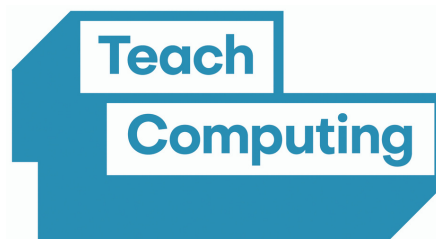


Birmingham and Central Midlands Computing Hub



National Centre for Computing Education

The NCCE offer provides the essential toolkit for secondary computing teachers. There are a range of opportunities available where you will grow in confidence, transform your teaching and bring your lessons to life.



National Centre for Computing Education

How can we support computing within your school?

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National Centre for Computing Education

The National Centre for Computing Education is funded by the Department for Education and marks a significant investment in improving the provision of computing education in England.

Run by a consortium made up of STEM Learning, the Raspberry Pi Foundation and BCS, The Chartered Institute for IT, their vision is to achieve a world-leading computing education for every child in England.

The offer includes the provision of high-quality support for the teaching of computing in schools and colleges, from Key Stage 1 through to A level. An extensive range of training, resources and support is available and covers elements of the computing curriculum at every Key Stage, catering for all levels of subject knowledge and experience.

We offer teachers:

- Courses and accreditation
- Bursaries for training
- Free curriculum teaching resources
- Community support and more



National Centre for Computing Education

Subject Matter Experts SME Support



We offer fully-funded consultancy and guidance to schools and colleges who meet our **eligibility criteria**. This is provided by a network of computing education specialists, called Subject Matter Experts. Our experts work with leaders and teachers to identify an action plan for improving or delivering computing and computer science in their school or college.

An additional £1400 bursary is also available for schools or colleges who are not currently offering GCSE computer science or are considering dropping the subject.



National Centre for Computing Education

Subject Matter Experts SME Support

How can a Subject Matter Expert (SME) help my school?

Schools and colleges that meet one of the following criteria will be eligible for support. If you don't think you qualify but would like support, please feel free to contact the Birmingham and Central Midlands Computing Hub team and we will be able to help.

1. All secondary schools that are located in **Local Authority Districts 5 and 6** are entitled to a minimum half a day of support.
2. Schools and colleges that don't offer GCSE computer science receive **2.5 days of support** from an SME and are eligible for the £1400 bursary.
3. Schools or colleges at risk of dropping GCSE computer science will receive **1 day SME support** and will be eligible for the £1400 bursary.
4. Schools that are recent adopters of GCSE computer science are given one day of SME support to use the action plan as a health check but this action plan will not lead to the £1,400 bursary. A school that is a recent adopter is one which has a cohort of GCSE computer science in Year 10 and/or Year 11 but have not yet entered an exam series.

Which schools are deemed as 'at risk' of dropping computer science?

Schools and colleges that are deemed at risk are those where senior leaders are considering not offering GCSE computer science the following academic year, due to one or more of the following criteria:

- Results have been consistently below expectations (either when compared nationally or compared to other subjects in the school)
- Subject knowledge, pedagogy or confidence in teaching computer science is not strong as identified by Ofsted or internal/external monitoring
- Change in staffing has reduced the capacity to deliver computer science
- Student demand for computer science is low



National Centre for Computing Education

School to school support

Further support

If your school does not satisfy the **eligibility requirements** for SME support, we can still support you! Schools within Local Authority District 1-4 can still receive support from their local Computing Hub. There will be no charge for these support sessions that we offer.

Tailored support

We can provide your school with tailored support. This can occur through coaching/mentoring of one or two teachers up to whole school or MAT level. This is usually done through **needs analysis** to help inform a programme of development or through face-to-face CPD delivered to a department, school, cluster or alliance.

Additional CPD and engagement activities

We want to support your school's computing needs, whatever they may be! Let us know if you have any specific bespoke requests or ideas and we will do our best to develop them with you. There is a range of opportunities available for schools. When working closely with your school, we will encourage you to attend community events and network meetings. These events will also be in collaboration with the CAS outreach team.

