

Key questions a subject leader needs to ask <i>(Start at the top and work down)</i>	Supplementary questions	Available support and guidance	Current Status Quo / NOTES
Organisation			
What is the current status of science in our school?	Do we have a shared understanding of why it is important? Does science have high priority? Is it part of the SDP and action planning? Is it recognised on the SEF? Does your last Ofsted report include any areas for improvement related to or applicable to science? Does the subject leader produce: <ul style="list-style-type: none"> • a development plan? • a report to governors? Is there a governor with responsibility for science? Is there an up to date science policy Does the subject leader have appraisal targets linked to the role? Do we have a Primary Science Quality Mark? When is it due to be renewed? Is science featured on your school website, blogs etc?	The subject leader needs to ensure that there is a shared understanding in school (teachers, support staff, senior management and governors) about why science is taught. Wynne Harlen's chapter 'Why is learning science important in primary schools?' in the ASE Guide to Primary Science Education will help you to think about this. See Primary Science: Taking the Plunge - Harlen ASE Guide to Research in Education Ofsted Self Evaluation for Science subject leaders Ofsted criteria for subject surveys See document ' why do Ofsted observe... CLEAPSS science policy template (login required) PSQM self-evaluation Values activity on PSQM website Blank development plan	

<p>How is science organised in our school?</p>	<p>How much time is allocated for each year group? Is it in blocks or weekly? Is it taught in sets? Mixed ability? How many teachers are involved? Are there curricular teams? Is it taught discretely or topic based? Is it taught by class teachers or by one science specialist? Is it the PPA cover teacher that teaches it?</p>	<p>As a subject leader it is important to understand how these decisions have been made and to review regularly, with SLT, whether the current organisation is still suitable. Currently science is taught weekly in the majority of primary schools (Ofsted 2013, Maintaining Curiosity para 45)</p> <ul style="list-style-type: none"> • Journal Article (PS 109) Starting out as a science coordinator • Journal Article (PS 133) Leading Change in the Primary School 	
<p>Is there a subject leader file?</p>	<p>What is in it? When was it last updated? What is stored electronically? Does it include assessment data? Is children's work kept in portfolios?</p>	<ul style="list-style-type: none"> • Handbook contents • Possible contents of folder • File dividers • Subject leader file cards (Download additional ASE Primary framework resources) 	
<p>What is the annual budget?</p>	<p>Is it a fixed amount or do you need to bid? What does this cover – practical resources including consumables, cpd, books, science events, trips? Is there a record to indicate increases or cuts? Fundraising? Money from secondary schools or LA? What other sources of funding are you aware of? Has the school applied for any grants? Is any pupil premium money spent on science?</p>	<ul style="list-style-type: none"> • PSTT Resourcing Science CPD unit • SCORE Benchmarks for Resourcing Primary Science 	

Curriculum

<p>How do we ensure curriculum entitlement?</p>	<p>What schemes of work are currently being used? Is planning regularly amended for the particular cohort / class? Do we track coverage in a whole school document? Is there enough Sc1, practical work, learning outside the classroom (fieldwork)?</p>	<p>Whatever model of curriculum your school uses, the job of the science subject leader is to ensure that the provision in this core subject meets the legal requirement as set out in the National Curriculum.</p> <p>Learning outside the classroom</p> <p>The curriculum for EYFS</p> <p>When carrying out subject surveys Ofsted use criteria for judging the science curriculum</p> <p>This article from Science Teacher Education provides advice about lesson planning</p>	
<p>How do we differentiate? What provision do we make for pupils with SEND? What provision do we make for G & T pupils? What provision do we make for pupils with EAL?</p>	<p>Is differentiation explicit in the planning? Can we see evidence of differentiation in books/ display etc? Do we seat and group pupils effectively? Do we have effective AFL? Do we know about our vulnerable groups? Do we use support staff effectively Are there opportunity for child led, open ended exploration and investigation? Do children get the chance to work with different abilities? Do we use talk partners? Shoulder partners? Challenge partners?</p>	<p>Classroom Quality Standards for G&T</p> <p>Support for developing effective classroom talk</p> <p>The AZSTT website has the STRATA resource for special needs and science</p> <p>Differentiation strategies</p> <p>Blooms question starters</p> <p>Blooms actions and products</p>	

<p>What does progression look like?</p>	<p>Do we have a whole school view? Are there issues at key transition points within the school? For monitoring of this see below.</p>	<p>This document, written to support the 1999 National Curriculum, is a useful summary of progression in each of the key areas of knowledge that children meet in KS1 and 2.</p> <p>Progression is also exemplified in 'Principles and Big ideas of science education'.</p> <p>You must also ensure that there is progression in science enquiry skills from Foundation Stage to end of KS2. Your Local Authority may have a guidance document for this.</p> <p>A framework for progression in science enquiry can be found in It's not fair – or is it?</p> <p>Guidance on fair test investigations can also be found in Making Sense of Primary Science Investigations</p>	
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Resources

