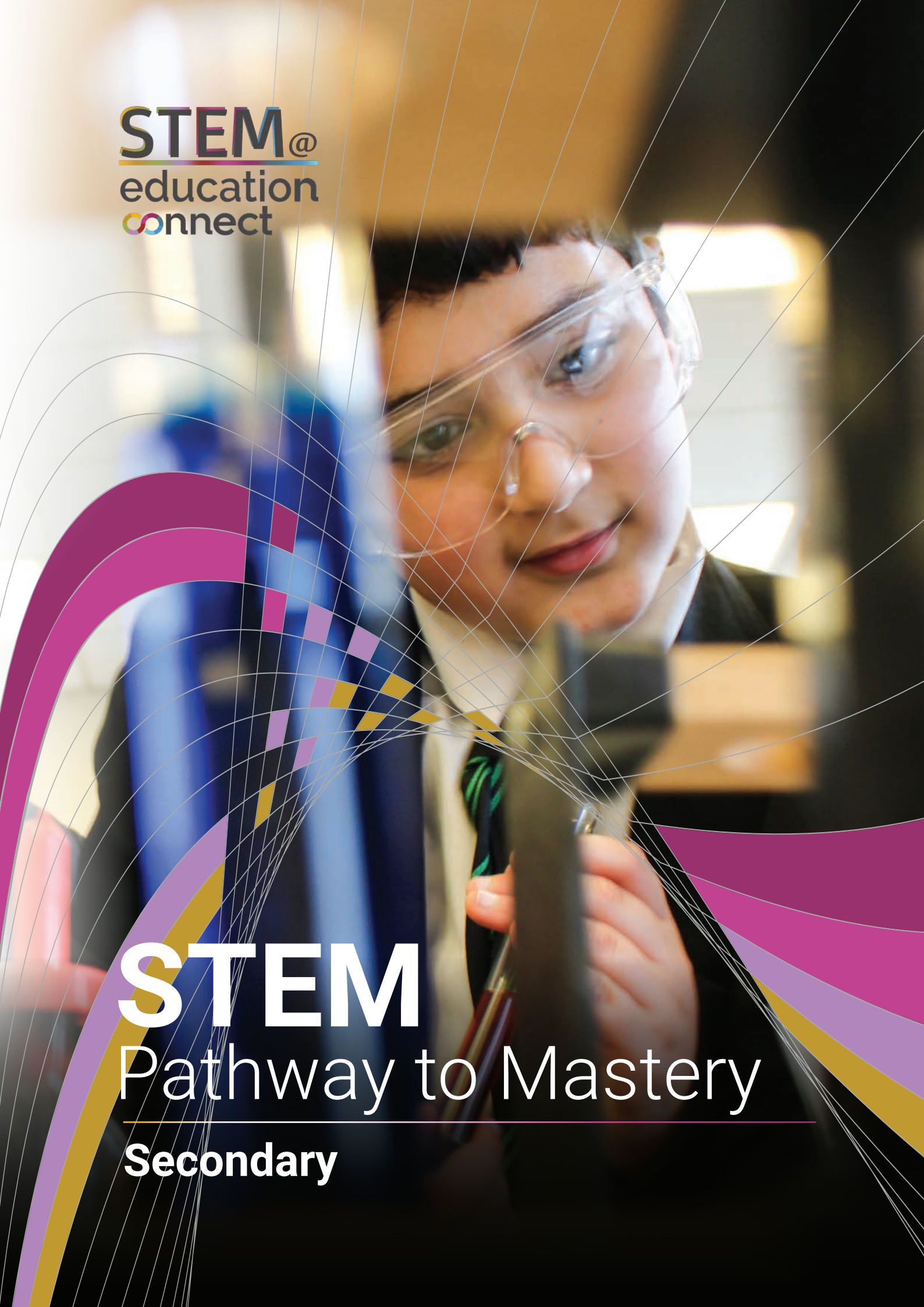




STEM@
education
connect



STEM
Pathway to Mastery
Secondary

Welcome to STEM @ Education Connect

Who are we?

Our team consists of national experts who have led on curriculum development, pedagogy and assessment over the past 10 years, bringing with them a wealth of experience in both subject and senior leadership.

Why choose the STEM Pathway to Mastery?

For over 10 years our team have been working with teachers, subject leaders and leadership teams at both school and trust level to develop excellence in the STEM subjects.

Based in the North West our experts will work, within your context, to drive and sustain improvement in science, design and technology and computing.

“
The entire course was enlightening, especially the insights from an experienced practitioner!”

“
Gained clear insights into effective curriculum implementation!”

“
Valued the practical tips, shared practices, and useful links for Computing Leads!”

Meet the team



Chris Hillidge



Amy Welsh



Emma Antrobus



Jenny Barrowcliff

Expert led, collaborative development of curriculum, pedagogy and assessment.



Leading to sustained impact and subject mastery across science, computing and design and technology.