The CAS outreach team

The CAS community of teachers, academics and industry supporters provides access to a range of high quality continuing professional development (CPD) opportunities that are available to all teachers locally, regionally and nationally. The CAS community is open to everyone who cares about computing education, including teachers, academics, developers, IT professionals, members of professional societies, school leaders, and parents all volunteering.

Our collaborative focus

- Driving demand for NCCE offer focusing on local areas - developing a bespoke approach to meet local needs and stimulate demand in areas of low take-up
- Providing peer-to-peer support
- Engage employers to enrich local Computing education offer
- Collaborate on CPD gap tasks
- Share and disseminate quality content



National Centre for Computing Education

School to school support Further support

Bespoke support - Short session

These short support sessions lasting no more than 2 hours will set out clear outcomes. Information will be shared with participants (SLT/Teachers) to help enhance the computing curriculum within schools.

Needs analysis

We want to engage with schools located within LAD 1-4. We can arrange a conversation/consultation convenient for you, we will then use the 'needs analysis' tool to determine what elements of the NCCE offer would best suit you! Between you and the consultant, a mini plan of potential actions will be created essentially outlining the offer that matches your schools' specific needs.

Follow up training session

This session will be a collaborative short session to follow up on recent CPD activities and implementation into the classroom. The focus will be on the CPD experiences and the associated benefits for your school. These session(s) can be designed to cater to you and your staff.

School to school support

CPD will be available for your school to attend in order to meet specific needs. There will also be opportunity for school(s) to attend bespoke CPD based upon a regional needs analysis approach.

Second subject for non-specialist teachers

Webinars outlining the benefits of offering a second subject, the relevance of computing and how to engage with the CSA programme. The focus of this webinar is to engage participants with the idea of being able to offer a second subject and the CSA programme.



National Centre for Computing Education

CAS Communities at School Computing at School

CAS is a grass-roots community of people, passionate about Computing and working together to support teachers and ensure that every child has a world-leading computing education.

A CAS Local Community is a meeting of teachers and lecturers who wish to share their ideas for developing the teaching of computing in their schools, classrooms and community. It is a meeting of like-minded professionals with the general objective of supporting each other and the specific aim of improving the teaching of computing.

The primary aim of Computing At School (CAS) is to promote and develop the teaching of computing in schools by supporting teachers. One way to achieve this is to provide teachers with a local forum to share ideas and mutual interests. CAS Community meetings are for teachers, run by teachers.

Furthermore, CAS derives much benefit from drawing in members from Universities and industry as well as schools. The CAS Community provides a unique opportunity to meet colleagues from local higher education institutions and local employers.



**FIND OUT WHERE YOUR
LOCAL CAS
COMMUNITY IS!**



National Centre for Computing Education

Isaac Computer Science A Level Computer Science Learning

Isaac computer Science is a free online platform, funded by the Department of Education, for both students and teachers to use in the classroom, for homework and revision. Isaac Computer science aims to provide complete coverage of AQA and OCR specifications as well as high-quality materials written by experience teachers. To further support you, Isaac computer science run free teacher CPD events at universities and school hubs around England.

What can I gain from Isaac Computer Science?

- Time-saving resources that are high quality and written by experienced teachers
- Full coverage of the AQA and OCR specifications for computer science
- Sets of self-marking questions
- Printed workbooks to accompany your students' online learning
- CPD training for teachers
- Live online workshops for students
- A rewards programme: giving students the chance to win a Raspberry Pi 4 kit (with 1000 kits available to win every year)



[MORE INFORMATION](#)



National Centre for Computing Education

CSA Programme Computer Science Accelerator programme

Computer Science Accelerator programme is a flexible professional development programme designed to give you the subject knowledge and confidence to teach GCSE computer science. The programme is suitable for current or aspiring teachers of GCSE computer science, and offers support to teachers from all backgrounds. More information can be found within the

[CSA brochure.](#)

1. Enrol with the **click of a button**
2. Complete a questionnaire to assess your subject knowledge
3. Participate in a mix of courses to suit your experience
4. Pass a short test to receive your qualification

Benefits of the programme

- Gain the subject knowledge required to teach the GCSE curriculum with confidence and drive attainment in your school
- Access a network of on & offline support to guide you through your professional development journey. CS Champions will support you on your journey.
- Obtain a professionally-recognised training certificate, awarded by BCS, The Chartered Institute for IT
- Map your professional development to the **GCSE computer science specifications (September 2020)** from AQA, OCR, and Pearson Edexcel.

