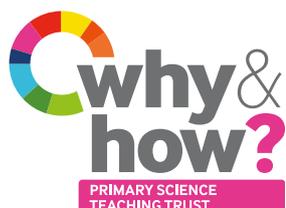


# TAPS Transition

Teacher Assessment in Primary Science (TAPS)  
support for primary-secondary transition

November 2019



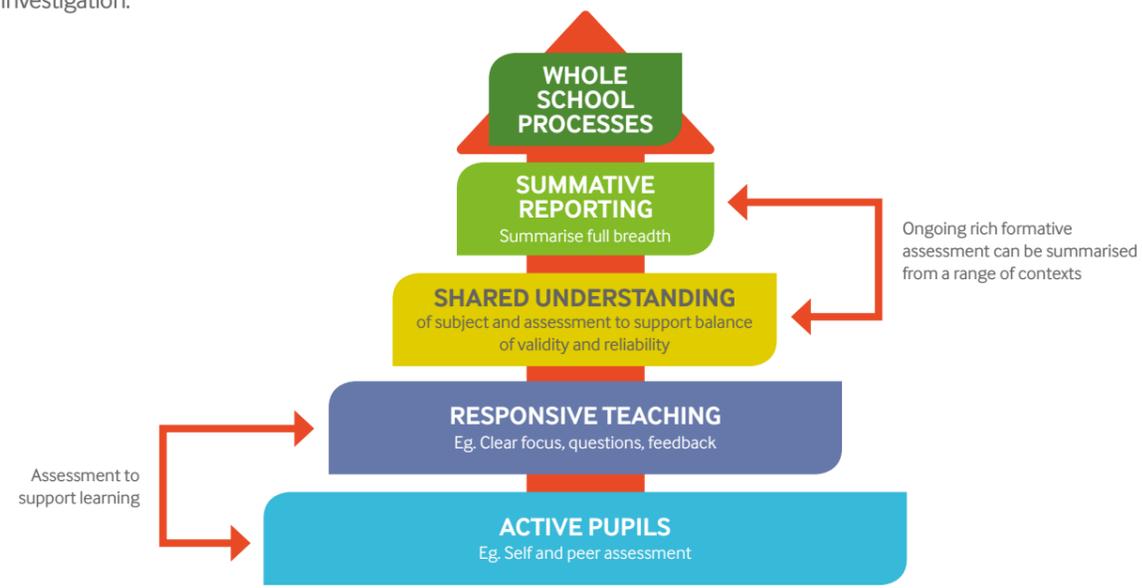
# The TAPS Transition project

The TAPS Transition project (2016-19) is part of the larger Teacher Assessment in Primary Science (TAPS) project, which is based at Bath Spa University and has been funded by the Primary Science Teaching Trust (PSTT) since 2013. TAPS project researchers and teachers work collaboratively to develop support for valid, reliable and manageable teacher assessment.

TAPS has developed a pyramid-shaped framework (see below) and the Focused Assessment approach which supports teachers and pupils to focus on one part of an enquiry at a time, within the context of a whole investigation.

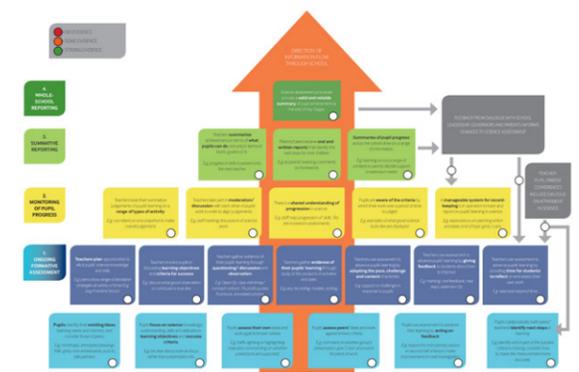
Research has found that there is often a dip in attainment and motivation at secondary transfer (Whitby et al. 2006). Braund (2016) suggests that this negative impact on children's progress in science is due to factors such as: repetition of work; lack of use of information about prior experiences and attainment; together with large changes in teaching environment and learning culture. Sutherland et al. (2010) describe a 'two tribes' mentality, with primary and secondary teachers working very separately. A finding mirrored by Ofsted (2015) which found a lack of schools working together.

