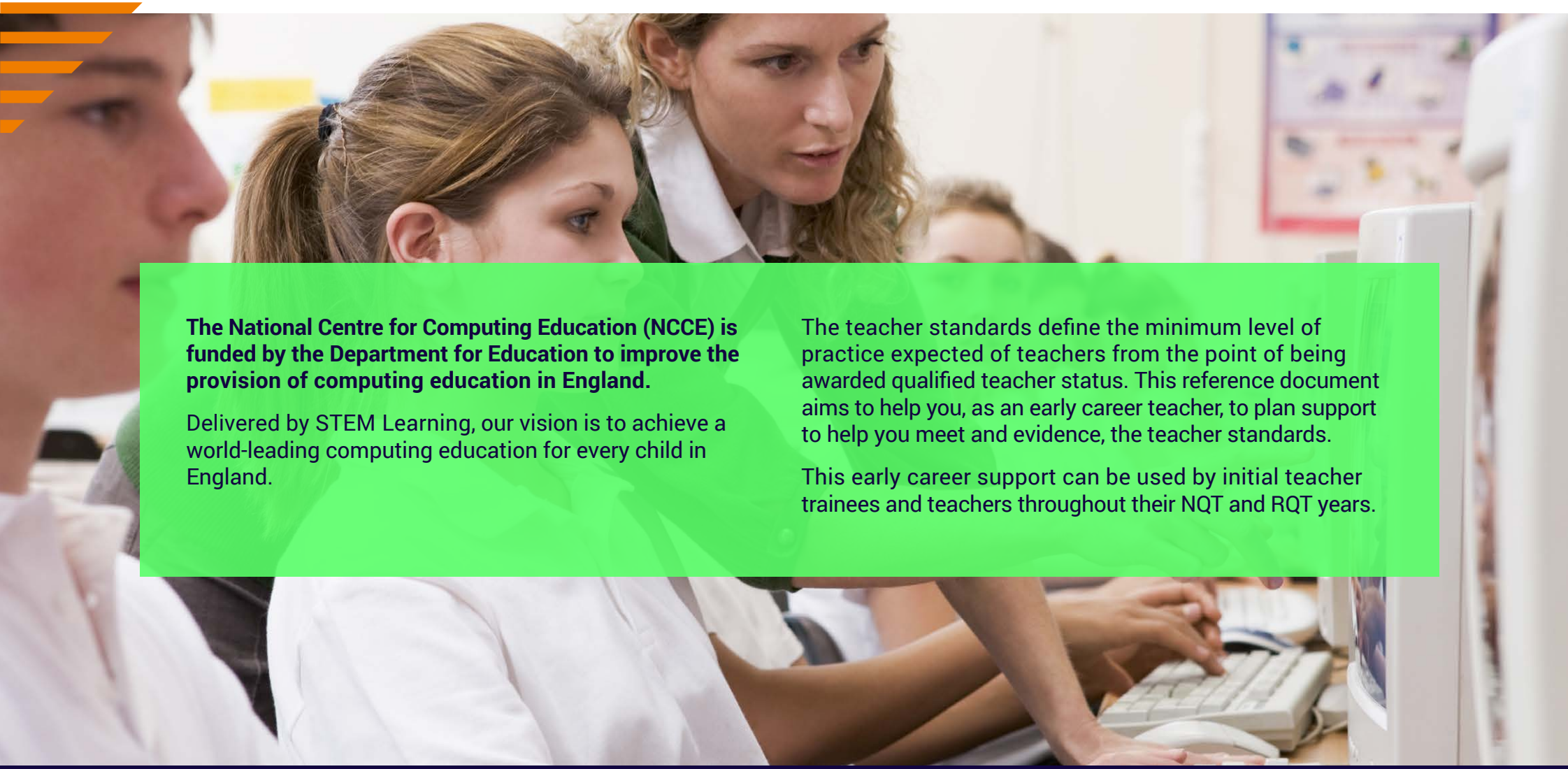
National Centre for Computing Education

Early career support for teachers of computing: meeting the teacher standards

teachcomputing.org

National Centre for Computing Education



The National Centre for Computing Education (NCCE) is funded by the Department for Education to improve the provision of computing education in England.

