Science
Mastery

Science Mastery Secondary

Working hand in hand with schools to deliver immediate impact and sustained subject excellence



Ark Curriculum+

Hello!

Welcome to Science Mastery Secondary.

Welcome to Science Mastery Secondary.

At Ark Curriculum Plus, we believe all students deserve access to a rich, ambitious science curriculum that helps them succeed, whatever their starting point.

As the next phase of curriculum reform takes shape, schools using Science Mastery Secondary will be well placed to respond. The programme's 5-year curriculum map, coherent design and integrated approach to assessment, underpinned by an inclusion-first approach, provide strong foundations for the changes ahead.

For science, beginning with a clear, well sequenced and ambitious curriculum is a crucial step but it's nothing without confident teachers, who have the subject knowledge and best practice pedagogies to deliver brilliant science lessons.

Designed to support science specialists and non-specialists alike, our subject excellence programme provides the expert support and practical building blocks schools need to teach Key Stage 3 and 4 science using the mastery approach.

The programme repurposes teachers' time, enabling them to focus on the things that make great teaching and learning: co-planning, intellectual preparation, adaptive teaching and responsive use of formative assessment.

Informed by extensive research and practical insights into effective science teaching, Science Mastery Secondary is used every day by teachers and subject leaders in Ark schools and continually refined through feedback from our partner schools.

How does it work?

Success starts with confident teachers consistently delivering brilliant science lessons. That's why you'll have a dedicated subject expert guiding you through our 5-Step Improvement Process, alongside face-to-face induction, flexible CPD, and immediate access to the practical assessment, planning and teaching resources you need to embed Science Mastery in the classroom.

We partner with hundreds of schools, including some of the largest MATs in the country, united by a shared mission to help all students make progress in science and connect their learning to world.

I hope you will join us!

JESSICA WOOD
HEAD OF SCIENCE SECONDARY, ARK CURRICULUM PLUS



Put simply, what we do works!

besa awards
HIGHLY COMMENDED

Since developing Science Mastery Secondary we have received fantastic feedback on the programme. School leaders and teachers agree that our programme works.

Plus, Science Mastery was awarded Highly Commended in the 2025 BESA Evidence and Impact Award category for having positive impact on teachers and learners.

OUR PARTNER SCHOOLS AGREED:



Leaders and Mastery Leads agree that there is **greater consistency** in teaching and learning



Leaders agree that pupils taught by ECTs or non-specialists benefit from **higher-quality teaching**



Mastery Leads agree that CPD provided has **strengthened classroom practice**

WHAT PEOPLE SAY

I had some fantastic feedback today from SLT on how transformed the science department is, in just one year. I can truly say that the Mastery programme has been pivotal in that transformation."

JAYNE CHESLIN
HEAD OF SCIENCE
WINCHCOMBE SCHOOL

Students have a more positive attitude and their understanding is more concrete. There's a consistent approach from teachers too."

CONNOR STEWART
MASTERY LEAD
CLACTON COASTAL ACADEMY

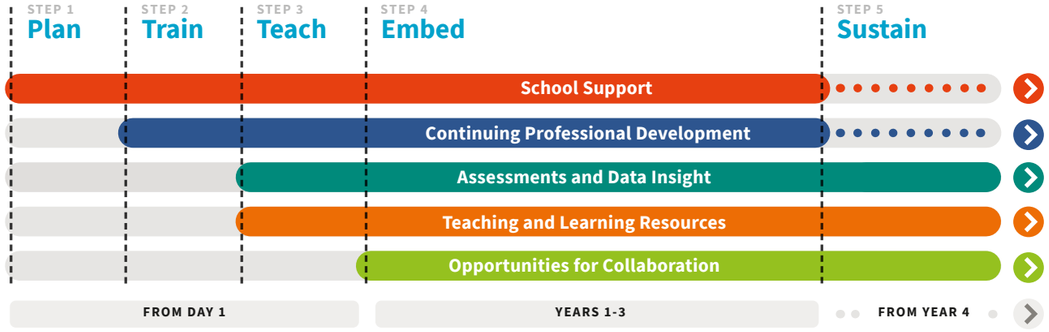


Framework for success

The 2021 EEF School Planning Guide** highlighted that 'the best available evidence indicates that **great teaching** is the **most important lever** schools have to **improve outcomes** for their pupils.'

To achieve powerful teaching that changes lives, teachers have told us they need to have strong subject knowledge, the best evidence-based pedagogies, rigorous assessment and effective planning, all working together.

Our Subject Excellence Programmes follow the AC+ 5-Step Improvement Process, which is based on over a decade's experience of transforming results in one of the most respected MATs and hundreds of schools nationwide. Improvement is a journey – that's why you will have a dedicated subject expert to guide you step by step, helping you achieve and sustain excellence.



STEP 1
Plan

You will receive a structured **diagnostic call** and your AC+ subject expert will help you to prepare an improvement plan to identify areas of focus to achieve the greatest impact with all your teachers.