At the heart of the TAPS pyramid is the notion that teaching, learning and assessment in science can be supported by developing a shared understanding of progression in scientific learning. The TAPS Transition project has explored a range of ways to move from 'two tribes' to 'shared understanding', which will support a more coherent experience of science for learners. Key findings include the importance of: **dialogue** between teachers to develop a **shared language** and **active pupil involvement** e.g. opportunities for Y6/7 to work together.



# The TAPS pyramid model

The TAPS pyramid provides a model to support schools to develop their practice. The blue pupil and teacher layers contain examples of classroom practice, for example, choosing a focused skill for a lesson or adapting activities to support all learners access an investigation. The yellow 'shared understanding' layer considers ways to develop the range of science (validity) and the consistency of practice (reliability). The green layers provide ideas for summarising learning for reporting purposes. Clicking on each layer or box will take users of the website or pdf to numerous examples from schools across the UK.



**References**  
 Braund, M. (2016) Improving continuity and progression from primary to secondary science, School Science Review, 98, 19-26.  
 Ofsted (2015) Key Stage 3: the wasted years? Manchester: Ofsted.  
 Sutherland, R., Ching Yee, W. and McNess, E. (2010) Supporting learning in the transition from primary to secondary schools. Bristol: Bristol Uni.  
 Whitby, K. and Lord, P. With O'Donnell, S. and Grayson, H. (2006) Dips in performance and motivation: a purely English perception? London: QCA.

# Active pupils: building a student bridge



Laura Smale from Abbeywood Secondary school has worked on science transition with her feeder primaries. She has taken a group of Y7 students (who receive pupil premium funding) to the primary school to support the younger ones with their data handling. The Y5/6 pupils were investigating streamlining (TAPS aquadynamics activity) and created their

own tables to record results. The Y7s gave the Y5s feedback on their tables, for example, use of units and headings. The younger pupils then redrew their results tables under the guidance of the Y7s. The Y7s 'felt important' and also developed their understanding of results tables in order to support the younger pupils. Laura has carried out similar activities

with a 'blood splatter' activity where pupils investigated the pattern between the height of dropper and the diameter of the drop, in order to identify a possible height for the 'attacker'. On this occasion, the Y7s gave feedback on the graphs drawn by the younger children.

# Responsive teachers: building a pedagogical bridge



Transition events in the past had focused on other curriculum areas like sports, so Pauline Rodger from Holt Primary and Tom Daniels from St Laurence Secondary planned a Summer term science event. Mixed groups of Year 6s and Year 7s worked together to investigate lolly stick catapults in order to demonstrate their Working Scientifically skills. Students were given time to test prototypes then decide on their own success criteria for developing the catapult to perform 'better'. They then trialled the catapults, collecting data and drawing conclusions. Between groups, students peer assessed

the catapults and identified the possible next steps to improve against their criteria.

Pauline found that her Year 6 pupils were focused on the activity and kept setting themselves more challenges. Tom found that his Year 7s could work more independently than he had previously expected, giving him more time to spend with those who needed more support.

Since then, Tom has re-written his KS3 scheme of work to add 'buffer zones' which allow space for more self-guided tasks. Pauline is working on comparing

the KS2 and KS3 curriculum, with a particular focus on use of vocabulary so that there is a more common language used across the schools.



# Shared understanding: building a curriculum bridge



Sharon Heath from Trinity Primary and Maggie Beggs from Malmesbury Secondary have been working together on an ENTHUSE project, which has allowed for sustained interaction and visits. As part of their work they have looked at progression in Working

Scientifically (see next page) and compared vocabulary and recording in science. They have also been exploring the use of the TAPS Focused Assessment approach, developing a transition activity called 'Formula 1 margarine tubs' whereby children investigate the effect

of mass on distance moved. They found that mixed Y6 and Y7 groups recording in 'floorbooks' encouraged all students to contribute to planning and recording (with a different coloured pen for each, so that individual contributions could be identified).

