The Teacher Assessment in Primary Science (TAPS) school self-evaluation tool

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January 2016
INTRODUCING THE TAPS PYRAMID MODEL

The Teacher Assessment in Primary Science (TAPS) project is based at Bath Spa University and funded by the Primary Science Teaching Trust (PSTT). TAPS aims to develop support for valid, reliable and manageable assessment, which will have a positive impact on children’s learning.

Background

The Nuffield Foundation (2012) recommended that the rich formative assessment data collected by teachers in the course of ongoing classroom work in science should also be made to serve summative reporting purposes. They developed a pyramid model where assessment information flowed from classroom practice to whole school reporting. This flow of information is represented by the ORANGE ARROW on the TAPS pyramid.

The TAPS team examined submissions to the Primary Science Quality Mark (Earle 2014) and practice in 12 project schools to understand current approaches to assessment in primary science (Davies et al 2014).

The TAPS pyramid

The TAPS team worked with local project schools, the Primary Science Quality Mark and PSTT College Fellows to create the model of teacher assessment and populate it with examples.

The TAPS pyramid provides a framework to support science subject leaders in identifying strengths and areas for development in school assessment systems. The suggestions in each box aim to strengthen the validity, reliability and manageability of assessment in primary science.

Using the school self-evaluation tool

The downloadable TAPS pyramid pdf is available at: www.pstt.org.uk/resources/assessment.aspx

It provides a supportive bank of examples, which can be found by clicking on each box. The pyramid can also provide a structure to support school self-evaluation. The interactive functions allow you to traffic light your assessment systems (on your own saved copy) and make notes on the approaches in your school. If you prefer to do this on paper then a black and white pyramid for printing is also available on the PSTT website.

Recommendations for where to start

The blue ‘Pupil layer’ and ‘Teacher layer’ at the base of the pyramid encapsulate the principles of Assessment for Learning. They include boxes which focus on clear learning objectives or success criteria; use of questioning, feedback and next steps; and peer and self assessment. Schools should begin by focusing on these layers since this is not only the foundation of the whole system, it is also where changes will have the most impact on pupil progress in primary science.

References


Science assessment: school self-evaluation tool

1. **ONGOING FORMATIVE ASSESSMENT**

   - Produced by the Teacher Assessment in Primary Science Project, Bath Spa University, developed from the Nuffield Foundation (2012) and Harlen (2013)

   - Pupils identify their existing ideas, learning needs and interests, and consider those of peers. E.g. mindmaps, annotated drawings, KWL grids, mini whiteboards, post its, talk partners.

   - Pupils focus on science knowledge, understanding, skills and attitudes in learning objectives and success criteria. E.g. be clear about science focus rather than presentation etc.

   - Pupils assess their own ideas and work against known criteria. E.g. traffic lighting or highlighting objective, commenting on whether predictions are supported.

   - Pupils assess peers’ ideas and work against known criteria. E.g. comment on another group’s presentation, give 2 stars and a wish for piece of work.

   - Pupils use assessment to advance their learning by acting on feedback. E.g. respond to mini plenary advice in second half of lesson, make improvements in next investigation.

   - Pupils collaboratively (with peers/teachers) identify next steps in learning. E.g. identify which part of the success criteria is missing, consider how to make the measurement more accurate.

2. **TEACHERS**

   - Teachers plan opportunities to elicit pupils’ science knowledge and skills. E.g. plans show range of elicitation strategies at variety of times E.g. beg/mid/end lesson.

   - Teachers involve pupils in discussing learning objectives and criteria for success. E.g. discuss what good observation or conclusions look like.

   - Teachers gather evidence of their pupils’ learning through questioning/discussion and observation. E.g. Open Qs, class mindmap/concept cartoon, TA postit quotes, floorbook, annotated photos.

   - Teachers gather evidence of their pupils’ learning through study of the products of activities and tasks. E.g. any recording, models, sorting.

   - Teachers use assessment to advance pupils’ learning by adapting the pace, challenge and content of activities. E.g. support or challenge in response to pupils.

   - Teachers use assessment to advance pupils’ learning by giving feedback to students about how to improve. E.g. marking, oral feedback, next steps, extension Qs.

   - Teachers use assessment to advance pupils’ learning by providing time for students to reflect on and assess their own work. E.g. read and respond time.

