

OCR Teaching in the Lifelong Learning Sector – Qualification Units

Unit 37 - Level 4 Theories and Principles for Planning and Enabling Learning (Numeracy)

Level 4

QCA Accreditation Number R/500/9966

Unit description:

Unit aims

The aim of this unit is to develop understanding of the relationship between theories, policies and principles for enabling inclusive learning within the context of a trainee's professional practice.

Credit value 15

Unit synopsis

- Understanding of theories, principles, models and strategies of and for learning and teaching numeracy
- Understanding of the barriers to learning, including numeracy related vocabulary and the sources of linguistic confusion in numeracy and the meaning of words in mathematical context (ESOL learners)
- The effect of context on approaches used for mathematics and numeracy teaching
- Understanding of issues around Inclusive practice
- Understanding of the need to evaluate and reflect on own practice

Examples of teaching and learning strategies

The following teaching methods and learning strategies are appropriate to the delivery and development of the knowledge, understanding and skills covered in this unit. A variety of these should be used to provide a model of good practice to the candidate. This list is not exhaustive:

- Small group discussion
- Directed study and research
- Lecture
- Resource based learning
- Question and answer
- Micro teaching session
- Role play
- Discussion
- Lecture and exposition
- Presentations
- Workshop activities
- Tutorials

Guidance on delivery for centres

For many candidates this may be the first opportunity to explore in depth the principles, strategies and models for teaching numeracy and to consider policies and codes of practice and their impact on the numeracy curriculum.

Appropriate methods of delivery:

- Provision of individual learning plans
- Provision of guidance on the qualification and progression routes to further development
- Provision of opportunities for learning e.g. discussion, tutorials, workshop activities etc
- Provision of ongoing mentoring to the candidate, including review and feedback on learning experiences and development of competence
- Observation of peer-to-peer discussions of groups of candidates or of discussions with colleagues
- Observation of candidates working within a partnership
- Professional discussion with the assessor will test the knowledge requirements, where these are not already met through the activities described above.

Guidance on assessment for centres

The assessment can include:

- Written assignment
- Case studies
- Research projects
- Candidate assessments
- Individual learning plans
- Lesson plans
- Written review of candidates' progress

This is a level 4 unit and thus the candidate must demonstrate complex skills and knowledge in this particular area of numeracy. The ability to recognise and develop thinking across these criteria is to be encouraged but it does mean that written evidence whilst aiming for succinctness and clarity of thought will need to be of

sufficient depth and breadth to meet the level 4 standard. There is an expectation that the written work will be presented at the appropriate level.

Suggested reading

The following list is not intended to be exhaustive, but provides suggested texts which student-teachers may find helpful. It is not compulsory for students to read all publications in the list; they are identified for reference only.

Armitage, A. Bryant, R. et al. (2003) *Teaching and Training in Post Compulsory Education* (2nd ed) Milton Keynes: Open University Press.

Askew, M. et al. (1997) *Effective Teachers of Numeracy* London: Kings College.

Atkinson, T. and Claxton, G. (2000) *The Intuitive Practitioner*. Buckingham: Open University Press.

Benn, R. (1997) *Adults Count Too – Mathematics and Empowerment*. London: NIACE.

Brittan, J. (1996) *An Introduction to Numeracy Teaching* London: BSA.

Brookfield, S. (1986) *Understanding and Facilitating Adult Learning* San Francisco: Jossey Bass.

Bruner, J. (1997) *The Culture of Education*. London Harvard University Press.

Chinn, S.J. (2004) *The Trouble with Maths, A Practical Guide to Helping Learners with Numeracy Difficulties*. London: Routledge.

Coben, D., O'Donoghue, J. and Fitzsimons, G. (eds) (2000) *Perspectives on Adults Learning Mathematics: Research and Practice* London: KAP.

Hamilton, M. and Hillier, Y. (2006) *Changing Faces of Adult Literacy, Language and Numeracy* Stoke-on-Trent: Trentham.

Heron, J. (1999) *The Complete Facilitator's Handbook* London: Kogan Page.

Lave, J. (1988) *Cognition in Practice: Mind, Mathematics and Culture in Everyday Life*. Cambridge: CUP.

Miles, T.R. and Miles, E. (2004) (eds) *Dyslexia and Mathematics*. London: Routledge.

Reece, I. and Walker, S. (6th ed) (2006) *Teaching Training and Learning*. Sunderland: Business Education

Swan, M. (2006) *Collaborative Learning in Mathematics, A Challenge to our Beliefs and Practices* Leicester: NIACE.

