RATIONAL

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 children from birth to eight years. 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

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


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.


STUDENT WORKLOAD REQUIREMENTS

ACTIVITY                  HOURS
Assessment               45
Directed Study           80
Private Study            40

ASSESSMENT DETAILS

<table>
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<tr>
<th>Description</th>
<th>Marks Out of</th>
<th>Wtg(%)</th>
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<tr>
<td>DESIGN &amp; EVAL MATHS RESOURCE</td>
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<td>DESIGN OF A NUMERACY PROGRAM</td>
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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.