<p>What equipment do we have?</p>	<p>How do teachers know what is there and / or what is available? Do we subscribe to a kit box or loan scheme? How is this planned and audited? Do we share resources or borrow from other schools?</p>	<p>An annual inventory is time consuming but effective in managing resources. SCORE, Primary benchmarks lists of resources</p>	
<p>What equipment do we need?</p>	<p>What arrangements are there for short notice buying of consumables e.g. from supermarket or garden centre?</p>	<p>AstraZeneca have an excellent on-line resource which will help you to answer questions about resources. PSTT Resourcing Science CPD unit</p>	
<p>How do I audit and organise the resources?</p>	<p>Where are the resources stored - centrally or in classrooms? How do we keep track of them and what needs replacing or repairing?</p>	<p>The CLEAPSS website also has information about organising resources.</p> <p>There is a useful ASE guide to managing resources Primary Science Equipment Handbook</p>	

<p>How do we ensure health and safety?</p>	<p>Is it included in the science policy or in a separate H&S policy?</p>	<p>Your Health and Safety policy should support children participating in practical science not limit their involvement. ASE: You need a minimum of one copy of 'Be Safe!' which all staff refer to. See also ASE Be Safe Inset Pack see ASE Bookstore catalogue</p> <p>CLEAPSS: Through your local authority, most schools are members of CLEAPSS, a nationwide advisory service for all phases of education, offering support for practical science, Design & Technology and Art & Design. The username and password is sent to LA representatives who inform schools of it each year. If you are independent of an LA then you will need individual school membership. http://www.cleapss.org.uk/</p> <p>You can find more information about Health and Safety on the ASE website.</p>	
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Assessment

What guidelines and principles are there for assessment of science in our school?

What assessment framework are you using?
 Does it facilitate assessment of all attainment targets?
 Does it use a wide range of evidence?
 How do you record outcomes of assessments?
 How do you track outcomes of assessments?
 How do you report outcomes of assessment to parents and other stakeholders?
 How is progress monitored in your school for science, is this in line with other core subjects?

For year 2014/15 the then Y2 and Y6 fit with the statutory requirement to report Science levels of attainment at the end of each Key Stage. Up to date details will be found in the current '[Assessment and Recording Arrangements](#)' document. Your head teacher or assessment coordinator will have this.

[The level descriptions linked to the current national curriculum are the statutory assessment criteria](#) .

Note for end of Key Stage this will change with effect from the reporting point of June /July 2016 (within England)
 See Draft Framework for Testing, DfE
[See Response to Accountability Consultation DfE](#)
 See NAHT Commission on Assessment and their principles

In common with Maths and English, there should be an agreed system for assessing, recording and tracking science attainment and progress across the whole school.

Assessment is not synonymous with testing. Assessment in science should be an on-going process building a picture of what a children can do and what they should do next to make progress in their learning. It will be a combination of formative assessment strategies focusing on skills, knowledge and understanding and summative judgements.

This is an area where many subject leaders might find additional CPD beneficial. Most LAs and the network of [Science Learning Centres](#) run Assessing Science Courses.

See NAHT Commission on Assessment report (March 2014) and the Principles included.
[PSTT assessment framework](#)

The [STRATA](#) materials have assessment grids for pupils working at P levels

A working party on teacher assessment in science produced a [report](#) outlining principles and a framework for good practice.

<p>What impact do our assessments have on learning?</p>	<p>Does planning build on prior learning? Does it include assessment opportunities? Is planning adapted in the light of these assessments?</p>	<p>An adapted version of Ofsted science survey criteria for teaching and learning</p> <ul style="list-style-type: none"> • See Monitoring and planning scrutiny • Book Scrutiny 1 • Book Scrutiny 2 • Planning Scrutiny <p>(Download additional ASE Primary framework resources for above files)</p>	
<p>How do we assess and what do we do with assessment data?</p>	<p>How often are assessment judgements made? How do we assess? Do we use a tracker? Identify intervention groups? Target slow movers and more able? Is science included in pupil performance meetings/ Is this data used to inform our placement of support staff? Do we moderate across the school? With other schools? LA? Cross phase with our secondary school teachers?</p>	<p>Link to P scales and advice how to use and when applicable.</p> <p>There is guidance on assessing science in the publications Active Assessment Inside the Primary Black Box It's not fair – or is it?</p> <p>The PSTT website has activities with assessment criteria for science enquiry, currently linked to level descriptions</p> <p>See PSTT exemplification site for ideas that other schools have found useful, compiled from aspects of submissions to PSQM.</p>	

