

## Session Plan

### Secondary Mastery Big Idea: Coherence

This professional development unit is one of a suite of six units designed to introduce secondary maths trainee teachers to the NCETM's Teaching for Mastery 5 Big Ideas. Each module shares a rationale, key messages and at least one practical strategy suitable for novices to adopt. Together, the modules form an *introduction* to teaching for mastery for the *novice*.

<b>Goals</b>	To help trainee teachers (TT) to: <ul style="list-style-type: none"> <li><input type="checkbox"/> understand the what, why and how of coherence</li> <li><input type="checkbox"/> consider some practical examples of coherence</li> <li><input type="checkbox"/> practise planning for coherence.</li> </ul>
<b>Starting points</b>	TT will have seen the teaching for mastery diagram with the 5 Big Ideas in the Introduction unit.
<b>Materials required</b>	PC & projector Whiteboard or flipchart & pens Group set of mini whiteboards & pens Session handout (optional)
<b>Time needed</b>	60 minutes
<b>Room layout</b>	Room layout should accommodate TT working in pairs and groups of four.
<b>Suggested approach</b>	Share Teaching for Mastery Framework (S2) and highlight that this session will explore Coherence.

#### **The role of prior knowledge (10 minutes)**

One of the key messages highlights the importance of connecting current learning to prior knowledge. Slides 3-5 convey this. The Mandarin activity (S6) is a practical example to do with students.

#### **Key messages (5 minutes)**

Share the key messages (S7) allowing TT time to read (page 1 of handout).

#### **Practical application (35 minutes)**

The idea that small steps are easier to take, and this is done by breaking down learning into small steps/key ideas. This is sometimes referred to as atomisation or 'isolate the skill', although a focus on 'skill' may be limiting as sometimes these small steps/key ideas are conceptual rather than procedural.

Ask TT to work in pairs to consider what the small steps could be for teaching *trigonometry in right-angled triangles*. Then share example list of 14 small steps (S9). Ask TT to discuss the similarities and differences between their list and the example list.

Ask TT to practise this strategy by applying it to solving simultaneous equations (S10). Once complete, ask them to compare theirs with another pair.

Share example list of steps (S11) and ask TT to comment.

Highlight to TT that some of these small steps are likely to be prior knowledge. By beginning with these steps, we ensure that we are building on prior knowledge and engage in retrieval practice.

Breaking into small steps is most effective when done as part of medium term planning i.e. when planning a learning episode/unit of work. Highlight to TT that each step need not take one lesson (S12).

It is important to acknowledge the inherent tensions between striving for connections and coherence, whilst at the same time analysing concepts by breaking them into small steps! Slides 13 and 14 convey this.

Introduce the NCETM Secondary PD materials (S15, 16). This framework provides a coherent view of the KS3 curriculum and offers many rich ideas for collaborative planning, both at the scheme of work level, and at lesson level.

Compare the excerpt on trigonometry (S17, 18) with the breakdown seen in S9.

### **Summary (10 minutes)**

Returning to the key messages (S19), discuss in pairs how the session addresses these. Close with more info and encourage TT to connect with the NCETM and their local maths hub.

### **What TT might do next**

Locate the relevant section in the NCETM PD materials for a learning episode/unit of work they plan to teach. Read and discuss it with a partner.

Working with a partner, try to break down the unit of work into small steps / key ideas.