# Progression of Working Scientifically from Key Stage 2 to 3

with examples of plans from the TAPS Focused Assessment Focused Asst/Focused Assessment database

|  | PLAN  |   | DO  |  | REVIEW  |   |
|--|---|---|---|--|---|---|
|  | Ask Qs + plan enquiry   | Set up enquiry  | Observe + Measure   | Record   | Interpret + Report  | Evaluate  |
| <b>LOWER KS2 (age 7-9)</b><br><br><b>Develop systematic approach</b> | Ask relevant questions and use different types* of scientific enquiries to answer them.   | Set up simple practical enquiries, comparative and fair tests.  | Make systematic and careful observations and, where appropriate, take accurate measurements using standard units, using a range of equipment, including thermometers and data loggers.                  | Gather, record, classify and present data in a variety of ways to help in answering questions.<br><br>Record findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables.                       | Report on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions.<br><br>Identify differences, similarities or changes related to simple scientific ideas and processes.    | Use results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions.<br><br>Use straightforward scientific evidence to answer questions or to support their findings. |
| <b>Focused Asst e.g.</b>   | Y4 Investigating pitch  | Y3 Shoe grip  | Y3 Measuring plants   | Y4 Local survey  | Y4 Conductors   | Y4 Dunking biscuits   |
| <b>UPPER KS2 (age 9-11)</b><br><br><b>Develop independence</b>       | Plan different types* of scientific enquiries to answer their own questions, including recognising and controlling variables where necessary. | Use test results to make predictions to set up further comparative and fair tests.  | Take measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriate   | Record data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs.   | Report and present findings from enquiries, inc. conclusions and causal relationships, in oral and written forms such as displays and other presentations, using appropriate scientific language.   | Explain degree of trust in results.<br><br>Identify and evaluate scientific evidence (their own and others') that has been used to support or refute ideas or arguments.  |
| <b>Focused Asst e.g.</b>   | Y5 Dissolving   | Y5 Insulation layers  | Y6 Investigating shadows  | Y5 Craters   | Y5 Life cycle research  | Y6 Egg strength   |
| <b>KS3 (AGE 11+)</b><br><br><b>Develop lines of enquiry</b>          | Ask questions and develop a line of enquiry based on observations of the real world, alongside prior knowledge and experience.                | Select, plan and carry out the most appropriate types of scientific enquiries to test predictions, inc identifying independent, dependent and control variables, where appropriate.<br><br>Make predictions using scientific knowledge and understanding. | Use appropriate techniques, apparatus, and materials during fieldwork and laboratory work, paying attention to health and safety. Apply sampling techniques.<br><br>Make observations and measurements. | Record observations and measurements using a range of methods for different investigations; and apply mathematical concepts and calculate results.<br><br>Present observations and data using appropriate methods, inc tables and graphs | Interpret observations and data, including identifying patterns and using observations, measurements and data to draw conclusions<br><br>Present reasoned explanations, including explaining data in relation to predictions and hypotheses | Evaluate the reliability of methods and suggest possible improvements<br><br>Evaluate data, showing awareness of potential sources of random and systematic error<br>Identify further questions arising from their results. |
| <b>Transition Focused Asst e.g.</b>                                  | Y6/7 Reaction catches   | Y6/7 Yeast growth   | Y6/7 Formula 1 tubs   | Y6/7 Blood splatter  | Y6/7 Lolly stick catapults  | Y6/7 Cleaning coins   |

\*Types of enquiry including: observing changes over time, noticing patterns, grouping and classifying, comparative and fair tests, using secondary sources.

(Any focus can be chosen for open-ended enquiries, these are only suggestions)

TAPS TRANSITION TEAM JUNE 2019

**Bath Spa University:** Dr Sarah Earle, Alan Howe and Chris Collier

**Primary Schools:** Combe Down, Filton Avenue, Holt, Meadowbrook, Saltford, Trinity and Upton Noble.

**Secondary Schools:** Abbeywood, Ansford, Malmesbury, Orchard, Ralph Allen, Sexey's, St Laurence and Wellsway

[pstt.org.uk/resources/curriculum-materials/assessment](http://pstt.org.uk/resources/curriculum-materials/assessment)