Driving improvement

<p>What principles underpin science teaching in our school?</p>	<p>Compiling a clear set of principles of good practice, shared by all members of staff (and often with children too) is a very effective way of agreeing what characterises quality teaching and learning in science. These shared principles are a very powerful evaluation tool.</p>	<p>This activity will help you agree and compile a set of principles for good science teaching and learning in your school.</p> <p>Look at PSQM Activity 17 for Monitoring using Principles</p> <ul style="list-style-type: none"> • Example policy • Example Policy • Policy Headings <p>(Download additional ASE Primary framework resources for above files)</p>	
<p>How do we monitor and evaluate the quality of science in our school? How does it support the development of science in our school?</p>	<p>Are teachers observed during the year? Are subject leader meetings held? Are there:</p> <ul style="list-style-type: none"> • Learning walks • Pupil voice • TA voice • Parents voice • Book looks • Learning walks • Planning scrutinies? <p>What do you do as a result of this? This is the most important aspect. What have you found out and what do you intend to do as a consequence? You might consider pulling together a PMI (plus, Minus, Interesting) summary.</p> <p>Is it linked to appraisal and/or CPD needs?</p>	<p>For monitoring you may wish to use the Ofsted subject specific criteria (Ofsted only use these criteria when carrying out a subject specific survey, not a Section 5 (full) Ofsted inspection.)</p> <p>We have also made available documents comparing the latest and previous versions for:</p> <p>Achievement Quality of teaching Curriculum Subject leadership</p> <p>More guidance on learning walks, pupil voice, book scrutiny, lesson observations etc can be found on the PSQM website</p> <ul style="list-style-type: none"> • Monitoring ideas • Monitoring Action Plan • Evaluation Form <p>(Download additional ASE Primary framework resources for above files)</p>	

<p>How can I support my colleagues?</p>	<p>Do we use:</p> <ul style="list-style-type: none"> • Lesson study • Being available to give advice, act as role model. • Coaching • Directing colleagues to courses and useful resources • Audit of needs • Enthusing • Team teaching • Sharing good practice sessions and journal articles • Internal CPD? <p>Teachmeets PopUps A3 Wall</p>	<p>The ASE journal Primary Science contains lots of advice and activities for you and your colleagues. ASE members can access an archive of past issues.</p> <p>Useful websites National STEM centre Science Learning Centres School Science PrimaryUpd8</p> <p>You can find examples of effective CPD in the Subject Leader section of PSQM exemplar materials</p>	
<p>How do my colleagues support me?</p>	<p>Do I have:</p> <ul style="list-style-type: none"> • regular communication with SLT • support from SLT for professional development, time for monitoring, budget, development work with colleagues, ASE individual / school membership • coaching from mentor or subject leader in another school • links with other schools? 		
<p>How do I keep up to date?</p>	<p>Active ASE membership? Read journals? CSciTeach or RSc? Active membership of local and regional networks? Attendance at conferences and courses, INSET, science learning centres Professional networks e.g. #ASEchat</p>	<p>ASE provides lots of opportunities for professional development, recognition and linking with others Join ASE's Facebook Group Sign-up for ASE news Chartered Science Teacher Registered scientist #ASEchat - twitter</p>	
<p>How do I develop my own capacity to lead?</p>	<p>Do I engage with:</p> <ul style="list-style-type: none"> • Leadership training- National College • Primary Science Quality Mark • Science Learning Centre • STEM Centres • Local training • Networks • Delivering session in clusters or pyramids? 	<p>Primary Science Quality Mark</p> <p>Science Learning Centres</p>	

Enhancement and engagement

<p>How do celebrate science in our school?</p>	<p>Do we have:</p> <ul style="list-style-type: none"> • Science assemblies/ Good Science work assemblies • Science awards/ certificates, • Science Ambassadors / Champions. • Science display • PSQM show case website • Open days • Vertical grouping days • Parent workshops • Good practice days for PGCE or SCITT students • Science fairs/ days/ weeks • Science on the school website • Science blogs or newsletters • Writing articles for journals (Primary Science) 	<p>Primary Science Teacher of the Year PSQM showcase</p> <p>See Science Ambassadors article in PS 133</p>	
<p>How do we enhance science in our school?</p>	<p>Does science involve:</p> <ul style="list-style-type: none"> • Science clubs – the BA NSEW • Young engineers • Science weeks and trips • Environmental initiatives • Science technicians (from amongst children) • Science Champions • Science Award • Homework/ CHATS 	<p>Crest Star investigators materials for science clubs</p> <p>EcoSchools</p> <p>STEM Ambassadors</p> <p>Planet Science</p> <p>School Science</p> <p>Young Engineers</p>	
<p>How do work with the wider community?</p>	<p>Do we:</p> <ul style="list-style-type: none"> • Link with other schools e.g. secondary schools • Belong to primary networks • Use STEMNET • Have industry links • Make good use of parents • know about local community resources • Run parent or parent and child workshops for science? 	<p>STEMNET</p> <p>Children Challenging Industry Project</p>	

If you are a newly appointed Science Subject Leader read Liz Lawrence’s chapter **The Science Subject Leader** in the 2011 edition of [ASE Guide to Primary Science Education](#) by Wynne Harlen.