OUTCOMES
SLT confidence | Clear plan agreed

STEP 2
Train

Your subject leads and teachers will receive face-to-face **induction training** and cutting-edge **online training**, getting everyone engaged and immediately building confidence.

OUTCOMES
Teacher confidence

STEP 3
Teach

Curriculum-integrated **subject-specific CPD**, **planning and teaching resources**, **assessments** and precise **diagnostic data** supports your teachers to repurpose their time into higher value activities. The best practice resources strengthen the quality of teaching and provide consistency across your school.

OUTCOMES
Consistency | Repurposed time | Ambitious curriculum

STEP 4
Embed

Once the foundations are set, we work with you to attain excellence in subject teaching. We provide **in-school leadership and teacher coaching** and offer support through **school visits**, **joint learning walks** and an **intensive programme leadership course**. Teachers access a **programme of subject pedagogy** and **on-demand videos**. This approach ensures outstanding subject teaching in your school.

OUTCOMES
Pupil progress | Pedagogical expertise

STEP 5
Sustain

Longer term, we collaborate to build sustained impact. **Induction** and **CPD** support new staff. Regular **teaching resources** and **CPD** updates keep your offerings current and informed. **Benchmarked assessments** provide ongoing confidence. You'll remain part of a **network** of similar schools, staying up-to-date on new research. Together, we'll annually evaluate programme success, maintaining maximum impact for your pupils.

OUTCOMES
Consistency | Pedagogical expertise | Pupil progress

** *Access the 2021 EEF School Planning Guide: https://educationendowmentfoundation.org.uk/news/introducing-eef-school-planning-guide-2020-21*

A fully integrated programme

All the components of Science Mastery Secondary work together to ensure your school, staff and students get real impact from the evidence-led subject excellence programme.



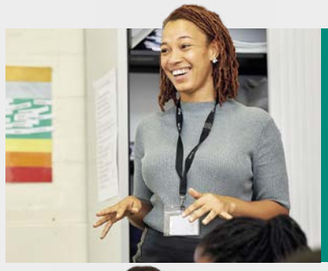
SCHOOL SUPPORT

From day one, your dedicated subject expert collaborates with teachers to create a tailored improvement plan for your school. They'll then support you to success through the five steps over multiple years.



CONTINUING PROFESSIONAL DEVELOPMENT

Teachers and leaders get immediately actionable CPD at point of need. It supports subject knowledge, pedagogic delivery, curriculum design and more. Flexibility is key, with online or in-person sessions.



ASSESSMENTS AND DATA INSIGHT

Formative assessments for data-led instruction are available in each lesson, unit, term and year. Standardised assessments, directly linked to the curriculum, identify pupil learning gaps for targeted intervention.



TEACHING AND LEARNING RESOURCES

Curriculum-integrated planning tools and resources ensure successful programme delivery. From day one, you access carefully sequenced support for consistent, impactful, engaging lessons, built on best-practice pedagogies.



OPPORTUNITIES FOR COLLABORATION

You join a subject teaching network, fostering the exchange of best practices. Teachers and leaders connect at in-person CPD events, including induction, creating a community of practice.

Dedicated school support

From day one, you'll have a dedicated Science Mastery Secondary subject expert from our team of educators. They each have a background in, or currently teach, secondary science. They'll collaborate with your leaders and teachers to create a tailored improvement plan for your school. Then they'll help to **introduce**, **embed** and **sustain** the programme over multiple years, ensuring a lasting positive impact on your students.

M360 diagnostic call

After a thorough review, a diagnostic call with your subject expert helps to identify key focus areas for maximum impact. You'll build an improvement plan to achieve these goals consistently with all teachers.

School visits

Your subject expert will regularly visit your school for joint learning walks with the Mastery Lead, to observe programme delivery. You can also involve them in co-planning or they can run customised CPD workshops.

Online development sessions

Our regular one-to-one sessions offer coaching and mentoring for your Mastery Lead. These are carefully designed to work for each stage of your implementation journey.

Support for you

Get in touch with your subject expert by phone or email, whenever you need advice or have questions. No query is too small and no problem too big. We are here to help!

Meet some of our team on page 22



100%

of Mastery Leads agree that their AC+ subject expert has helped them **embed the programme effectively**