3. **SUMMATIVE REPORTING**

   - Science assessment processes provide a valid and reliable summary of pupil achievement at the end of Key Stages

   - There is a shared understanding of progression in science. E.g. staff map progression of skills, TAs are involved in assessments.

   - Pupils are aware of the criteria by which their work over a period of time is judged. E.g. examples of what good science looks like are displayed.

   - A manageable system for record-keeping is in operation to track and report on pupils’ learning in science. E.g. expectations on planning which annotate, end of topic grids, I cans.

4. **WHOLE-SCHOOL REPORTING**

   - Teachers base their summative judgements of pupils’ learning on a range of types of activity. E.g. not reliant on one snapshot to make overall judgement.

   - Teachers take part in moderation/discussion with each other of pupils’ work in order to align judgements. E.g. staff meeting discussions of science work.

   - Teachers and pupils are involved in collaborative assessment and planning. E.g. teachers base their summative judgements of pupils’ learning on a range of types of activity. E.g. not reliant on one snapshot to make overall judgement.

   - Teachers are involved in whole-school assessment processes. E.g. produce SMP summary scores, record pupil progress, share progress with parents.

5. **MONITORING OF PUPIL PROGRESS**

   - Teachers summarise achievements in terms of what pupils can do, not only in terms of levels, grades or %. E.g. progress in skills is passed onto the next teacher.

   - Parents/carers receive oral and written reports that identify the next steps for their children. E.g. at parents’ evening, comments on homework.

   - Summaries of pupil progress across the cohort draw on a range of information. E.g. learning across a range of contexts is used to decide support or extension needs.

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Examples of good practice

RETURNING TO A TASK

In a KWL grid pupils are asked to consider what they already Know about a topic and what they Want to find out. At a later date, return to the grid to consider what they have Learnt.

Returning to a task can happen with any activity: a pupil completes an activity, the teacher gives feedback and the pupil has another go. For example, at St Paul’s Primary, when labelling falling objects, a pupil had first drawn arrows around the world. After discussion with the teacher, the pupil then drew new arrows towards the centre of the Earth. These particular examples come from Active Assessment: www.millgatehouse.co.uk/product/active-assessment-science

MODERATION GRAFFITI WALL

Moderation discussions, in year groups, schools and clusters, support consistency of expectations and judgements. At Worlebury St Paul’s Primary, a staff meeting addressed concerns about explicit teaching of Working Scientifically. The staff were asked to bring examples of enquiry work from each year group and lay these along a roll of paper. This enabled teachers to discuss skills progression and development of independence in investigations. Judgements regarding attainment were discussed in relation to statements in the National Curriculum.

Staff created a moderation graffiti wall to consider progression from Y1 to Y6.

RECORDING DISCUSSION

IN FLOOR BOOKS

A floor book is a homemade book which provides a record of a discussion. Older children may write on post-its or in different coloured pens, whilst for younger children an adult would scribe the children’s comments. The discussion could be in response to a stimulus, for example, at Oaktree Primary, how can we make jelly change? The group or class book creates a record of how the children’s ideas have developed. For further information on how to use floor books go to: www.pstt.org.uk/resources/continuing-professional-development/floorbooks.aspx

PRE AND POST ASSESSMENTS

Eliciting the children’s ideas at the beginning and end of a topic helps teachers to pitch the lessons, and also clearly demonstrates progress. For example, at the beginning of a unit of plants, a year 3 child’s thought shower described factors which affect plant growth; by the end of the unit the same child described photosynthesis and reproduction. In a year 1 group discussion about animals, at the beginning of the topic the children knew little about amphibians or invertebrates. By the end of the unit, the children could name animals in these groups and describe some of their features.

SHARED UNDERSTANDING

Many TAPS schools have been developing a shared understanding of what progress looks like in primary science, supporting pupils, staff and parents.

For example, Holt Primary have developed a science skills toolkit. This is a picture based success criteria for KS1 Working Scientifically which can be used by both pupils and teachers.

At Shaw Primary, science ‘stars’ are displayed in classroom showing key features of progression in enquiry. The science stars are also embedded in the planning which details success criteria for the sequence of lessons.

For further information please see www.pstt.org.uk/resources/assessment.aspx

If you would like to offer further examples or provide the TAPS team with feedback, please email primary.science@bathspa.ac.uk

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