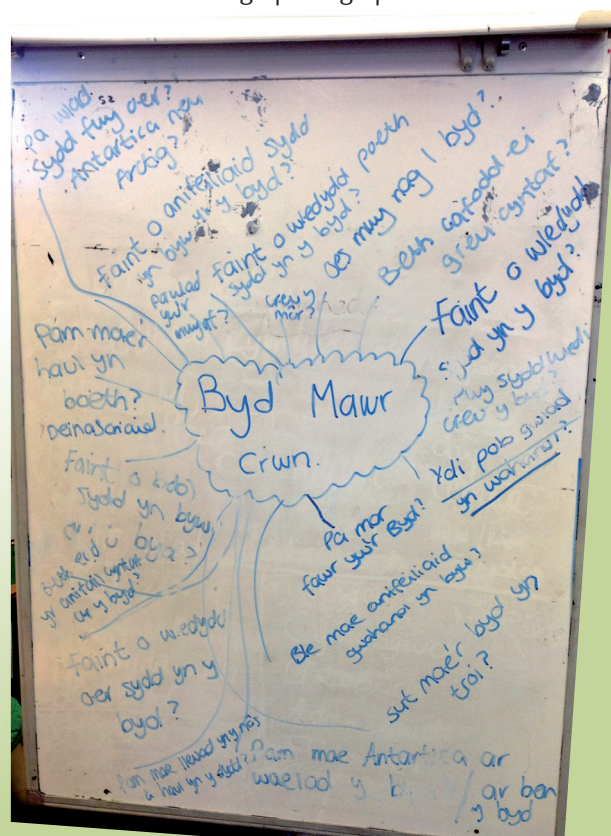


Figure 3 Wal Llais Plant at Pencae (Pupil Voice Wall)

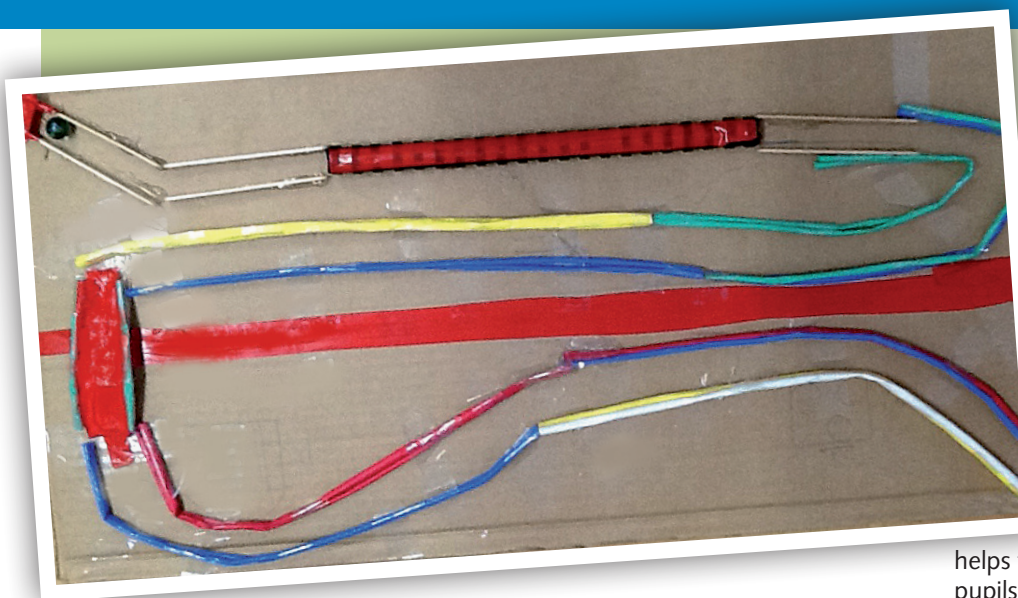


Figure 4 Marble run at Tongwynlais

Use of mini-plenaries and on-the-spot feedback at Edwardsville (Teacher layer)

Pupils have an increased chance of meeting their learning objective when presented with an opportunity to learn from a mini-plenary. The focus of this lesson was that pupils asked questions about light and decided on a line of investigation. The teacher adopted the use of mini-plenaries at pertinent points during the lesson to help the pupils to progress. At the start of the lesson, only a small number of pupils successfully 'created' bubbles; however, it was evident after each mini-plenary that more children were able to create a bubble. This is an example of a teacher adapting the pace of the lesson to enable all learners to achieve (see Figure 1).

A further example was seen within a science and technology Focused Assessment task, where teacher feedback was successful because it could be acted upon immediately. The focus of this lesson was for pupils to design the most effective packaging to ensure that eggs would not be broken when being taken to market. The teacher gave pupils feedback about how to improve during the lesson. For example, one group of children were refocused from the landing surface to the package development. Another group had forgotten that the package would actually need to open to hold the egg. Both groups of pupils listened to feedback and produced a more effective package.

Summative judgements based on a range of activity at Tongwynlais (Monitoring layer)

Summative judgements can be more valid if based on a range of information. At Tongwynlais Primary, the science subject leader ensures that

'rich science activities' are recorded through a class floorbook, particularly within the Foundation Phase. The floorbook can include electronic annotations (e.g. pic-collage) or handwritten notes of the children's utterances during investigations. End-of-topic judgements can be informed by a range of activities during the topic. For example, Key Stage 2 pupils were asked to design and make their own 'mail run' (marble run – see Figure 4). They were asked to design a bridge, tunnel and pathway resulting in a final product. They had to decide which materials and tools to use. Next, the teacher asked them to evaluate their work, reflecting on the functionality of their prototype, what worked well, what did not go well and what they would do next time. Analysis of these activities enabled the class teacher to make a summative judgment on a variety of scientific skills.

Passing on information to the next teacher at Garnteg (Summative Reporting layer)

Moderation can be useful for more than checking judgements of pupil outcomes. By taking part in moderating discussions, teachers can develop their understanding of progression and assessment. At Garnteg Primary, each class teacher brings examples of children's work from their termly enquiry to a whole school staff meeting, where teachers work in pairs to moderate and agree the judgements (for more information, see <http://tinyurl.com/TAPSGarnteg>). Other pairs then make suggestions for next steps that could progress the pupil's learning. After 'RAG-rating' each child's progress, interviews are conducted with teachers of underachieving children to establish what support should be put in place.

Pupil books are passed on to the next class teacher at the beginning of a new school year. This process

helps teachers to be informed of the pupils' prior learning. Teachers carry out a handover session at the end of each school year with the new teacher, discussing the children's prior attainment and pastoral information.

Conclusion

These assessment examples from Wales have greatly enriched the database of good practice to support schools in using the TAPS pyramid self-evaluation tool. The wealth of teacher assessment experience developed in Wales over the past decade – for example, in cluster moderation and the use of e-portfolio tracking systems – should be disseminated across the UK, together with the new approaches to child-led enquiry and science in technological context that are being encouraged through the *Successful Futures* curriculum.

References

- Donaldson, G. (2015) *Successful Futures: Independent Review of Curriculum and Assessment Arrangements in Wales*. Cardiff: Welsh Assembly Government.
- Harlen, W. et al. (2012) *Developing policy, principles and practice in primary school science assessment*. London: Nuffield Foundation.

Bethan Jones, Ruth Coakley, Lisa Fenn and Dan Davies were based at Cardiff Metropolitan University at the time of the TAPS Cymru project. **Sarah Earle** leads the TAPS project.

See Bethan explain the TAPS Cymru project here: <http://tinyurl.com/TAPScymru> and Dan discuss how TAPS can support assessment in Wales here: <http://tinyurl.com/>