Actionable CPD
at point of need

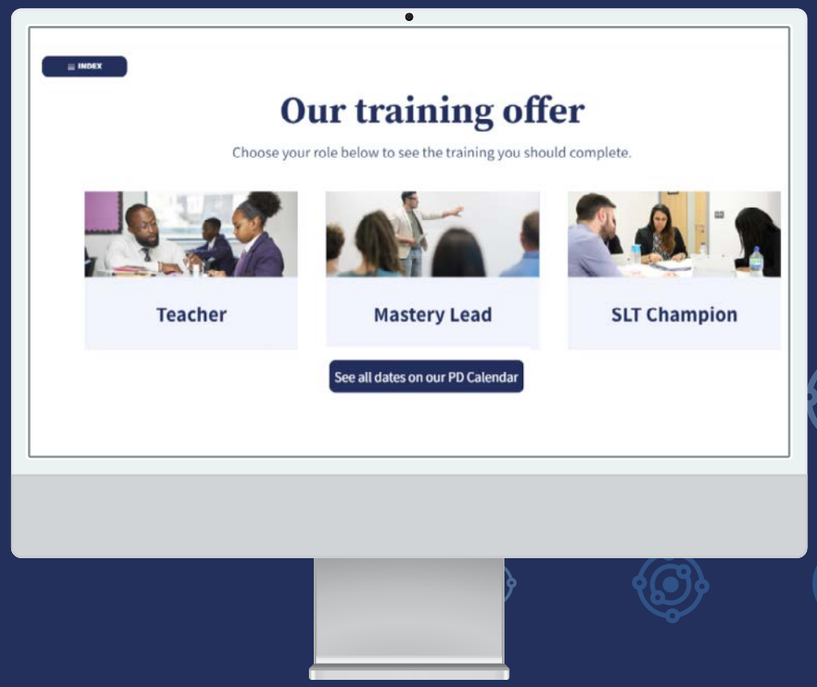
CPD that is relevant and immediately actionable

Science Mastery Secondary provides targeted continuing professional development that's **immediately actionable**, covering subject knowledge, pedagogy, curriculum design, assessment and more. It's **flexible** – accessible online just when you need it or through inspiring and practical in-person sessions that foster a **community of practice**.

> *"The leading quality co-planning training session was excellent. It enabled me time to reflect on the importance of quality co-planning and included some useful ideas of activities to include to really drive co-planning forward to help the whole team to learn from each other and improve lessons for our students."*

HELEN CARRINGTON
HEAD OF KS3 SCIENCE

ARK ALEXANDRA ACADEMY



Induction training

Everyone joining the programme takes part in **induction training**. New schools have **four in-person places**, and **everyone can attend online**. It's a wonderful way to get your team excited and prepared for their journey on the programme and to set them up for success. Plus, all modules are available on-demand (in our bespoke MyMastery platform) to revisit when required.

'Teaching Mastery' badging



Teachers enjoy online **CPD that builds subject and pedagogical expertise**. For each completed module they gain a badge – a great way to evidence their professional development as steps towards further qualifications like NPQs.

Termly 'Preparing to Teach' webinars

Strengthening teachers' **topic-specific subject knowledge** for the upcoming term, our webinars support teachers in effective programme delivery. Breakouts focus on common challenges within similar year groups. It's a chance to share good practice and collaborate with other partner schools.

Leadership certification



Your Mastery Lead receives online CPD and ongoing mentoring from their subject expert. They will earn the ***Ark Curriculum Plus Certificate in Programme Leadership***, providing recognition for both them and your school.

In-school visits

Your subject expert can deliver some of the above CPD sessions during one of their visits, providing more **bespoke training** to meet your school's needs.

> *"Science Mastery training is in my opinion the best training I get from anywhere. I always come out of it bursting with ideas and often extremely excited to try new things."*

LIYANA WARBURTON
KS5 CHEMISTRY LEAD

KING SOLOMON ACADEMY

Assessment to inform teaching

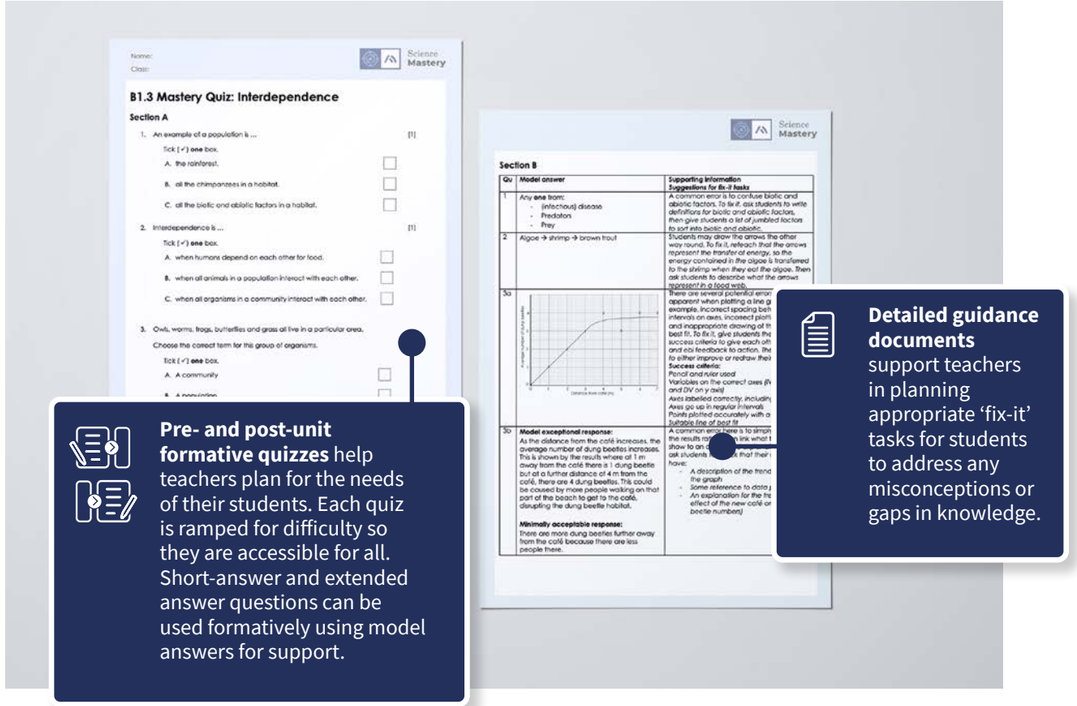
Science Mastery Secondary includes formative assessments within lessons, units and at the end of term, along with curriculum-linked standardised assessments. They help pinpoint student learning gaps and guide effective interventions.

