# MENTOR DEVELOPMENT: Understanding the ITE Partnership Curriculum

## Mathematics

Subject rationale

The primary mathematics curriculum is organised around key mathematical concepts and pedagogies and is carefully sequenced to allow BSTs to both re-learn their school mathematics and to learn how to teach mathematics effectively. A metacognitive approach to learning and teaching mathematics is adopted. The curriculum is designed to enable BSTs to establish conceptual understanding, connect theory and practice and embed inclusive practices.

Sequencing the subject for each phase

Phase 1: BSTs are introduced to the foundations of learning and teaching mathematics through a focus on five key pedagogical approaches. BSTs learn how to use effective classroom talk to support learning; how to use of misconceptions as valuable learning opportunities; how to use of questioning to support task design; how to use a range of representations and how to model mathematical ideas and mathematical thinking. Knowledge of place value, mental manipulation of number and written methods is developed. Knowledge of statutory and non-statutory guidance is developed and a questioning approach to theory and practice established.

Phase 2: BSTs learn how to apply Phase 1 knowledge to developing effective lesson plans using variation to support the development of questioning. They learn how to use bar modelling as an approach to solving routine problems & how to model metacognitive processes as part of problem-solving. Knowledge of fractions, decimals, percentages and geometry is developed.

Phase 3: BSTs develop their knowledge and understanding of non-routine problems and thinking mathematically with reference to the habits of mind of mathematicians. They learn how to use habits of mind to scaffold children’s mathematical activity and to provide high quality feedback on learning. They cement their knowledge and understanding of how to be a positive role model.

### How mentors can support BSTs in school

* Show BSTs how a positive environment, where making mistakes and learning from them, is created.
* ​​​​​​​Demonstrate how to design plans and tasks which space practice so that pupils can revisit ideas to strengthen their recall.
* ​​​​​​​Show how complex material can be broken into smaller steps.
* ​​​​​​​Demonstrate how pupils are encouraged to share emerging understanding and points of confusion so that misconceptions can be addressed.
* ​​​​​​​Demonstrate how building on prior knowledge and committing key facts to long-term memory are aspects of lesson sequencing and are important for pupils in learning increasingly complex ideas.
* ​​​​​​​Develop secure subject knowledge by discussing conceptual understanding as part of the planning process.
* ​​​​​​​Demonstrate how the mastering of foundational concepts and knowledge, so that all pupils build confidence and succeed before moving on to new content, is enabled and planned for.
* ​​​​​​​Create opportunities to work with colleagues to develop an understanding of likely misconceptions.
* ​​​​​​​Share knowledge/practice in planning meetings & focused observation discussions so that BSTs can accumulate and refine a collection of powerful representations, examples, explanations and demonstrations.
* ​​​​​​​Demonstrate how to provide opportunities for all pupils to learn and master essential concepts, knowledge and skills and use inclusive practices.
* ​​​​​​​Model how to combine explanations with pictorial representations of the same concept or process.
* ​​​​​​​Demonstrate the use of a range of types of questions and support BSTs in planning a similar range of questions.

### Indicative open access reading

1. Education Endowment Fund (2017) Improving Mathematics in the Early Years and Key Stage 1. Available at: [Improving Mathematics in the Early Years and Key Stage 1 | EEF (educationendowmentfoundation.org.uk)](https://educationendowmentfoundation.org.uk/education-evidence/guidance-reports/early-maths)
2. Education Endowment Fund (2017) Improving Mathematics in Key Stages 2 and 3. Available at: [Improving Mathematics in Key Stages 2 and 3 | EEF (educationendowmentfoundation.org.uk)](https://educationendowmentfoundation.org.uk/education-evidence/guidance-reports/maths-ks-2-3)
3. Askew, M. (2015) Chp11 ‘Talk’. In: Transforming Primary Mathematics: Understanding classroom tasks, tools and talk. Taylor Francis Group. Abridged chapter available at: [Privatetalkpublicconverse.pdf (mikeaskew.net)](http://www.mikeaskew.net/page3/page5/files/Privatetalkpublicconverse.pdf)