"CSA programme had a massive effect on my journey from Physics teacher to Head of Computer Science"

Teacher who previously taught Physics is now HOD.



"Completing the CSA programme has honestly changed my career. It has given me the confidence to do so many new things"

Teacher secured permanent teaching position after the programme.



"As a result of the programme, I am now a computer science teacher"

Teacher who moved from teaching Design and Technology to Computer Science



National Centre for Computing Education

CSA Programme

Funding your programme

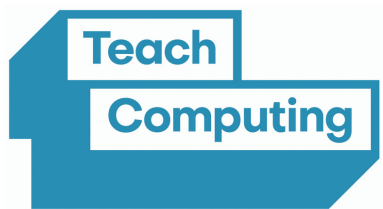
The programme is free to teachers working in state-funded education across all phases and all subjects, including trainee teachers, supply teachers, and teachers returning to the state sector. **Bursaries are available** for schools who are state-funded.

If you work in state-funded secondary education, you can get up to **£1,800 in bursary funding**, paid to your school or college, to support you to participate in professional development. This includes £300 of funding specifically for your classroom practice, which is available once you've completed two courses (one must be face-to-face or remote). If you're a trainee teacher, you will be eligible for **£920 bursary** funding on successful completion of the programme, paid to your school or college once you gain employment in state-funded education. This can be claimed within one academic year of gaining qualified teacher status.

Bursary allocation for state-funded education	Payment to School or College
Attend face-to-face or remote course (starting at or before 2:30pm)	£220 per course (up to £880)
Complete two courses (one to be remote or face-to-face)	£300 for classroom practice
Complete the programme and pass final test	£620
Total maximum bursary available	£1800

**FOR MORE
INFORMATION**





National Centre for Computing Education

CSA Programme Support and Certification

CS Champion Support

As part of the CS Accelerator Programme, additional support and mentoring is available through CS Champions, who can provide guidance throughout the programme, and advise on next steps following its completion. Participants will be supported throughout their journey with one-to-one support.

Tracking your progress

Throughout your learning programme, you can track your progress and access a range of useful resources from your personal dashboard on the website. You can also gain or share expertise through our wider network of Computing Hubs or Computing At School (CAS) communities.

Certification

On successful completion of the programme, you will receive a certificate in GCSE computer science subject knowledge, awarded by BCS. As well as demonstrating a national benchmark of competence, if you work in state secondary education you will now be able to participate in any of our professional development courses for free, providing plenty of scope to continue your learning journey with us.

FOR MORE
INFORMATION



Getting started on the Computer Science Accelerator Programme is easy

1



enrol on the programme at teachcomputing.org/cs-accelerator

2



identify your development needs and explore our learning pathways

3



participate in professional development that's right for you

4



complete your learning programme with a short test

5



receive your certificate upon successful completion of the programme

Any questions?

If you still have questions about any aspect of the Computer Science Accelerator programme, please send them to info@teachcomputing.org and we will be in touch to help!

WeAreComputing @WeAreComputing

**National
Centre for
Computing
Education**

National Centre for Computing Education

STEM Ambassadors STEM Ambassador Hub

STEM Ambassador Hubs offer a range of support, opportunities and local expertise. They develop links between groups and individuals working to enhance young people's STEM education. Whether you are a teacher, group leader, STEM Ambassador or employer, your local STEM Ambassador Hub is available to support you with anything related to the STEM Ambassador programme.

STEM Ambassadors support schools and colleges

- Supporting learning: help young people to understand the real world applications of their learning
- Illuminating careers: showcase different roles and pathways into industry, raising awareness of important skills in the workplace.
- Raising aspirations: help young people meet a wide range of inspiring role models, encouraging them to think about their future.