Formative assessments

We provide a fully planned and integrated formative assessment model that complements and advances the skills students develop during their Science Mastery lessons.

THIS INCLUDES:

- **Pre-unit quizzes** to gauge student readiness for the upcoming unit
- An **Exit Ticket** to check learning at the end of each lesson
- Quick and easy **Checks for understanding** within the lesson
- **Exampro add-on subscription** available including all our diagnostic questions, a KS3 test bank mapped to Science Mastery units and the option to create bespoke quizzes mapped to our content.
- A diagnostic **Mastery Quiz** at the end of each unit



Standardised assessments

Science Mastery Secondary presents a picture of your school's progress compared to national data samples, providing reassurance and a clear view on how and what to improve. You can also analyse by student, class and cohort.

Summative assessments on Smartgrade (our partner platform, included when you join) are standardised yearly and provide a large, nationally representative data sample. Students can take termly diagnostic assessments on the platform for easy formative analysis.

UNIQUELY, THE PROGRAMME PROVIDES:

- Comparison to current attainment data rather than historic – crucial for identifying gaps.
- A large, nationally representative data sample from all our partner schools.
- School benchmarking to identify areas of strength and development.
- Targeted reteach planning and support to guide improvement.



Best-practice teaching and learning resources

We provide all the resources so you can focus on your students!

The **best-practice planning tools and comprehensive lesson resources** provide everything your school needs to deliver the programme successfully. From day one, your staff will have access and support to deliver consistent, impactful, engaging and pedagogically strong science lessons. The learning is sequenced to support students' development of: **factual and conceptual understanding**; **mathematics**, **practical and enquiry skills**; **language and communication**; and their **application of knowledge and skills**.

THE TEACHING AND LEARNING RESOURCES:

- Build on solid, evidence-led pedagogical principles – the 'four key elements of great science education' (see p19) – which give you confidence that they will have the greatest positive impact on your students.
- Promote oracy in a flexible and fun way that works for your students, making scientific success accessible to everyone.
- Provide structure and support so that you own the curriculum, with unit-level guidance documents.
- Are created with early career teachers (ECTs), non-specialists and specialists in mind, giving the relevant level of guidance for each.
- Include adaptation examples and guidance to suit your students' and schools' needs.

WHAT'S INCLUDED?

Planning

Curriculum overview
Implementation guide
Unit overviews
Unit preparation booklets