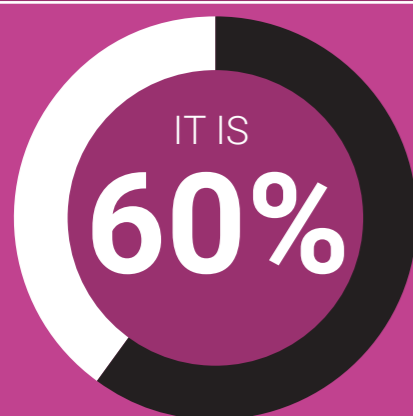
A tailored CPD package to support the development of teachers at all stages of their career.



Teacher Recruitment and Retention

Teachers who engage with high quality CPD in the STEM subjects are nearly **twice as likely to remain in post than teachers who don't.**

We understand the challenge of recruiting and retaining good quality teachers and subject leaders, and the STEM Pathways to Mastery program has proven impact to support your school.



MORE LIKELY THAT A STEM
TEACHER WHO ENGAGES WITH
CPD WILL STILL BE IN THE
PROFESSION 5 YEARS LATER.

STEM Learning

Local Network of Support

Schools on The Pathway to Mastery have the opportunity to **join face to face networks** that meet throughout the year.

Developing **subject leadership** and **assessment diagnostics.**

Our networks build on best practice and enable partner schools to **build genuine collaboration.**

The Pathway to STEM Mastery - SCIENCE

Our Mastery Pathway offers access to a fully sequenced curriculum with detailed lesson by lesson planning. The Pathway to STEM Mastery subject sequences are based on best practice and tailored to the AQA GCSE Specifications. They have been quality assured during the development process by bodies such as the RSC & IOP.

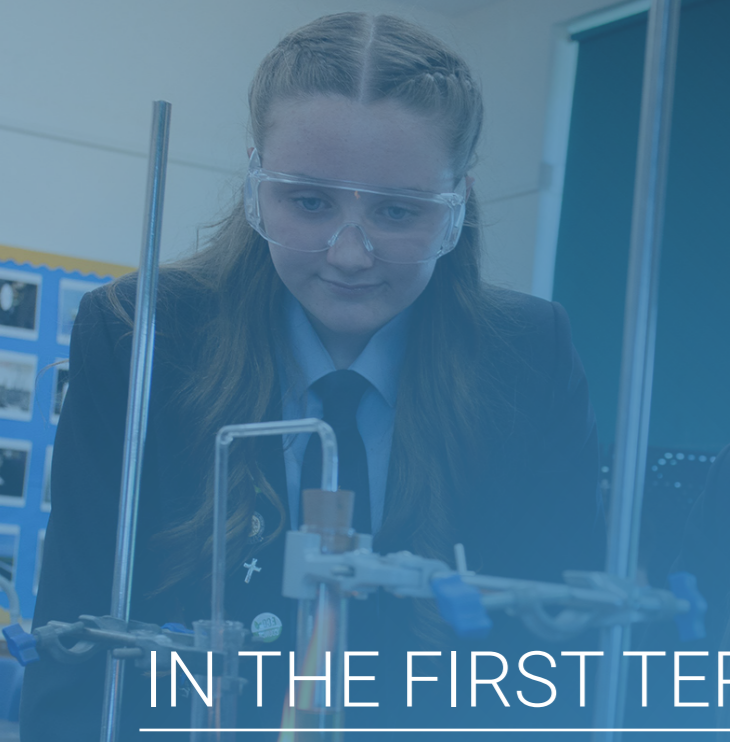
Each series of short term plans contain:

- The Big Picture of where the curriculum content fits into the learning journey
- Links back to KS2 and forwards to KS4/5
- Careers links
- Identification of maths and literacy skills
- Links to subject specific CPD

Each individual lesson plan includes:

- A key question - the focus of the lesson
- Learning outcomes and suggested learning activities
- Misconceptions and tricky content
- Higher, Foundation and Separate Science content all clearly identified at KS4
- Wider reading opportunities with challenging scientific texts for pupils
- Stretch activities for HAPS





Investing in high quality CPD is a key strategy to reverse teacher shortages.

UNESCO



IN THE FIRST TERM

INTENT

- Diagnostic process in collaboration with SLT/subject leads
- Improvement plan based on the diagnostic
- Mapping out of CPD and coaching
- Implementation
- Delivery of an externally accredited ambitious curriculum
- Ongoing coaching for subject leads
- Face to face training (CPD) for subject leaders and teaching staff (also via remote platforms)

IMPACT

- Standardised assessments that give subject leads diagnostic data to make maximum impact on learning
- Continuous coaching and CPD to ensure best practice across the subject

YEAR 1-3

- Face to face coaching and CPD
- Leadership development
- Supported quality assurance, including joint learning walks and guided curriculum conversations
- Teacher CPD focused on subject knowledge and pedagogy
- Local subject leadership network to share best practice

AND BEYOND

- Access to local subject leader networks to allow continual development and sharing of best practice
- Ongoing CPD to enhance and develop your team
- Annual evaluation

TIER 1

Our pricing offers value for money for our partner schools

Six twilight sessions across the academic year.

Each session will have a curriculum focus to develop subject specific pedagogy, identify misconceptions and provide HODs with the opportunities and confidence to discuss their curriculum to maximise the progress of their pupils.