This year, STEM Ambassadors have responded to the challenges that COVID-19 has presented by volunteering remotely through:

- **'Discover STEM'** videos, in which STEM Ambassadors cover curriculum related topics and talk about their career
- Careers support to achieve **Gatsby Benchmarks**
- Making 'activity offers' to teachers, outlining how they can volunteer
- Enrichment activities – from supporting STEM Clubs to mentoring projects



**FIND YOUR
LOCAL STEM HUB**



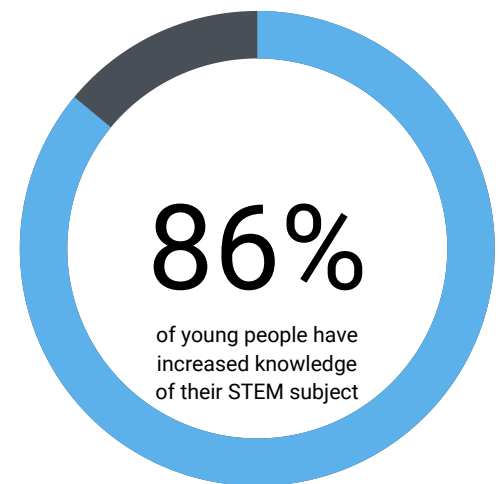
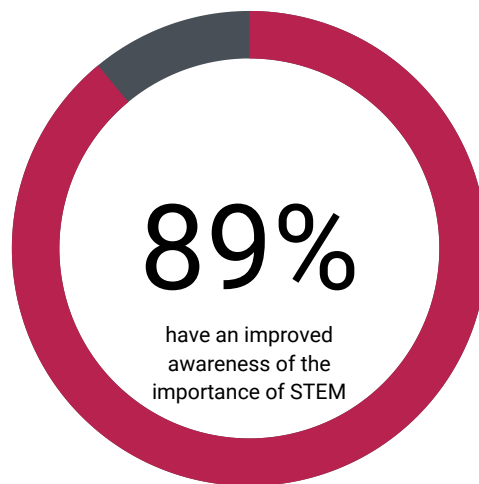
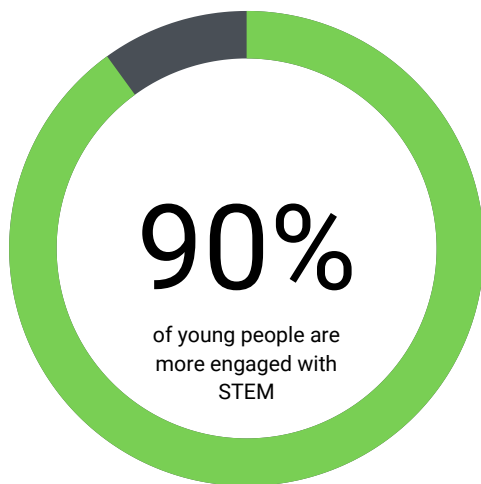
National Centre for Computing Education

STEM Ambassadors

Benefits of using STEM Ambassadors in your classroom

- 💡 Increased engagement in STEM
- 💡 Increased awareness on the importance of STEM
- 💡 Increased understanding of STEM subjects
- 💡 Increased understanding of why STEM subjects are important in the workplace
- 💡 Increased aspiration and knowledge of STEM careers

After working with STEM Ambassadors...



Research shows that inspiring STEM role models can boost students' 'Science Capital' and help them see a future for themselves in STEM. This data is all provided in the STEM Ambassador [Teachers Handbook](#). Take a look at their resources and ideas for ways to incorporate STEM within your school.



National Centre for Computing Education

Online courses and resources Teach Computing Curriculum

Improve progress and attainment at Key Stage 3 and 4 by developing your subject knowledge and classroom practice. People can access the **online resources on [teachcomputing.org](https://www.teachcomputing.org)** and further develop their knowledge and skills.

Access Teach Computing's free teaching resources.

The curriculum resources contain everything you need to teach computing at key stages 3 to 4, including lesson plans, slides, assessments and activities. All of the content is completely free to access, and has been created by subject experts, based on the latest pedagogical research and teacher feedback. It also provides an innovative progression framework where computing content (concepts, knowledge, skills, and objectives) has been organised into interconnected networks we call learning graphs.