Delivered by STEM Learning, our vision is to achieve a world-leading computing education for every child in England.

The teacher standards define the minimum level of practice expected of teachers from the point of being awarded qualified teacher status. This reference document aims to help you, as an early career teacher, to plan support to help you meet and evidence, the teacher standards.

This early career support can be used by initial teacher trainees and teachers throughout their NQT and RQT years.

1 High expectations

Set high expectations which inspire, motivate and challenge pupils

National Centre for Computing Education

A teacher must:

- establish a safe and stimulating environment for pupils, rooted in mutual respect
- set goals that stretch and challenge pupils of all backgrounds, abilities and dispositions
- demonstrate consistently the positive attitudes, values and behaviour which are expected of pupils

How we can help:

Our extensive CPD library helps you calibrate your teaching to the right level, helping all students reach their potential in GCSE computer science.

The Teach Computing Curriculum includes learning graphs that help you plan teaching for mastery.

These courses, for primary and secondary teachers of computing, cover curriculum expectations and planning for progression for all pupils at all key stages.

Primary CPD:

- Introduction to primary computing – face to face
- Introduction to primary computing – remote

Secondary CPD:

- Teaching GCSE computer science: improving student engagement – remote
- Higher attainment in computer science - meeting the challenges of the exams – remote
- Supporting GCSE computer science students at grades 1-3
- KS4 Computing for all
- Impact of Technology: How to lead classroom discussions
- Creating an Inclusive Classroom: Approaches to supporting learners with SEND in computing

You may also be interested in:

STEM Learning:

Managing behaviour for learning (online course)

RaspberryPi:

Coolest Projects

AstroPi

Bebras

These challenging projects will stretch the capabilities of your most able pupils.

2 How pupils learn

Promote good progress and outcomes by pupils

National Centre for Computing Education

A teacher must:

- be accountable for pupils' attainment, progress and course outcomes
- be aware of pupils' capabilities and their prior knowledge, and plan teaching to build on these
- guide pupils to reflect on the progress they have made and their emerging needs
- demonstrate knowledge and understanding of how pupils learn and how this impacts on teaching
- encourage pupils to take a responsible and conscientious attitude to their own work and study

How we can help:

Subject knowledge assessments are a collection of free, quality-assured subject knowledge assessments for secondary computing. They support pre- and post-teaching testing, to evidence progress.

Each unit in the KS2 curriculum has a paper-based subject knowledge quiz or rubric for assessment. In addition there are Google and Microsoft Forms versions of these quizzes for ease of collecting data for assessment.

The Teach Computing Curriculum is carefully sequenced across all years, giving you confidence in pupils' prior knowledge and experiences. The NCCE's pedagogy page provides easy-to-implement guidance on subject-specific pedagogy. Quick-read guidance and podcasts help you to access expert teaching practice quickly.

Primary CPD:

- Assessment of primary computing

Secondary CPD:

- Assessment and progression in KS3 computing - face to face
- Teaching GCSE computer science pedagogy for programming - face to face
- Teaching GCSE computer science developing knowledge and understanding - face to face
- An introduction to computer systems, networking and security in GCSE computer science - face to face
- Encouraging girls into GCSE computer science - remote - short course
- Programming pedagogy in secondary schools: inspiring computing teaching
- Creating an Inclusive Classroom: Approaches to supporting learners with SEND in computing

You may also be interested in:

STEM Learning:

Assessment for learning
(online course)

Planning for learning - formative assessment
(online course)

Implementing formative assessment
(online course)

3 Subject and curriculum

Demonstrate good subject and curriculum knowledge

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A teacher must:

- have a secure knowledge of the relevant subject(s) and curriculum areas, foster and maintain pupils' interest in the subject, and address misunderstandings
- demonstrate a critical understanding of developments in the subject and curriculum areas, and promote the value of scholarship

How we can help:

Our range of primary and secondary CPD, accessed locally at your Computing Hub or online in live remote or self-paced online courses help you to secure age-appropriate subject knowledge and teaching approaches. You'll be more confident in contextualising the subject of computing, and linking it to future study and careers, under the guidance of highly experienced subject specialist teachers.