Journals

Adults Learning

Studies in the Education of Adults

Websites

www.ocr.org.uk

www.qca.org.uk

www.dfes.gov.uk

www.lluk.org.uk

www.infed.org The Encyclopedia of Informal Education: learning theories and theorists

www.nrdc.org.uk National Research and Development Centre for research into all areas of adult numeracy (and literacy and ESOL)

<http://www.maths4life.org> (Resource: 'Thinking Through Mathematics, strategies for teaching and learning' DfES 2007)

www.dfes.gov.uk/readwriteplus Adult Numeracy Core Curriculum and a range of related documents

www.ofsted.gov.uk Office for Standards in Education: The *Common inspection framework for inspecting education and training*

Assessment Criteria, Knowledge and Evidence Linked to Practice

1.

| | Assessment Criteria | Knowledge | Evidence Linked to Practice |
|-----|---|---|--|
| 1.1 | Identify factors affecting learning and explain the potential impact of these on learner achievement. | Theories and principles of learning and communication to inclusive numeracy practice. | Written evidence which: <ul style="list-style-type: none"> • demonstrates knowledge and understanding of the different ways in which language/literacy skills are integral to learners' achievement in mathematics and numeracy, • includes strategies to enable learners to develop appropriate numeracy language and vocabulary • provides a background to the learners considered in above points. |
| 1.2 | Explain ways in which theories and principles of learning and communication can be applied to promote inclusive practice. | Factors which affect learning and development needs of learners and their impact on learner achievement. Understanding of the different ways in which language/literacy skills are integral to learners' achievement in mathematics and numeracy. The possible effects of social background, gender, culture, age , disability and personal circumstances on numeracy learning. | |

2.

| | Assessment Criteria | Knowledge | Evidence Linked to Practice |
|-----|--|---|---|
| 2.1 | Justify the selection and use of teaching and learning strategies with reference to theories and principles of communication and inclusive learning. | How to maintain an inclusive and motivating learning environment. How to use specialist knowledge to adopt and adapt appropriate teaching and learning approaches. | A written account of a peer teaching exercise which includes: <ul style="list-style-type: none"> • a justification of the strategies used with reference to theories and principles of communication and |
| 2.2 | Apply up to date knowledge of own specialist area to enable and | How to identify and use strategies for addressing individual | |

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|-----|--|---|--|
| | support inclusive learning, following organisational, statutory and other regulatory requirements. | needs. How to use a range of learning resources to support learners. | inclusive learning <ul style="list-style-type: none"> • the effects of correct/incorrect use of numeracy language and vocabulary on communication in numeracy learning and teaching settings • the relevance of planning for inclusive numeracy practice and subject pedagogy. |
| 2.3 | Use and justify a range of inclusive activities and resources, including new and emerging technologies, to promote and maintain an inclusive learning environment. | | |
| 2.4 | Use and justify a range of skills and methods to communicate effectively with learners and relevant others in the organization. | | |

3.

| | Assessment Criteria | Knowledge | Evidence Linked to Practice |
|-----|---|--|--|
| 3.1 | Apply minimum core specifications in literacy to improve own practice. | The application of the minimum core specifications in own practice . | Maintain a professional development portfolio illustrating knowledge of the minimum core specifications with reference to theories and principles of learning and communication. |
| 3.2 | Apply minimum core specifications in language to improve own practice. | | |
| 3.3 | Apply minimum core specifications in mathematics to improve own practice. | | |
| 3.4 | Apply minimum core specifications in ICT user skills to improve own practice. | | |

4.

| | Assessment Criteria | Knowledge | Evidence Linked to Practice |
|-----|--|---|---|
| 4.1 | Evaluate own strengths and development needs in relation to the application of theories and principles of learning and communication. | Understand and demonstrate how to evaluate and improve own numeracy practice. How research into numeracy and mathematics can inform learning, teaching and own practice. | Written evidence which is an evaluation of own practice. This evaluation should include reference to one or more lesson plans and indicate how planning for an inclusive environment was incorporated and should also indicate how improvements will be/have been made with reference to theories and principles of learning and communication. |
| 4.2 | Identify ways to adapt and improve own practice with reference to theories and principles of learning and communication drawing on feedback from learners. | How to use reflective practice to inform own knowledge of teaching and learning. | |
| 4.3 | Plan and take up opportunities to develop and improve own performance in integrating theory into practice. | | |