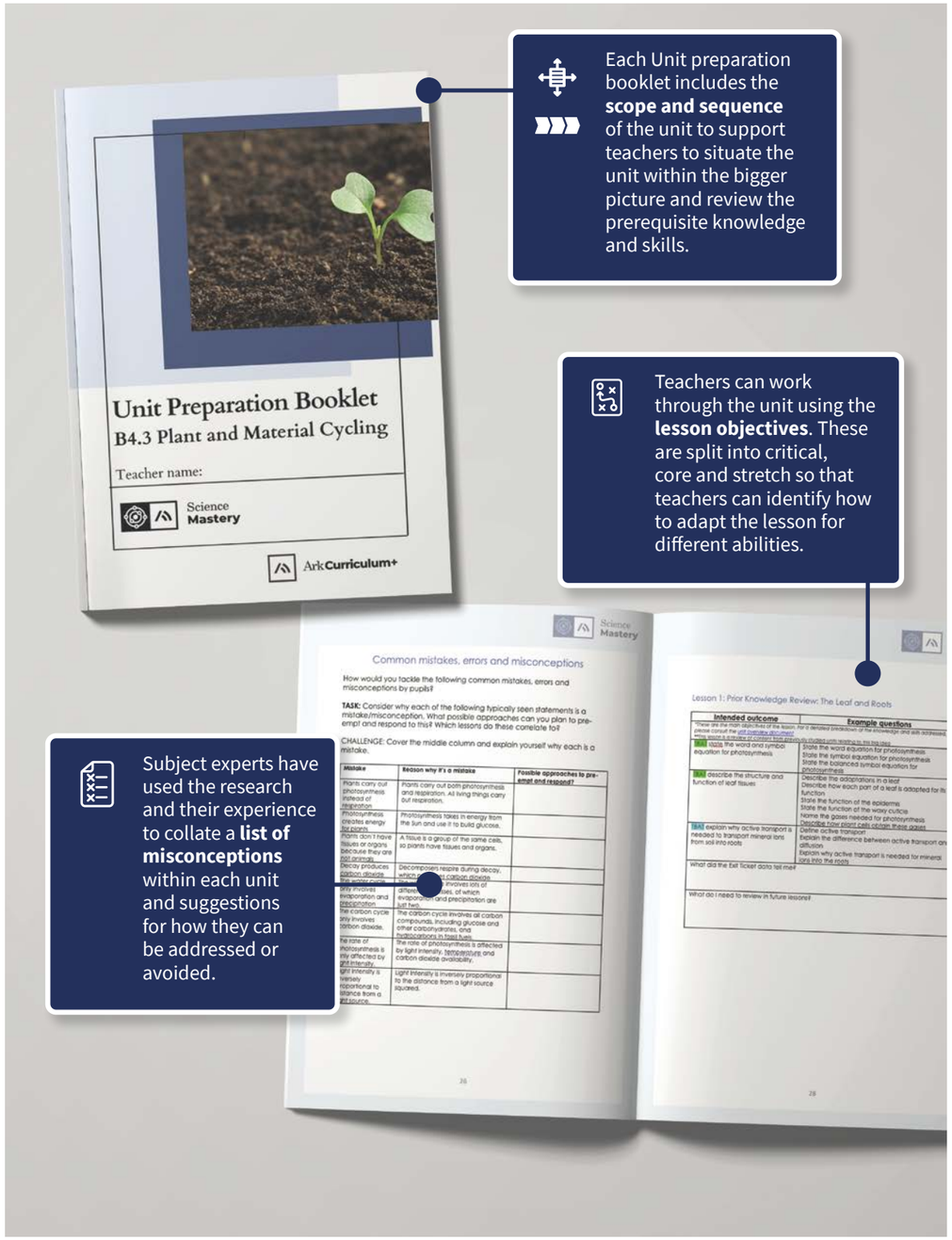
Teaching

Lesson slides
Practical guides
Student booklets
Student worksheets
Knowledge organisers
Student glossaries
Exam question activities

Click here to access a free **Programme Preview** and see examples of these resources.

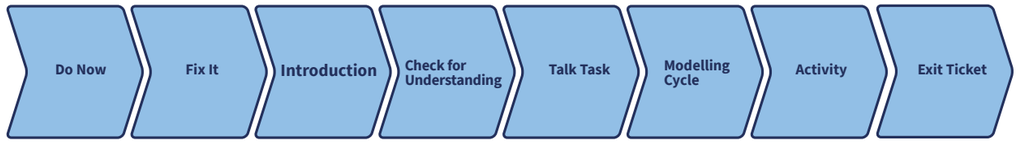
Unit preparation booklet

These are available for each unit and provide everything teachers need in order to think through lesson planning. The unit preparation booklet encourages science teachers to work collaboratively with a colleague or in a group so that **planning time can be spent on high impact preparation** and adapting for students' individual needs.



Lesson resources

The Science Mastery lesson structure is unique and allows teachers to take control of the learning, based on what is happening in the classroom that day. Assessment for learning opportunities are threaded throughout, constantly building upon what students are learning at every stage in the lesson.



Fully editable slide decks are provided for each lesson, including notes and guidance to support teaching and ownership. Our pedagogical principles, the four elements of science (see p19), are embedded in each lesson, building accessible best practice. Scientific literacy is elevated through explicit vocabulary instruction and a Talk Task in every lesson, helping students develop the skills to read scientific texts and to write and speak like scientists.



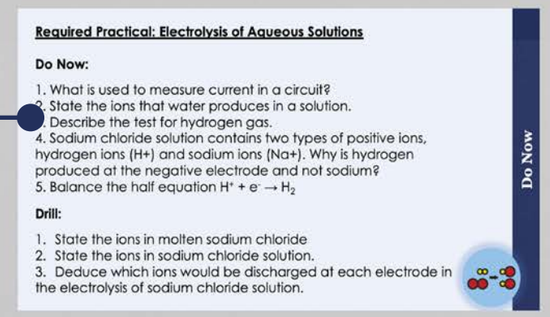
"The content is there and it's perfectly arranged…the slides flow really nicely; it's made a huge difference to my time, I'm not working as much on slides during the holidays!"

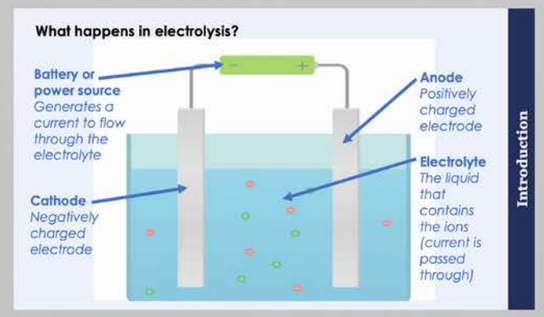
JANINE SACKS
SCIENCE TEACHER
ARK KINGS ACADEMY

"Using the Science Mastery resources has meant I've been able to use more of my time marking Exit Tickets and marking work and therefore thinking specifically about adapting the resources to my classes rather than teaching from scratch."

