



The University of Southern Queensland

Course Specification

Description: Emerging Numeracy 0 to 6 Years

Subject	Cat-Nbr	Class	Term	Mode	Units	Campus
ECE	2008	20738	1, 2003	EXT	1.00	TWMBBA

Academic Group:	FOEDU
Academic Org:	FOE004
HECS Band:	1
ASCED Code:	070101

STAFFING

Examiner: Noel Geoghegan

Moderator: Deborah Geoghegan

RATIONALE

From infancy, children are actively engaged in developing concepts which allow the organisation and categorisation of information. Through interaction with the environment during everyday experiences, children construct and test their concepts which include mathematical thinking. It is important that adults (including parents and caregivers) who are influential in the early years of a child's life have an understanding of how young children develop mathematical knowledge so that appropriate experiences may be provided. Additionally, an awareness of the development of mathematical language, fundamental mathematical concepts and skills, and the sequence of the discipline knowledge of mathematics is necessary for teachers to plan effective learning opportunities for children.

SYNOPSIS

This course examines the development of mathematical concepts and skills in young children. Emphasis is given to the types of learning experiences which encourage the young child's exploration and development of the fundamental concepts, attitudes, and skills involved in emerging numeracy.

OBJECTIVES

On successful completion of this course students will be able to:

- demonstrate an understanding of the teaching and learning theories associated with mathematical development in young children;
- apply such theories to the development of appropriate learning and assessment activities;
- explain the role of language in teaching and learning mathematics;
- utilise an appropriate mathematical language for teaching and learning mathematics;

- describe a range of learning environments and materials for young children which enhance mathematical learning;
- explain the importance of play in mathematical learning;
- describe mathematical learning opportunities which may be provided through structured and unstructured preschool activities;
- critically evaluate various mathematical materials to assess their usefulness;
- identify the mathematical concepts, skills and attitudes which young children usually develop from birth to eight years;
- describe problem-solving applications for young children which foster their mathematical learning;
- identify the number skills developed by young children during the preoperational period;
- list ways in which parents may encourage mathematical learning in young children at home.

TOPICS

Description	Weighting (%)
1. The development of math concepts	15.00
2. The role of language in teaching and learning methods	15.00
3. The role of materials in developing mathematics thinking	10.00
4. Fundamental mathematical concepts, attitudes and skills	10.00
5. Applications of fundamental concepts and skills	10.00
6. Mathematical learning through play	10.00
7. Higher-level activities and concepts	10.00
8. Young children and problem solving	15.00
9. Parents and maths in the home	5.00

TEXT and MATERIALS required to be PURCHASED or ACCESSED:

Books can be ordered by fax or telephone. For costs and further details use the 'Book Search' facility at <http://bookshop.usq.edu.au> by entering the author or title of the text.

Charlesworth, R 2000, *Experiences in Math for Young Children*, Delmar, New York.

REFERENCE MATERIALS

Reference materials are materials that, if accessed by students, may improve their knowledge and understanding of the material in the course and enrich their learning experience.

Australian Early Childhood Association 1990, , *Australian Journal of Early Childhood*, Vol 15, no.1.

Baker, D., Semple, C. & Stead, T 1990, *How Big is the Moon. Whole Maths in Action*, Oxford University Press, Melbourne.

- Baratta-Lorton, M 1979, *Workjobs II: Number Activities for Early Childhood*, Addison-Wesley Publishing Co, Menlo Park CA.
- Bickmore-Brand, J. (ed) 1990, *Language in Mathematics*, Australian Reading Association, Carlton South VIC.
- Edwards, D 1990, *Maths in Context: A Thematic Approach*, Eleanor Curtain, South Yarra.
- Elliott, A 1996, *Learning with Computers*, Australian Early Childhood Association, Watson ACT.
- Elliott, A 1990, Computer-based mathematical experiences in an early intervention program, *Australian Journal of Early Childhood*, Vol 15, no.3, pp37-45.
- Fleer, M 1989, *Jig Saw Puzzles*, Australian Early Childhood Association, Watson ACT.
- Fry, I 1992, *Rediscovering Unit Blocks*, Australian Early Childhood Association, Inc, Watson ACT.
- Hawthorne, W 1992, *Young Children and Mathematics*, Australian Early Childhood Association Inc, Watson ACT.
- Mannigel, D 1998, *Young Children as Mathematicians*, 2nd edition, Social Science Press, Katoomba NSW.
- Martin, R. & Wilkinson, L 1989, *The Language of Mathematics: A Teacher Resource Book*, Martin International, Brooklyn Park, SA.
- Moomaw, S. & Hieronymus, B 1995, *More Than Counting: Whole Math Activities for Preschool and Kindergarten*, Redleaf, St Paul.
- Morrow, J 1989, *Maths is Childsplay*, Longman Group UK Ltd, Essex.
- Payne, J.N. (ed) 1990, *Mathematics for the Young Child*, National Council of Teachers of Mathematics, Reston VA.
- Perry, B. & Conroy, J 1994, *Early Childhood and Primary Mathematics: A Participative Text for Teachers*, Harcourt Brace, Sydney, NSW.
- Skinner, P 1990, *What's Your Problem?: Posing and Solving Mathematical Problems in Junior Classes*, Thomas Nelson Australia, South Melbourne, VIC.
- Sperry-Smith, S 2001, *Early Childhood Mathematics*, 2nd edition, Allyn & Bacon, Boston.
- Tertini, J 1995, *Mathematics for the Very Young: A Resource Book*, Martin Educational, St Leonards NSW.
- Tertini, J 1994, *Maths Games to Make and Play: A Companion to Mathematics for the Very Young*, Martin Educational, Cammeray NSW.
- Thyer, D & Maggs, J 1991, *Teaching Mathematics to Young Children*, 3rd edition, Cassell Educational Limited, London.
- Welchman-Tischler, R 1992, *How to use Children's Literature to Teach Mathematics*, The National Council of Teachers of Math, Reston VA.

STUDENT WORKLOAD REQUIREMENTS

ACTIVITY	HOURS
Assessment	45
Directed Study	80
Private Study	40

ASSESSMENT DETAILS

Description	Marks Out of	Wtg(%)	Required	Due Date
DESIGN & EVAL MATH EQUIP	40.00	40.00	Y	09 May 2003
DESIGN A NUMERACY PROGRAM	60.00	60.00	Y	13 Jun 2003

OTHER REQUIREMENTS

- 1 Graduate Diploma of Education (Child Care) students may include the Numeracy professional experience as part of their total professional experience hours. Other students will require some visits to centres (or other contact with Early Childhood Services) to complete the assignments.
 - 2 Assessment items will be given a numerical score.
 - 3 Course Grades will be calculated by aggregating the weighted result or numerical score for each assessment item.
 - 4 All assessment items must be submitted. Assessment items must be passed overall.
 - 5 If assignments are submitted after the due date without an approved extension of time, University penalties for the assessment item may be applied.
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