

PGCE Sem 2 Secondary Module Handbook: Sci and Tech AOLE

Duration: 5 days (15x 100 min sessions)

Timing: Sem 2 (After PTE1)

Programme: PGCE Secondary (All Subjects)

Can be adapted for different subject areas

Module Purpose

The purpose of this module is to enable student teachers to **develop a coherent professional identity** by:

- interrogating and refining beliefs about effective teaching,
- strengthening analytical reflection grounded in evidence of learning,
- increasing responsibility for planning and action,
- developing the capacity to diagnose barriers to learning and respond professionally.

The module prepares student teachers to enter PTE2 as **developing professionals**, capable of purposeful reflection, informed planning, and adaptive teaching within supported school environments.

Connected literature

<https://caban.ac.uk/dogfennau-documents/at-stages-dev.pdf>

<https://estyn.gov.wales/app/uploads/2025/09/Inspection-report-CaBan-2025-1.pdf>

Jones, Luke & Tones, Steven & Foulkes, Gethin & Jones, Rhys. (2022). Levelling the playing field: Dialogic Mentoring in the CaBan Initial Teacher Education programme. Cylchgrawn Addysg Cymru / Wales Journal of Education. 24. 10.16922/wje.24.2.3

<https://estyn.gov.wales/education-providers/yr-athrofa-professional-learning-partnership/>

Module Aims

By the end of the five days, student teachers will:

1. Re-evaluate their understanding of effective teaching
2. Develop analytical reflective practice
3. Strengthen planning as a professional act
4. Increase professional agency and responsibility
5. Consolidate transition into Developing Teacher Identity

Conceptual Frameworks related to science

The following frameworks are used **as analytical and design lenses**, not as content to be recalled:

[EEF Improving Science Guidance](#)

[Johnstone's Triangle \(RSC\)](#)

[RADAAR planning logic](#)

[EEF BEST exemplar](#)

[Great Evidence Teaching Toolkit](#)

[BEST evidence science teaching resources](#)

[Rosenstein Principles of Instruction](#)

[Formative Assessment \(Estyn\)](#)

[The Science Capital Teaching Approach \(UCL\)](#)

These principles are used as **analytical lenses** through which student teachers evaluate their own practice, test assumptions formed in Semester 1, and make deliberate improvements.

Professional learning is framed as:

- iterative,
- evidence-led,
- situated within real classrooms,
- developmental rather than performative.

Pedagogical Approach

The module adopts a practice-based, dialogic, and reflective pedagogy, structured around:

- analysis of concrete placement experiences,
- guided professional dialogue,
- collaborative and individual planning,
- rehearsal and critique,
- structured reflection leading to action.

Reflection is explicitly taught and modelled as an **analytical process**, moving beyond narrative accounts of lessons to evaluation of decisions, mechanisms, and outcomes.

Expectations of Student Teachers

During these sessions, student teachers are expected to:

- engage critically and professionally in discussion,
- use placement evidence (pupil work, lesson outcomes, mentor feedback),
- be open to revising previously held beliefs,
- take increasing responsibility for identifying next steps,
- contribute to a culture of professional critique and improvement.

Emotional responses to teaching should be reframed through **professional analysis and decision-making**.

Structure and Progression

The five-day structure is sequenced to mirror developmental progression:

Days 1–2: Re-evaluating practice and beliefs

Days 3–4: Deepening professional judgement

Day 5: Integration and readiness for PTE 2

Across all days, student teachers are expected to produce **tangible planning and reflection outputs** that can be used directly in PTE2.

Day.Session	Session Title	Purpose	SciTech Conceptual Frameworks Used
1.1	Re-activating Professional Frameworks	To re-engage trainees with shared pedagogical language and position theory as an analytical tool for classroom practice.	GTT (dimensions), 12 Pedagogical Principles, EEF Science Guidance
1.2	Reframing “Great Teaching” Through Placement Evidence	To use placement experience to challenge and refine beliefs about effective science teaching using evidence.	GTT, EEF Science Guidance, Johnstone’s Triangle
1.3	Planning as a Professional Act	To reposition lesson planning as purposeful design centred on learning intent, diagnosis, and response.	EEF RADAAR Logic, BEST task exemplars, Rosenshine
2.4	Assessment for Learning as Professional Decision-Making	To develop assessment practices that inform teaching decisions rather than confirm task completion.	Black & Wiliam (AFL), Estyn Assessment Guidance, EEF Science Guidance
2.5	Questioning That Reveals Thinking	To strengthen diagnostic questioning that surfaces scientific thinking and misconceptions.	STEM Best Evidence, Rosenshine, GTT (Activating Hard Thinking)
2.6	Responsive Teaching in Practice	To build confidence in adapting teaching based on learner responses and evidence.	EEF RADAAR Logic, GTT
3.7	Explaining for Understanding	To improve clarity and precision of explanations so learners can construct scientific meaning.	Johnstone’s Triangle, Rosenshine, GTT (Understanding Content)
3.8	Knowledge, Sequencing, and Curriculum Judgement	To develop judgement about what knowledge to teach, when, and why, to support progression.	EEF Science Guidance, RADAAR Logic, BEST exemplars
3.9	Cognitive Demand and Productive Struggle	To design tasks that sustain challenge without removing thinking or access.	GTT (Activating Hard Thinking), STEM Best Evidence
4.10	Inclusion as Professional Design	To frame inclusion as pedagogical design that enables access while maintaining high expectations.	Science Capital Teaching Approach, GTT
4.11	Literacy and Numeracy as Barriers to Learning	To identify and reduce literacy and numeracy barriers that distort science learning.	EEF Science Guidance, Estyn Assessment
4.12	Curriculum Purpose and Coherence	To strengthen alignment between lesson-level decisions and curriculum intent.	Curriculum for Wales, EEF Science Guidance
5.13	Integrating Theory, Evidence, and Planning	To synthesise theory, evidence, and planning into coherent, placement-ready science lessons.	RADAAR Logic, GTT, EEF Science Guidance

5.14	Rehearsal and Professional Articulation	To rehearse explanations, questioning, and professional dialogue grounded in evidence.	Rosenshine, BEST exemplars, Johnstone's Triangle
5.15	Reflection, Action Planning, and Placement 2 Readiness	To consolidate learning into focused action plans aligned with professional expectations and QTS.	Estyn Assessment, GTT, EEF Science Guidance