

PGCE Science (Biology) Subject Specific Target Exemplars:

This is a working document, intended to support the setting of subject specific targets on lesson observation forms and on WDS forms at weekly mentor meetings. Ideas for science specific targets are here and can be adapted. Targets can require wider thinking and revisiting of prior learning at any stage in the course where it would be helpful to a trainee.

Target area:	Actions:	
Curriculum	Become familiar with exam board specifications for new GCSE Science courses	Consult exam board websites to compare and contrast the two exam specifications for GCSE Science.
	Gain a better understanding of how your KS4 biology lessons fit together with each other.	Study schemes of work for e.g. GCSE biology, read examination specifications produce a one-page document summarising progression across the biology topic you will be teaching next.
	Develop the ability to plan schemes of work	Work with a colleague on the development of part of the scheme of work for KS3 (or KS4).
		Take the KS3 SoW and track the progression of scientific knowledge in relation to substantive concepts (cells and organisation, skeletal and muscular systems, nutrition and digestions etc) and disciplinary concepts (working scientifically) across the Key Stage.
		Take the KS3 SoW and track the diversity of assessment methods being used, then reflect on how this supports individual students to make progress, to discuss at the next meeting.
	Become familiar with GCSE Science question types	Read examiner reports from previous years trying to spot/ identify patterns/themes to get insight into what is required.
	Shadow marking of Science mocks	Pencil mark mock papers using the mark scheme, review with mentors/observe mentor marking
	Revisit prior learning on... to think about it again now you are more experienced.	Return to the University VLE to review the CA session on... (diversity, sequences, planning...)
	Plan to engage students and enable them to gain a love of science	Observe an experienced colleague to identify how they 'hook in' learners, how they use their own subject passion to engage and enthuse their pupils.
Plan for breadth <i>and</i> depth	Review a departmental sequence to identify depth and breadth within it	

	Plan for progress of all learners in your science classroom	Talk to the TA team about the best way to present material for X student.
		Think about a specific learner and 'walk through' the lesson in their shoes thinking about the learning blocks they will encounter and how to remove them.
Subject knowledge	Develop scientific knowledge for the required KS3 and KS4 courses	Update your subject-knowledge audit, to address any gaps in your current knowledge, with evidence of how you have moved your subject knowledge on.
		Read/watch/listen to Y to develop knowledge of Z topic. (GCSE Bitesize/Science podcasts on BBC Sounds- e.g. BBC Inside Science, In Our Time)
		Observe a series of lessons across key stages and reflect upon the depth and breadth of knowledge required by students at each level, for discussion at a mentor meeting.
	Understand the level of knowledge required by pupils	First watch/listen to X on the topic and then observe to see how an experienced teacher deploys the knowledge.
	Observe a lesson	Observe how an experienced teacher does this
	Develop strategies to develop connective thinking in the pupils	Model how to select the best knowledge to support answers.
		Study the scheme of work to identify the key concepts (e.g. Cells) and discuss with mentor how they change over time.
	Integrate knowledge of careers into the subject knowledge	Make explicit how being knowledgeable about science and thinking as a scientist contributes directly to useful knowledge for careers.
Teaching & Learning / Pedagogy	Focus on improving pupils' use of key scientific vocabulary in their spoken and written explanations	Identify and share key science words for each lesson and devise strategies to assess their confidence in using these words correctly.
	Identify prior learning and possible misconceptions	When planning lessons, show evidence that you have reflected on possible misconceptions / barriers to learning and have planned how you will overcome these.
		Use eg. hinge questions to assess pupils' knowledge and understanding. Plan for how you will address any misconceptions
	Ensure practical work is achieving the intended purpose in terms of learning.	Try out before the lesson/consult additional support from teachers/ technicians to prepare for/trial practical sessions which you are less familiar with.

		Read Chapter 5 of <i>Improving Secondary Science Guidance Report</i> - https://drive.google.com/file/d/1qK8oqzTAKu4r30LaMYzZBwW26G8q77gh/view?usp=sharing
		On lesson plans state the intended purpose and outcomes of the practical and share this with your pupils.
		Identify learning outcomes that include specific working scientifically skills for the practical
	Focus on practical science, using creative ideas to link the science to real and relevant contexts	Increase the number of opportunities for relevant practical work to enhance learning
	Develop creative ways of engaging pupils with science at the start of lessons.	Select a relevant short video clip that links pupils' everyday experiences with the science topic
	Develop strategies for hooking pupils at the start of the lesson	Develop use of images to set the context for the learning in the lesson
	Think how a scientist uses numeracy skills and build these into your lessons	Analyse sample exam questions and mark schemes to identify what the examiners are looking for and 'what a good answer's like'. Use this to support pupils in developing the numeracy skills needed to succeed in science exams.
Assessment	Understand in detail what is required for students to succeed in the KS4 Science exams	Shadow mark GCSE Science exam questions and bring them to a mentor meeting for moderation.
		Read the GCSE Science examiners' reports for previous years. (on the exam board website)
	Use of exam Questions	Use ExamPro to assemble a bank of exam questions, mark schemes and examiners reports for the current science topic.

	Develop assessment strategies to measure pupil understanding of a topic	Plan questions for a lesson to enhance your formative assessment of pupil understanding of the science topic you are teaching.
		Use whiteboards strategically to develop your understanding of whole class assessment techniques.
	Design an assessment to end a specific sequence	Use/amend an end of topic assessment for a class you have been teaching to develop your understanding of summative assessment and how it could be used to develop pupil learning.
	Develop the necessary skills for pupils to succeed in science exams	Read the exam spec requirements for the personal study and observe teaching of this part of GCSE level.
	Assessment of practical skills	Observe/support/teach a lesson where pupils are carrying out a required practical at KS4
	Marking and feedback	Set and mark a topic assessment test for science and give feedback to pupils on strengths and areas for development.
Use the school's marking policy to mark and provide written feedback to pupils on a piece of extended writing in science in line with this		