Full day needs analysis, supported by an SLE, within your school, assessing the intent and implementation of the curriculum.

Cost £1000

TIER 2

All of Tier 1 plus:

- ▶ Two full days of curriculum development with an SLE and full access to a model curriculum.

Cost £2500

TIER 3

All of Tier 1 and 2 plus:

- ▶ Three additional days of SLE support on an agreed focus from your diagnostic process. This might include Ofsted preparation, curriculum or assessment development, effective subject leadership or leadership of teaching and learning in science.

Cost £3500



The Pathway to STEM Mastery – COMPUTING

Our subject experts can provide support including:

- Effective leadership of computing in your school
- Diagnostic support with your curriculum
- Review of marking and assessment practices
- Computing relevant pedagogy

Support to help implement fully funded curriculum.

- Review of hardware and software available at your school
- Recommend potential software to implement curriculum
- Identify training needs of staff
- Provide guidance on curriculum sequencing
- Identify potential assessment points

Computing Quality Framework:

- Work to complete the initial assessment of your school
- Identify the strengths of the department
- Identify the next steps to develop the department further
- Provide support for the written narrative and evidence for CQF submission
- Review completed application before submission to CQF

Consultancy:

- Reviewing transition linking back to KS2 and forwards to KS5
- Careers links to the subject
- Embedding maths and literacy into the curriculum
- Marking and assessment strategies for computing
- Identify misconceptions and tricky content, and how to tackle them in the classroom
- How to stretch HAPS
- Engaging students of all abilities

Contact us for computing support

The Pathway to STEM Mastery – DESIGN AND TECHNOLOGY AND ENGINEERING

INTENT:

- Access for the design and technology lead to high quality local network sessions led by subject experts, to review the current curriculum in their school.
- Develop an action plan based on outcomes of network curriculum sessions and identify the strengths, and the next steps to develop the subject further.
- Provide access to our Secondary design and technology CPD across the academic year for the subject lead and whole staff.

IMPLEMENTATION:

- Coaching for subject leads on implementing their action plan.
- Continued access to CPD throughout the year for all staff to further develop practical skills and subject knowledge.
- Ensure full coverage of National Curriculum topics at KS3 to support KS4.
- Continued access to CPD throughout the year for practical skills and subject knowledge.
 - Introduction to robots, mechatronics and autonomous systems.
 - Solving real and relevant world problems with the Engineering Design Process.
 - Mechanical systems.
 - Planning and resourcing schemes of work for systems and control.
 - Assessment for systems and control.

IMPACT:

- Moderation sessions throughout the year to ensure high-quality design and technology delivery in line with the National Curriculum and KS4 specifications.
- Continued coaching and CPD to ensure best practice across the subject for all staff.

Our local networks focus on subject knowledge and pedagogy. Design and technology is often taught by non-specialists and through our networks, we can give them the confidence and knowledge to ensure your pupils can learn at Mastery level in design and technology.

Contact us for bespoke design and technology support



STEM

Pathway to Mastery

Evidence backed CPD is also available and is developed and delivered by experts. This could be as a bespoke course in school or individual teachers can access scheduled CPD.

Science

Subject knowledge enhancement for biology chemistry, physics

Covering 6 half days, this suite of courses provide opportunity to strengthen subject knowledge and address common misconceptions and how they can be reconstructed.

Science for non-specialists

Over 3 full days, these courses cover the key knowledge required for teaching biology, chemistry and physics as a non-specialist as well as learning about implementing practical work safely.

Physics for non-specialists

Over 6 half days, this course covers the fundamental knowledge required for teaching physics across key Stage 3 and 4 as well as learning about implementing practical work safely.

Separate science only content

These 3 half day courses have been developed to build the subject knowledge and support the teaching of the key concepts of each of the separate science GCSEs.

Enhancing reading for secondary science

Using the latest research, this 90 minute short course will explore strategies for decoding scientific vocabulary and embedding reading within the science curriculum.

Adaptive teaching

This half day course explores the concept of adaptive teaching and how to apply it within the science classroom and identifies clear strategies to support your students.

Strengthening practical work in biology, chemistry, physics

This suite of full day courses will explore the latest research on purposeful practical work and covers practical techniques, effective questioning strategies and GCSE required practicals.

Computing

Programming pedagogy

A half day session covering the latest educational research regarding programming pedagogy and how to implement them in the classroom.

Practical programming – building programs and live coding

A half day session on how to use live coding in lesson and how to demonstrate resilience in the students through coding

Transition from block to text-based programming

A short 90 min session on moving from block based programming to using text-based programming languages and how to bridge the gap.

Literacy in computing, using the right vocabulary

A 90 min session on how to embed subject specific language in computing lessons, and how to use real-life concepts to help students understand the language.

How to teach tricky concepts

A half day session looking at the common misconceptions in computing and how to reconstruct them.

Equity, diversity and inclusion

A half day session on how to make computing inclusive for all students.

Computing to support other subjects

A 90 min session on how computing can be embedded to support other subjects.

Contact us:
stem.educationconnect@tcat.uk.com

For our full CPD offer and to book a place, scan the QR code.



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