Primary CPD:

- 'Getting started' series of courses
- Introduction to programming with Scratch
- Online safety through primary computing
- Teaching computing systems and networks for 5-11 year olds
- Teaching programming to 5-11 year olds
- Teaching programming using Scratch and Scratch Jr

Secondary CPD:

- CPD pathway for new teachers of computer science GCSE
- Courses to support all aspects of GCSE content and its delivery from an introductory to advanced level

You may also be interested in:

STEM Learning:

STEM Clubs

Linking curriculum learning to STEM careers
(online course)

4 Classroom practice

Plan and teach well structured lessons

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A teacher must:

- impart knowledge and develop understanding through effective use of lesson time
- promote a love of learning and children's intellectual curiosity
- set homework and plan other out-of-class activities to consolidate and extend the knowledge and understanding pupils have acquired
- reflect systematically on the effectiveness of lessons and approaches to teaching
- contribute to the design and provision of an engaging curriculum within the relevant subject area(s)

How we can help:

The Teach Computing Curriculum provides a range of engaging contexts for instruction and project-based learning. Units are structured to ensure progression and sequenced to support long-term learning objectives.

Subject knowledge assessments provide assessment data for secondary teachers to inform adaptive teaching approaches. Our paired assessment can be used to baseline test, then again to assess progress following teaching. Our pedagogy guidance provides the skills to plan and deliver effective lessons across computing.

Isaac Computer Science provides an engaging platform for gamified learning of A level computer science which can be used effectively in or outside of the classroom.

Primary CPD:

- Introduction to primary computing – face to face
- Physical computing - KS1 Bee-Bots
- Physical computing - KS2 Crumble
- Introduction to primary computing - remote
- Physical computing – KS2 Data Loggers
- Physical computing - KS2 micro:bit

Secondary CPD:

- Teaching GCSE computer science developing knowledge and understanding - face to face
- Teaching GCSE computer science pedagogy for programming - face to face
- Foundation knowledge of computer science for KS3 and GCSE - remote
- Behaviour for learning in a computing environment – remote - short course
- Collaboration in KS3 programming – remote
- Programming pedagogy in secondary schools: inspiring computing teaching
- Impact of Technology: How to lead classroom discussions

You may also be interested in:

STEM Learning:

STEM Clubs

Planning for learning - formative assessment (online course)

5 Adaptive teaching

Adapt teaching to respond to the strengths and needs of all pupils

National Centre for Computing Education

A teacher must:

- know when and how to differentiate appropriately, using approaches which enable pupils to be taught effectively
- have a secure understanding of how a range of factors can inhibit pupils' ability to learn, and how best to overcome these
- demonstrate an awareness of the physical, social and intellectual development of children, and know how to adapt teaching to support pupils' education at different stages of development
- have a clear understanding of the needs of all pupils, including those with special educational needs; those of high ability; those with English as an additional language; those with disabilities; and be able to use and evaluate distinctive teaching approaches to engage and support them

How we can help:

Throughout our CPD you'll discuss how to adapt teaching approaches for different learner needs. You will learn about the common misconceptions and patchy knowledge that can hinder learning and develop strategies to help pupils make optimal progress.

Primary teachers will also consider developmental stages and how they relate to computational thinking and subject knowledge.

Primary CPD:

- Assessment of primary computing
- Teaching primary computing through contexts
- Adapting the Teach Computing Curriculum for mixed-year classes
- Computing for specialist teachers of autistic students
- Creating an inclusive classroom: approaches to supporting learners with SEND in computing

Secondary CPD:

- KS4 computing for all
- Supporting GCSE computer science students at grades 1-3
- Higher attainment in computer science - meeting the challenges of the exams – remote
- Creating an Inclusive Classroom: Approaches to supporting learners with SEND in computing

Our subject knowledge assessment provides secondary teachers with detailed assessment data, allowing you to plan more effective lessons that account for the needs of individuals and groups.

