PSQM and the new Ofsted framework

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How does PSQM make a deep dive a walk in the park?
What do subject leaders say about PSQM?

An effective and well-structured approach/process to rigorously evaluate and improve subject leadership and provision. The support throughout the process via the portal, training sessions and the hub leader is excellent.

“We found that engaging with PSQM enabled us to become confident subject leaders and gave direction and vision and supported a successful development of science in school. Which we are going to continue and enhance throughout this year following feedback received from PSQM!”

“PSQM is a learning journey which helps to build the confidence of staff and thus results in an improvement in the way in which science is strategically planned and delivered. As a result it creates a real buzz around the school for the subject.”
Be confident!
‘The curriculum is a framework for setting out the aims of a programme of education, including the knowledge and understanding to be gained at each stage (intent); for translating that framework over time into a structure and narrative, within an institutional context (implementation) and for evaluating what knowledge and understanding pupils have gained against expectations (impact/achievement).’
Harford 2019 OfSTED National Director, Education

Aims
The national curriculum for science aims to ensure that all pupils:
• develop scientific knowledge and conceptual understanding through the specific disciplines of biology, chemistry and physics
• develop understanding of the nature, processes and methods of science through different types of science enquiries that help them to answer scientific questions about the world around them
• are equipped with the scientific knowledge required to understand the uses and implications of science, today and for the future.
What makes a ‘quality science curriculum’?

- At the top of your strip of paper write a word to describe a ‘good’ curriculum
- Fold over the top of the paper to hide the word
- Pass it along
- Write another word to describe a ‘good’ curriculum
- Fold it over
- Pass it on
- Repeat one more time
Inspectors found that science and most of the foundation subjects often had weaknesses in the curriculum design that were not present in English and mathematics. Because science is a core subject within the national curriculum, this is a particular worry.

‘Science has clearly been downgraded in some primary schools since the scrapping of the key stage 2 test. This is likely to have a serious impact on the depth and breadth of science understanding and knowledge that pupils take with them into secondary school, which may in turn stifle pupils’ later curiosity and interest in the sciences.

School leaders need to ensure that teachers have deep subject knowledge and to consider what curriculum design really involves in science. We will carry out further investigations on the primary science curriculum later this year.’
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‘Too many teachers and leaders have not been trained to think deeply about what they want pupils to learn and how to teach it.’
Schools which showed clear improvement in science subjects, key factors in promoting students’ engagement, learning and progress were more practical science lessons and the development of the skills of scientific Inquiry” (Ofsted 2011)

Effective teachers:
• use the science phenomena itself as the interesting core of the lesson, let pupils experience the pleasure of understanding a concept for themselves, and do not just tell them the answer
• provide plenty of opportunities for experimental and investigative work
• deliver a real focus on developing children’s sense of curiosity, amazement and love of the world around them (Ofsted 2013)
Little consideration was given to understanding scientific concepts and skills nor how they could be sequenced to aid pupils’ understanding.

Surface-level compliance with the national curriculum, which in practice meant carrying out one-off activities or lessons covering the statements in the programmes of study.

Focus on make learning more engaging and motivating for pupils.

But too frequently, the activities carried out were not deepening pupils’ understanding of the scientific concept, because teachers had not covered the baseline substantive knowledge required sufficiently beforehand.

When inspectors questioned pupils during the research visits, pupils could easily recall the task carried out, but struggled to explain how the processes they were investigating actually worked.
GOOD SCIENCE... FULL OF財 Wonder PushES BOUNDARIES AND NURTURES THINKING MINDS. A JOY OF DISCOVERY. AN EVIDENCE BASED WAY OF UNDERSTANDING THE WORLD ENQUIRY TO ANSWER QUESTIONS ENGAGING SCIENCE LEADERS

WHAT? WHY? HOW?

WORKING TOGETHER

TEACHERS

SCIENCCE LEADERS

GOVERNORS

PARENTS

SCIENCE LEADERS

TEACHING ASSISTANTS

GOVERNORS

SENIORE LEADERSHIP TEAM

GOOD SCIENCE IN PRIMARY SCHOOL LEARNING • TEACHING • LEADING

TEACHERS

SCIENCCE LEADERS

GOVERNORS

PARENTS

Children

LEARN TO THINK AND QUESTION

LEARNING SKILLS AND CONTENT

OPPORTUNITIES FOR CHILDREN TO EXPLORE THEIR IDEAS & QUESTIONS

ATTENDING SCIENCE CLUBS AND CARRIERS ON SCIENCE TRIPS AT HOME

UNDERSTANDING THE ROLE OF SCIENCE IN THEIR LIVES KINDELING CURIOSITY AND EXPLORING FURTHER GIRLS AND BOYS THINKING IT IS FOR THEM UNDERSTANDING THAT YOU CAN BE CURIOUS FINDING OUT THINGS ABOUT THE WORLD AROUND THEM

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University of Hertsfordshire. UH go.herts.ac.uk/primaryscience researched

@PSQM_HQ #PSQM
## Science enquiry

### Average point increase in PISA science score relative to baseline

<table>
<thead>
<tr>
<th>Teacher-directed methods</th>
<th>None to few lessons</th>
<th>Some to many lessons</th>
<th>Many to all lessons</th>
</tr>
</thead>
<tbody>
<tr>
<td>None to few lessons</td>
<td>0</td>
<td>+13</td>
<td>+12</td>
</tr>
<tr>
<td>Some to many lessons</td>
<td>-12</td>
<td>+7</td>
<td>+26</td>
</tr>
<tr>
<td>Many to all lessons</td>
<td>-61</td>
<td>-43</td>
<td>-2</td>
</tr>
</tbody>
</table>

The “sweet spot” combines teacher-directed instruction in most to all classes and inquiry-based learning in some.