ASSISTANT PRINCIPAL
KING SOLOMON ACADEMY

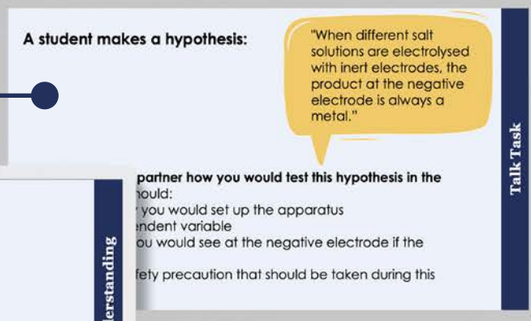
A choice of ***Do Now*** activities are provided for teachers to choose from, using retrieval practice, testing of relevant skills or a reading and comprehension task.

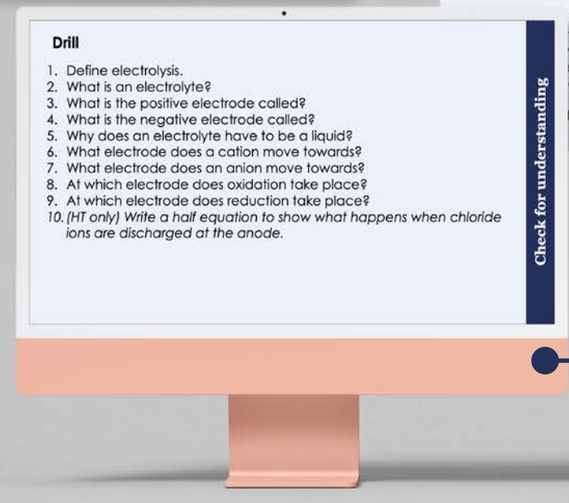




The ***Introduction*** section is chunked to be mindful of cognitive load, with diagrams and images to support teachers with dual coding. Suggested scripts written by experienced teachers are provided underneath to provide ongoing subject knowledge and pedagogical development.

Each lesson contains a ***Talk Task*** based around a common misconception or mistake, with suggested answers and different ways to deliver.

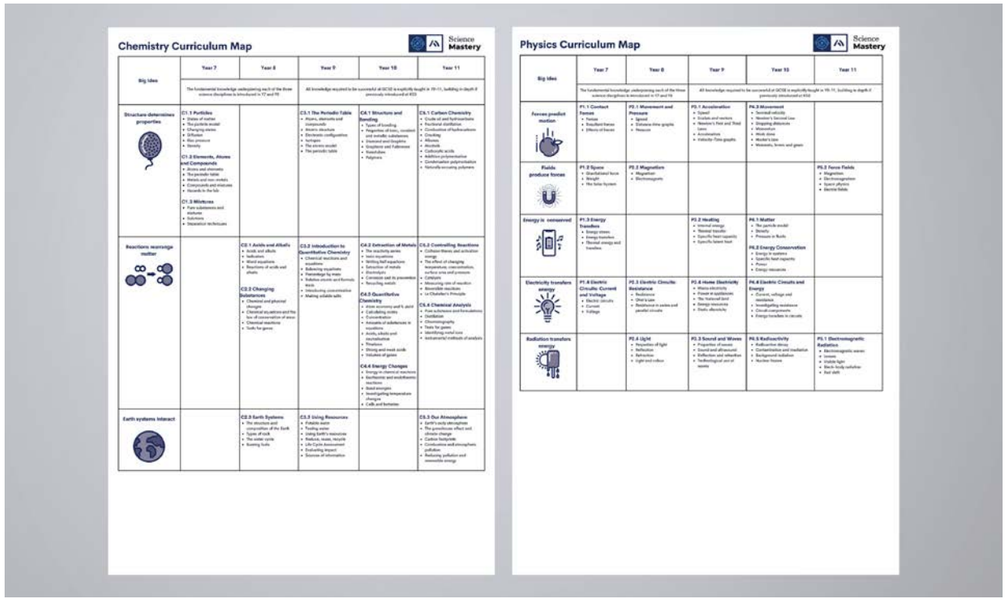




Following the *Introduction* and *Talk Task* is a ***Check for understanding*** activity, which is a low-stakes formative assessment to allow teachers to review class understanding. Reviewing the new knowledge ensures students are able to progress to the independent section of the lesson.

A Carefully Sequenced Curriculum

The Science Mastery curriculum has been carefully sequenced using the "Big Ideas of Science" framework. This supports the development of students' knowledge over time in a systematic way, so that students understand science as a way of understanding the world, rather than as a list of facts to learn. Teachers using the programme tell us that this supports them to plan for lessons as it's clear what students already know and where the topic fits into the bigger picture.