You can get an overall view of progression using our **curriculum journey poster**, or download the individual **key stage 3** and/or **Key Stage 4** curriculum maps for more detail.

The Teach Computing curriculum is structured into units for each year group, and each unit is broken down into lessons. Units can generally be taught in any order, with the exception of programming units - where concepts and skills rely on prior knowledge and experiences - and year 7 - where "Collaborating online respectfully" should be taught first. Lessons must be taught in numerical order.

"The online courses let me go through the content at my own pace, while the face-to-face gave me more hands-on experience with practical programming, with concepts explained more in-depth"

MORE INFORMATION



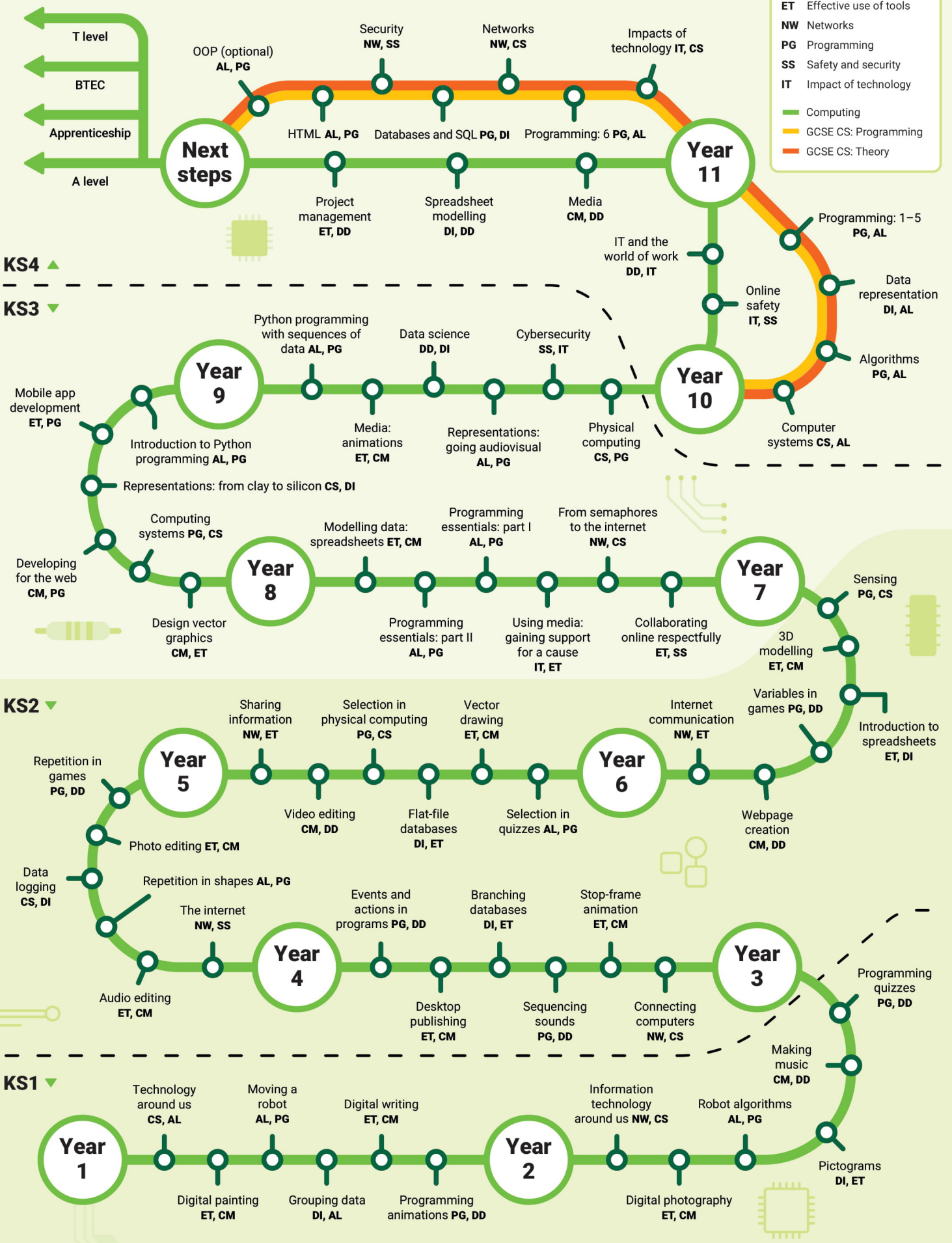


Teach Computing Curriculum Journey

Key

- AL Algorithms
- CS Computing systems
- CM Creating media
- DI Data and information
- DD Design and development
- ET Effective use of tools
- NW Networks
- PG Programming
- SS Safety and security
- IT Impact of technology

— Computing
— GCSE CS: Programming
— GCSE CS: Theory



National Centre for Computing Education

Professional Development

CPD for teachers

All secondary courses will take place remotely via **Adobe Connect**. These courses are FREE to all teachers in state-maintained schools. Bursaries are available for your school when participant(s) attend a course and if they sign up to the **Computer Science Accelerator programme**. We will be running the following courses throughout the Summer Term. For more information about these courses and how to book on, take a look at our **online booklet**.

Python Programming: Working With Data

As you progress beyond the basics of Python programming, this course will help you develop the level of programming skill required for GCSE computer science. You will go further through the fundamentals of programming, with lots of hands-on experience under the guidance of highly successful teachers of computer science.

Python Programming: Advanced Subject Knowledge, Implementation and Testing

During this course you'll develop your Python skills by exploring advanced programming techniques such as authentication, nested selection, data structures, sub-routines etc. whilst applying them into the implementation and testing stages of the software life cycle.

Representing Algorithms Using Flowcharts and Pseudocode

An understanding of algorithms is vital for success in GCSE computer science. Students need to know how algorithms are designed to solve a problem, and how these designs are represented to other humans.

Search and Sort Algorithms

