A BA Student's Journey - Knowing and Understanding the Key Feature of Arithmetic

Arithmetic refers to teaching of calculation including addition, subtraction, multiplication and division of whole numbers, fraction and decimals; including progression in mental, oral and written calculation. It also includes the application of these skills in other areas of maths, across the curriculum and in real life situations

KEY:

Begin to develop

Continue to develop

Secure & able to apply

Italics: Monitoring & Assessment

School Based Training

BA PRE-PROGRAMME maths development

 Begin to develop an understanding of calculation by observing / reflecting upon a maths lesson in school.

Year One School Experience (including Placement Days)

- Observe 2 (pre) calculation lessons in different KS, reflect on effective features using given questions. If possible one of these should be maths co-ordinator.
- Make a list of resources for maths, including ICT which supports mathematical development.
- With a small group of children, focus on their understanding of calculation (FS children using number). Identify their stage of development in terms of the National Curriculum, and what impacts upon and accelerates their learning.
- Design and use a resource to support a group in a (pre)calculation lesson. Evaluate its effectiveness.
 How does it support development in fluency and reasoning?

Reflect on this in readiness for your assignment

At regular intervals, review and reflect upon their planning and teaching with mentor and link tutor

End of Experience: Complete your TIPP or RAP including targets for mathematics

Year 2 School Experience

- Carry out an investigation using one of the starting points in the 'Problem Solving and Reasoning' workshop or a suitable investigation (advice from class teacher or maths leader).
- Identify and analyse a maths misconception (a specific pro forma is in year 2 maths Directed Study Book) Undertake a case study for 1-3 children with additional needs e.g. problems with aspects of calculations. Plan, teach monitor impact of teaching on themselves and child
- Gather assessment info from class teacher and understand needs of individuals they will teach
- Plan, teach and evaluate their teaching
- Monitor/assess children's progress

At regular intervals, review and reflect upon their planning and teaching with mentor and link tutor

End of Experience: Complete your TIPP or RAP including

Year 3 School Experience

- Students consider how their age phase works to embed the NC's key aims of fluency and reasoning by gathering examples and making notes. Meet with the Maths Leader to discuss this and how it compares to other age phases
- Undertake a case study for 1-3 children with additional needs e.g. problems with aspects of calculations. Plan, teach and monitor impact of teaching on both themselves and the child – write a mock report for parents
- Gather assessment information from the class teacher and understand the needs of the individuals they will teach
- Demonstrate a secure knowledge and understanding of the purpose, scope, structure and content of NC/EYFS.
- Plan, teach and evaluate their teaching—teaching the whole class throughout school experience and identifying on their plans the role of additional adults in the classroom
- Monitor and assess children's progress in maths. Regularly review and reflect upon their planning and teaching with mentor and link tutor.

End of Experience: Complete your TIPP or RAP including targets for mathematics

University Based Training

PGCE PRE-PROGRAMME mathematics development

Maths Test at Interview Online subject knowledge Audit Stage One completed to identify needs. Support pack of pre course

QA

Maths Test at Interview (Booster Booklets to support

Year One Workshops/ Lectures Linked to Calculation:

Pre-Calculation:

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Understanding

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Counting: Early number and the development of pre-calc skills

Place Value: The importance of place value in calculation

Coloridation: (NCCTM forces including video materials)

<u>Calculation: (NCETM focus – including video materials)</u>

Mental and Oral: Understanding properties and progression in

mental /oral calculation strategies

Includes Singapore BAR MODEL/Shanghai approaches
Written: Understanding progression in written calculation strategies
Fractions and Decimals: Making the connections between different representations of number

Year One Arithmetic Self Study Work Book

Directed activities and readings to develop understanding of progression in pre-calculation and calculation.

<u>Subject Knowledge Workshop</u>: identifying developing needs Portfolio and Subject Knowledge Audits Stage One and Two:

Peer and tutor assessment of Portfolio and Subj. Know. Audits –incl. Arithmetic Self Study Work Book, directed activities and readings

SE1: Students giving cause for concern offered 1:1 or group support as appropriate

Formative Assessment of Portfolio/Audit Peers & Tutor

School Based Tasks: Outcomes & Rationale

Summative
Assessment:
Portfolios/Audit: (Yr1)
Incl. calculation tasks

Student Year 1 Evaluations

Outcomes for teaching maths on School Exp.

Link Tutor/Mentor Survey & Student Evaluation of SE

Partnership Evaluation Year 1 Exit Survey

Tracking outcomes for students identified with weaknesses

SE2: Students giving cause for concern offered 1:1 or group support as appropriate

Year 2 Workshops/Lectures Linked to Calculation (before & after SE2)

Measurement; Geometry; Misconceptions in maths; Algebra <u>Subject Knowledge Workshop</u>

With a focus on Portfolio and Subject Knowledge Audit Stage one and two: formative peer and tutor assessment including Arithmetic Self Study Workbook and directed activities and readings.

Year Two Assignment

Mathematical Investigation at your own level and in school, with reflections on your own using and applying experience alongside that of children in the classroom from your School Experience, consider impact for future practice.

Tracking outcomes for weaker students

School Based Tasks: Outcome /Rationale

Outcomes for teaching maths on S. Exp.

On-going Portfolio/Audit

Results of yr 2 essay

Student Evaluations of maths course (yr2)

Link Tutor/mentor Survey & Student Evaluation of SE

Year 2 Exit Survey Partnership Evaluation

Year 3 Support for Subject Knowledge

Optional workshops are available for developing Subject Knowledge, where a student, tutor or school based tutor highlights a need

SE3: Students Graded 4 1:1 support; Graded 3 small group

Opportunity to specialise with a Mathematics Option 'Preparing for Maths Specialist Status'

Year 3 Workshops Linked to Calculation

Money; Time; Statistics

Subject Knowledge – calculations and SATS

<u>Portfolio and Subject Knowledge Audits Stage One and Two:</u> **Summative tutor assessment** of Portfolio/Audits Stage 1&2, incl.:

- evidence of subject knowledge/pedagogy for Audits
- Developing SK & Arithmetic Self Study Workbook
- directed activities and readings Reflect upon target setting for NQT year

Final Summative Assessment of Portfolio/Audits

Student Year 3 Evaluations of ETL (TEAC 1088)

Tracking outcomes for grade 3 & 4 students

School Based Tasks: Outcomes & Rationale

Grades for teaching maths on School Exp.

Link Tutor/Mentor Survey & Student Evaluation of SE

Partnership Evaluation

Final Year Exit Survey

NQT Survey

Reviewed August 2018