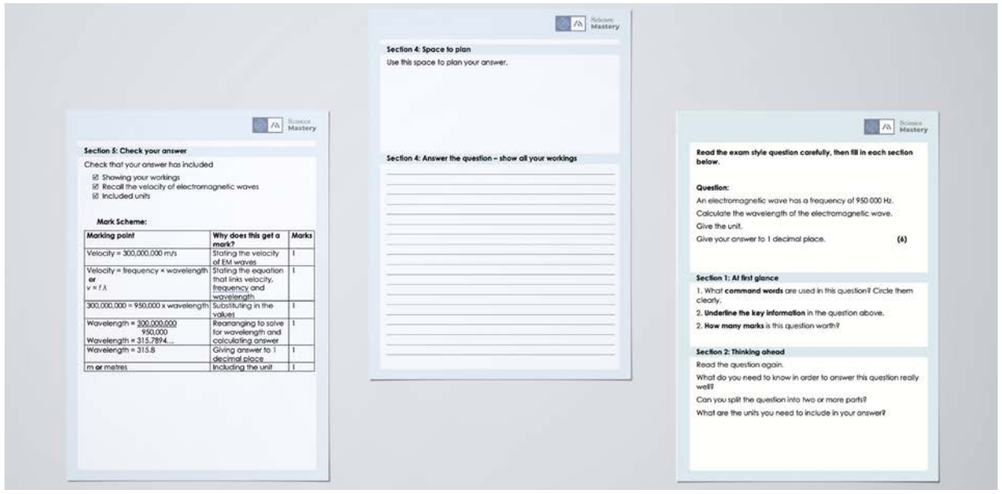
Structured worksheets for Key Stage 4

Every KS4 lesson contains a worksheet with a consistent structure of exam-style questions to **enable students to apply the new learning**. Worksheets are **scaffolded** with low demand questions building to more demanding and **commonly assessed application questions**. Teachers can select questions from the worksheet that are most appropriate for their students. The final part of each worksheet also includes an application to a different context and supports students to **make links between the sciences**.



Exam question activities

Each KS4 unit also has a range of exam question activities, where students are exposed to exam style mark schemes to help develop their exam technique. These address the most commonly assessed areas, with actual student responses included to compare with their own and familiarise them with the demands of mark schemes.



Be inspired
by like-minded schools

Building a community of practice

Partner schools join a subject teaching network, sharing best practice and learning from each other. Attend CPD events, including in-person induction training and our annual conference, to collaborate with and be inspired by your peers. Your subject expert may connect you with local or similar context schools, helping you gain insights on delivery or simply see Science Mastery Secondary in action in other settings.

Annual conference

We host an exclusive annual conference to facilitate sharing and learning between our partner schools and offer access to new research and thinking.

With exciting keynote speakers and practical workshops, you leave feeling **reinvigorated, re-energised and ready to continue making a real difference** to your pupils' achievement and progress.



"It was nice to share good practice with other professionals from different subject specialisms about tricky practicals."

TEACHER OF SCIENCE MASTERY CONFERENCE ATTENDEE 2023

100%

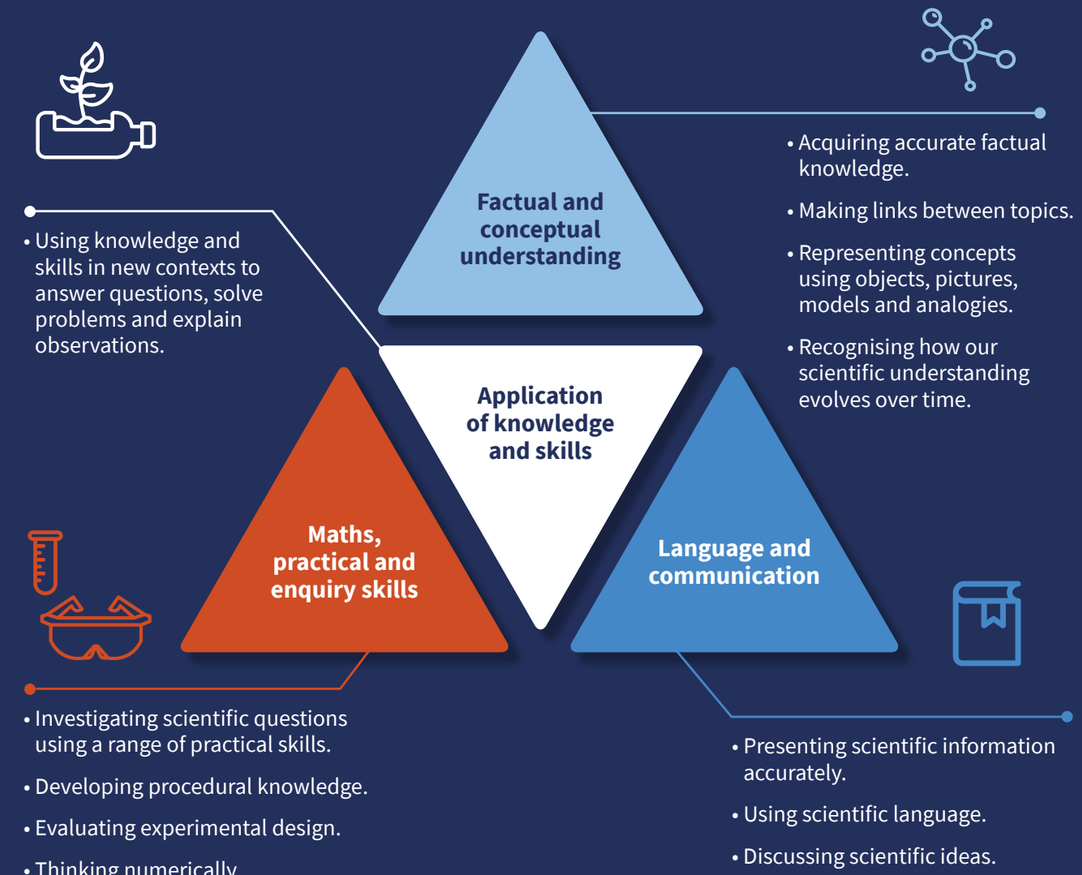
of respondents agreed that they'd **benefitted** from attending the conference