You may also be interested in:

STEM Learning:

Differentiation for learning
(online course)

6 Assessment

Make accurate and productive use of assessment

National Centre for Computing Education

A teacher must:

- know and understand how to assess the relevant subject and curriculum areas, including statutory assessment requirements
- make use of formative and summative assessment to secure pupils' progress
- use relevant data to monitor progress, set targets and plan subsequent lessons
- give pupils regular feedback, both orally and through accurate marking, and encourage pupils to respond to the feedback

How we can help:

The Teach Computing Curriculum contains assessment questions in every unit, supporting formative assessment for all ages.

Our subject knowledge assessments provide secondary teachers with powerful, automated assessment tools based on quality assured question sets. You'll gain a rich assessment data set with no additional workload.

Primary CPD:

- Assessment of primary computing

Secondary CPD:

- Diagnostic assessment for GCSE computer science – remote - short course
- Assessment in secondary computing - remote - short course
- Assessment and progression in KS3 computing – F2F

You may also be interested in:

STEM Learning:

Introducing assessment for learning
(online course)

Planning for learning - formative assessment
(online course)

Implementing formative assessment
(online course)

7 Managing behaviour

Manage behaviour effectively to ensure a good & safe learning environment

National Centre for Computing Education

A teacher must:

- have clear rules and routines for behaviour in classrooms, and take responsibility for promoting good and courteous behaviour both in classrooms and around the school, in accordance with the school's behaviour policy
- have high expectations of behaviour, and establish a framework for discipline with a range of strategies, using praise, sanctions and rewards consistently and fairly
- manage classes effectively, using approaches which are appropriate to pupils' needs in order to involve and motivate them
- maintain good relationships with pupils, exercise appropriate authority, and act decisively when necessary

How we can help:

CAS Communities of Practice are the ideal place to learn classroom crafts from experienced peers.

Primary CPD:

- Introduction to primary computing – face to face
- Introduction to primary computing - remote

Secondary CPD:

- Behaviour for learning in a computing environment – remote - short course

You may also be interested in:

STEM Learning:

Managing behaviour for learning (online course)

8 Professional behaviours

Fulfil wider professional responsibilities

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A teacher must:

- make a positive contribution to the wider life and ethos of the school
- develop effective professional relationships with colleagues, knowing how and when to draw on advice and specialist support
- deploy support staff effectively
- take responsibility for improving teaching through appropriate professional development, responding to advice and feedback from colleagues
- communicate effectively with parents with regard to pupils' achievements and well-being

How we can help:

Our CPD pathways and programmes are designed to guide teachers with all levels of experience and knowledge through appropriate professional development routes, whether you're new to computer science, or want to focus on programming and algorithms or systems and networks. The CPD is free to teachers in state-funded education, with subsidies for supply cover, paid to your school or college.

The NCCE offer support for primary enrichment and secondary enrichment through a programme of extra-curricular clubs and challenges.

Participation in our CPD can lead to recognised accreditation from BCS, The Chartered Institute for IT. There are two pathways to achieve the Teach primary computing certificate, which takes around 20 hours to complete.

There are five pathways to complete the Teach secondary computing certificate depending on your current level of knowledge and experience. If you feel confident in all areas of the GCSE computer science curriculum, there's lots on offer to stretch and extend your expertise.

Computing Ambassadors promote work readiness and awareness of careers options – many of our volunteers work in tech-related roles and can bring expertise to your classroom.

Primary CPD:

- Physical computing - KS2 Crumble
- Physical computing - KS2 micro:bit
- Careers and enrichment in primary computing with STEM Ambassadors

Secondary CPD:

- Physical computing kit - KS3 micro:bit - short course
- Creative digital media projects
- Encouraging girls into GCSE computer science - remote - short course

You may also be interested in:

STEM Learning:

STEM Clubs

Linking curriculum learning to STEM careers
(online course)

RaspberryPi:

CoderDojo

AstroPi

Both will allow you to challenge your pupils and build positive relationships.

To find out more and access the full range of support, visit:

teachcomputing.org

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STEM LEARNING

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