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1 Statistically significant expected change in score controlling for PISA’s Index for economic, social, and cultural status (ESCS), public/private schools, and urban/rural location for all quadrants except for teacher-directed and inquiry-based instruction in all classes (−2), which was not significant at 95% confidence level.

Source: OECD PISA 2015, McKinsey analysis

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#PSQM
How does PSQM enable change?

- Incentive
- Enables a whole school vision for science
- Provides a developmental evaluative framework
- Requires SLT and colleagues buy in
- Develops a community of practice
- Links to wider science education community
How does the PSQM programme support the new Ofsted framework?

Subject leadership
Audit of current practice
Create whole school vision and principles

Teaching
Action planning and implementation

Learning
Reflection and submission of evidence

Enrichment

13 criteria

Intent
- Incentive
- Criteria

Implementation
- Structure
- Support

Impact
- Reflection
- Feedback

Principles
Subject Leader/CPD Log
Portfolio
Calendar of events
Written reflections

@PSQM_HQ
#PSQM
What is the ‘Intent’ for science in your school?
Creating a vision for science

How do we know what good science teaching and learning looks like in our school?
Creating a vision for science

All children will become scientifically literate citizens of the future, through our hands-on, minds-on, inquiry based approach to science which stimulates children’s natural curiosity to find out about the world around them.

Science teaching and learning in our school is good when...

- Pupil voice
- Curriculum
- Monitoring
- Sharing good practice
- Self-evaluation
- School Development Plan
- Research and CPD
**SUBJECT LEADERSHIP: PSQM AWARD**

**SL1 There is a clear vision for the teaching and learning of science**

- A clear vision for science is established.
- School principles for science teaching and learning have been developed by teachers and children.

**NEEDS ANALYSIS**

<table>
<thead>
<tr>
<th>Where are we starting from?</th>
<th>How do we know?</th>
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**ACTIONS NEEDED**

<table>
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<tr>
<th>What do I need to do to achieve the indicator?</th>
<th>Who?</th>
<th>When?</th>
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**IMPACT ON TEACHING AND LEARNING**

What changes will I see?

**EVIDENCE**

Where in the core documents will I see evidence of the impact?

**REFLECTION ON IMPACT**

What is the impact on science teaching and learning of:

- establishing a clear vision for science;
- the development of school principles for science teaching and learning by teachers and children?
SUBJECT LEADERSHIP: PSQM AWARD

SL2: There is a shared understanding of the importance and value of science

- The school community has a developing understanding of the importance and value of science.

NEEDS ANALYSIS

Where are we starting from? | How do we know?


ACTIONS NEEDED

What do I need to do to achieve the indicator? | Who? | When?


IMPACT ON TEACHING AND LEARNING

What changes will I see?


EVIDENCE

Where in the core documents will I see evidence of the impact?


REFLECTION ON IMPACT

What is the impact on science teaching and learning of:

- the school community’s developing understanding of the importance and value of science?
GOOD SCIENCE IN PRIMARY SCHOOL
LEARNING • TEACHING • LEADING

SCIENCE LEADERS
TEACHERS
SENIOR LEADERSHIP TEAM
GOVERNORS
PARENTS

QUESTIONING, TESTING AND INVESTIGATING THEIR IDEAS HAVING THE CONFIDENCE TO USE APPROPRIATE EQUIPMENT AND VOCABULARY THAT SCIENCE MATTERS

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#PSQM
Just thought I’d let you know we have just been through the OFSTED experience – of course the inspector was a science enthusiast from a family of scientists and of course two classes were teaching science on the same afternoon during his visit so science, of course, was a deep dive subject!

It was a good learning experience and extremely thorough – triangulating his information ensuring what I said was happening as subject lead was actually happening through observations, book scrutiny, interviews, talking to pupils and follow up with me after we had observed the two science lessons. After only three weeks in and with teachers now delivering their own science it was a bit of a knife – edge experience!

He was impressed with the PSQM and I managed to get in some of the things done during it but he was also very focussed on getting the information he wanted to get, obviously. The PSQM helped me prepare for it though, which is what I wanted to tell you really – I have a much better understanding of science than before taking the PSQM, especially what I need to do to lead it effectively!

Still standing!
Please contact me if you would like me to put you in touch with schools that have recently been awarded PSQM or your local hub leader.

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www.psqm.org.uk