What is Mastery in Science?

The Science Mastery Secondary curriculum is organised around the four key elements of great science education.

Together they enable **all students** to build a deep understanding of science. That's why these pedagogical principles are embedded throughout our subject excellence programme, in our school support, CPD, assessment, planning and teaching resources.

SCIENCE MASTERY TRANSFORMS SCIENCE TEACHING AND LEARNING BY FOCUSING ON THE FOUR KEY ELEMENTS OF GREAT SCIENCE EDUCATION:



Standing out from the crowd

The impact of our programmes is clear, but in case you need even more reasons to choose AC+...



Collaboratively designed and refined in classrooms

Grown in collaboration with Ark Schools, one of the highest achieving MATs in the UK, we continually learn and co-create together. Plus, we test what really works live in the classroom, making improvements that will have the biggest positive impact.

Our programmes support disadvantaged students – Ark Schools pupils make nearly half a grade more progress than their peers nationally. We're here to help give all students the opportunities that an excellent education provides.

Recognised as an educational leader

We're proud to be recognised as a leader in subject improvement. We work with the Education Endowment Foundation, The Brilliant Club and the Fischer Family Foundation, whose research provides robust evidence of our impact. We collaborate with the subject associations, along with universities including Cambridge and UCL.

Accountable to you and your pupils

We are a non-profit organisation. Our full attention is on supporting our partner schools and making our already impressive programmes the best they can be. We're particularly passionate about helping disadvantaged children and we aim to level the playing field, so that every young person can succeed.

The schools that we work with are charged a financial contribution which goes right back into delivering and developing the programmes. We're not accountable to shareholders, we're accountable to you!

Aligned to Ofsted to support your quality of education

The Education Inspection Framework looks for consistency between the intent of schools' curricula and the ways schools empower their team to realise these plans. We have supported many schools to be expertly prepared for an Ofsted visit by:

- Providing a powerfully sequenced, academically ambitious curriculum for all.
- Equipping subject leads with the confidence to articulate their curriculum intent, implementation and impact.
- Delivering immediately actionable teacher CPD at the point of need, supporting subject knowledge, pedagogic delivery, curriculum design and more.

Our expert team

We are all teachers with experience leading Science departments and working in school leadership roles. We love working with Science Mastery Secondary schools because we truly believe in the power of evidence to inform practice and to narrow the attainment gap. We are members of the Chartered College for Teaching and the Association for Science Education – meaning we engage with the latest research and the subject community directly.



Jessica Wood



Rosie Lloyd



Georgie Pick



George Jack



Hannah Thomson

> *Absolutely excellent.. Fantastic support and CPD from the Ark team."*

JOSEPH MCMILLAN
MIDDLE LEADER
EAST BERGHOLT HIGH SCHOOL

It's easy to join us

Let us know you're interested by email, phone or by booking a meeting.

We'll have a **virtual meeting or a call** with you to learn more about your school.

Agree you're joining the Science Mastery programme with your senior leadership and sign a contract.

Get set up with Smartgrade and have a **diagnostic call** to agree the plan for your school's implementation.

Attend induction training and receive full support to introduce the programme in your school.

GET IN TOUCH

Speak to a member of our team about **partnering with AC+** today.

partnerships@arkcurriculumplus.org.uk

020 3116 6363

Or book a call online at a time that suits you: calendly.com/ark-curriculum-plus

OUR OTHER SUBJECT EXCELLENCE PROGRAMMES

PRIMARY

- English Mastery
- Geography Mastery
- History Mastery
- Mathematics Mastery
- Science Mastery

SECONDARY

- English Mastery
- Geography Mastery
- Mathematics Mastery

We look forward to partnering with you!

We work with schools like yours nationwide to deliver immediate impact and sustained subject excellence.

So if you're looking for stronger student outcomes, more confident teachers and consistently high-quality teaching and learning across your school… Relax. With Ark Curriculum Plus, you're in safe hands.

Start your journey to subject excellence today!

Click here to access our **Programme Preview** and see more detail of what you get on the programme.

Ark Curriculum Plus

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