

NEW: APPLYING THE PRINCIPLES OF COGNITIVE LOAD THEORY TO SCIENCE TEACHING

CODE 8742

ABOUT THIS COURSE

We often design lessons full of wizz and bangs in an attempt to wow our students and capture their attention, whilst not realising that much of that can often overload their working memory and distract from the information we really want them to remember and process. The result can often be engaged students who cannot reach their full potential. In this course we will consider ways to maintain the natural curiosity of our students through strategies that minimise the cognitive load and enhance their retention and understanding of new content.

This course is new for autumn 2021, and for all science teachers who are interested in developing their understanding of cognitive science applied to science teaching and learning, particularly in the area of Cognitive Load Theory (CLT). The focal point of the course is for teachers to achieve a working knowledge of the principles of CLT and apply them to real science teaching

We will explore the theory developed by Prof John Sweller and its implications in the science classroom to enable teachers to develop lesson resources and activities that facilitate their students' encoding of novel information in their long-term memory for better retention and to achieve mastery of your subject.

We will also consider proven strategies for retrieval practice to enhance your pupils' ability to recall and process complex concepts and form accurate and elaborate cognitive constructs in their long-term memory. Emphasis will also be on improving classroom practice and develop effective and engaging lessons. Teachers will leave this course with a wealth of proven classroom strategies and tools ready for use the next day, including ready-made teaching and learning resources to use with their students.

PROGRAMME

	TIME
What is Cognitive Load Theory?	10.00 – 11.30am
<ul style="list-style-type: none"> Understanding the limitations of working memory and long-term memory Minimising cognitive load to maximise encoding and develop complex schema Students' preconceptions – strategies and tools to explore misconceptions System 1 and 2 thinking – how to engage our working memory to process new information and encode it in our long-term memory 	
Discussion: coffee break	11.30 – 11.45am
Teaching novel content	11.45 – 1.00pm
<ul style="list-style-type: none"> An overview of cognitive load effects The modality effect The split attention effect The worked example effect 	
Lunch and informal discussion	1.00 – 2.00pm
Effective and realistic CLT strategies and resources for science teaching	2.00 – 3.00pm
<ul style="list-style-type: none"> Storyboarding – the importance of imagination and the power of recall through storytelling and story writing Graphic organisers for teaching and learning Summary infographics for effective schema development and recall Simplifying and decluttering – reducing the cognitive load by streamlining your own teaching resources 	
Discussion: afternoon tea	3.00 – 3.15pm
Retrieval techniques	3.15 – 4.15pm
<ul style="list-style-type: none"> What is retrieval practice? Methods to embed in classroom practice Spaced practice vs massed practice How to effectively implement retrieval practice Examples of retrieval activities and tools in science teaching 	

LOCATION/DATE

London

Thursday 02 December 2021

COURSE LEADER

Alessio Bernardelli has over 18 years of teaching experience and has worked as Head of KS3 Science and Head of Physics. He also worked as Science Subject Lead at TSL Education (TES) and as National Support Programme Partner in Wales with CfBT. He has recently completed an MSc in Teacher Education at the University of Oxford, he is a Chartered Science Teacher (CSciTeach) and a Chartered Physicist (CPhys), as well as a Senior Facilitator with STEM Learning.

WHO SHOULD ATTEND?

- Heads of Science and/or Physics
- Teachers of Physics
- NQT Science Teachers
- Non-specialist teachers of Physics

BENEFITS OF ATTENDING

- Find out more about cognitive science applied to science teaching and learning, particularly in the area of CLT.
- Gain a working knowledge of the principles of CLT and apply them to real science teaching
- Explore theories by Prof John Sweller
- Gain practical strategies and approaches for effective retrieval and recall specifically in science
- Take away a wealth of proven classroom strategies and tools ready for use the next day, including ready-made teaching and learning resources to use with students.