An understanding of algorithms is fundamental to success in GCSE computer science. To reach their full potential, students of GCSE computer science need to be confident in using decomposition and abstraction to solve problems.



National Centre for Computing Education

Professional Development

CPD for teachers

Computer Systems: Input, Output and Storage

Computers take many forms, from the smart watch on your wrist to the powerful machines used to predict the weather. They all share some key features and GCSE computer science students need to have a solid understanding of what makes a computer.

Python Programming Constructs: Sequencing, Selection & Iteration

Take your first steps to becoming a competent teacher of Python programming; this CPD will develop your foundational knowledge around the Python language. Learn how to write code to input, process and output data, and how to manipulate data stored in variables. Using the building blocks of sequence, selection and iteration you'll begin to understand how programs are constructed to perform a multitude of simple and more complex tasks.

Python Programming: Analysis, Design and Evaluation

As you progress beyond the basics of Python programming, this course will help you develop an understanding how programs are developed using the software life cycle, specifically the analysis, design and evaluation of a working solution.

An Introduction to Algorithms, Programming and Data in GCSE Computer Science

Take your first steps towards teaching GCSE computer science and establish a foundational knowledge of concepts, terminology and classroom practice. Find out how algorithms are designed and how programs are written to provide clear instructions to machines. Learn about the binary system used by computers to store and process data, and how to convert to and from the familiar denary system of numbers zero to nine.



National Centre for Computing Education

Communication

Stay updated with Teach Computing

STEM Community

It's a safe, professional space for you to collaborate with fellow professionals to find solutions which unlock your potential. As members of the community, you can build a supportive network and explore ways to improve the quality of your teaching.

Social Media

Keep updated by following us on **Facebook** and **Twitter**

Newsletter

Sign up to the Birmingham & Central Midlands Computing Hub newsletter

CAS Communities

Join your local CAS community for network meetings and events! These forums allow teachers to share ideas and mutual interests. CAS Community meetings are for teachers, run by teachers.

If you have any questions or would like to request further information, please contact **Birmingham and Central Midlands Computing Hub team.**

Contact Details

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