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HOW TO USE THIS BOOK

Instructions for parents and teachers

Many creative teachers have found that children can deal effectively with mathematical concepts at an earlier age than has been previously thought. The child's environment should be saturated with opportunities to use numbers in natural and meaningful settings. As children are guided in counting objects and people; in learning the use of numerals on clocks, calendars, measuring cups, rulers and scales; and in observing the variations and relationships in sizes and shapes of objects, they are building beginning maths concepts.

The mastery of these all-important foundational concepts and understandings is developmental in nature and should be presented in proper sequence with their readiness based on past experiences and present interests. This phase of the young child's intellectual development should be planned and carefully monitored by an adult who is sensitive to the rate of progress being made and to the need for redirection or reinforcement in specific areas. It is important to remember that learning is continuous and developmental and that each stage of mathematical growth is dependent upon success in the stage that preceded it. The activities in *Creative Maths Experiences for the Young Child* are sequentially planned and should be introduced to the child as they are presented in the book.

To provide help in determining when a child has mastered the basic concepts, skills and factual information related to each of the five areas presented, a review is included at the end of each section. The review should be administered and scored with adult guidance and immediate feedback should be given to the child.

Learning about shapes

As young children are exposed to different shapes, they learn to recognise the shapes and to identify them in their natural environment. Transfer of this awareness to patterns in footpaths, clothing, kites, buildings and other everyday objects heightens sensitivity to the world. As they add the words triangle, rectangle, square and circle to their vocabularies, important concepts related to skill development in both language and maths are being established. Matching, copying and reproducing these shapes helps the child acquire the all-important visual discrimination skills that are prerequisite to reading readiness.

Each of the activities in this section are designed to help children fulfill these basic developmental needs. Adult guidance in completing the activities should be consistently patient yet firm and should be adjusted to the child's natural rate of progress.

Learning to read and write numbers

Counting by rote is often mistaken as evidence of a child's understanding of the counting process or of readiness to work with abstract number concepts. Real objects that can be touched as they are counted should be included as a regular part of early counting experiences. Use of rhyming words, finger plays and games will also enrich and strengthen understanding. These activities have been planted to give experience in meaningful counting and to extend concepts to include use of printed symbols and related vocabulary.

Counting by sets

Children need to understand that sets are simply groups or collections of objects. Grouping things into sets and discovering how sets may be manipulated develop concepts of union and subsets. It is through counting objects in various sets that the cardinal meaning of numerals can be developed. More than, less than, smaller than, larger than and other mathematical relationships become well understood and useful additions to the child's store of intellectual assets.

Using size words

Remembering the importance of concrete experiences to the attainment of meaningful concepts, size words and other vocabulary extensions must be planned as an integral part of the sequentially developed maths program. Understanding and use of these words enhance the quest for in-depth and more abstract learning. Their presentation will provide the base for the emergence of number language in the most meaningful sense. Completion of these exercises with adult guidance adjusted to the child's individual needs should provide the reinforcement necessary to solidify understanding of size words and their application to problem-solving situations.

Living with numbers

Learning about numbers is hardly worthwhile if there is no application to real-life situations. Is the child aware of the use of numbers as they appear in elevators, on T.V. and computer screens, menus, telephones, mailboxes, license plates and addresses?

In assessing individual readiness for the development of concepts of measurement, it is important to listen to the child talk to determine if their vocabulary includes words related to shape, size, amount, capacity, time and distance. The child whose attention has been called to the clock and the calendar as important tools for social living, to the thermometer and scales as useful for gaining desirable information and to measuring cups and spoons as indispensable in the kitchen is much more apt to approach the exercises in this section with zeal and commitment.

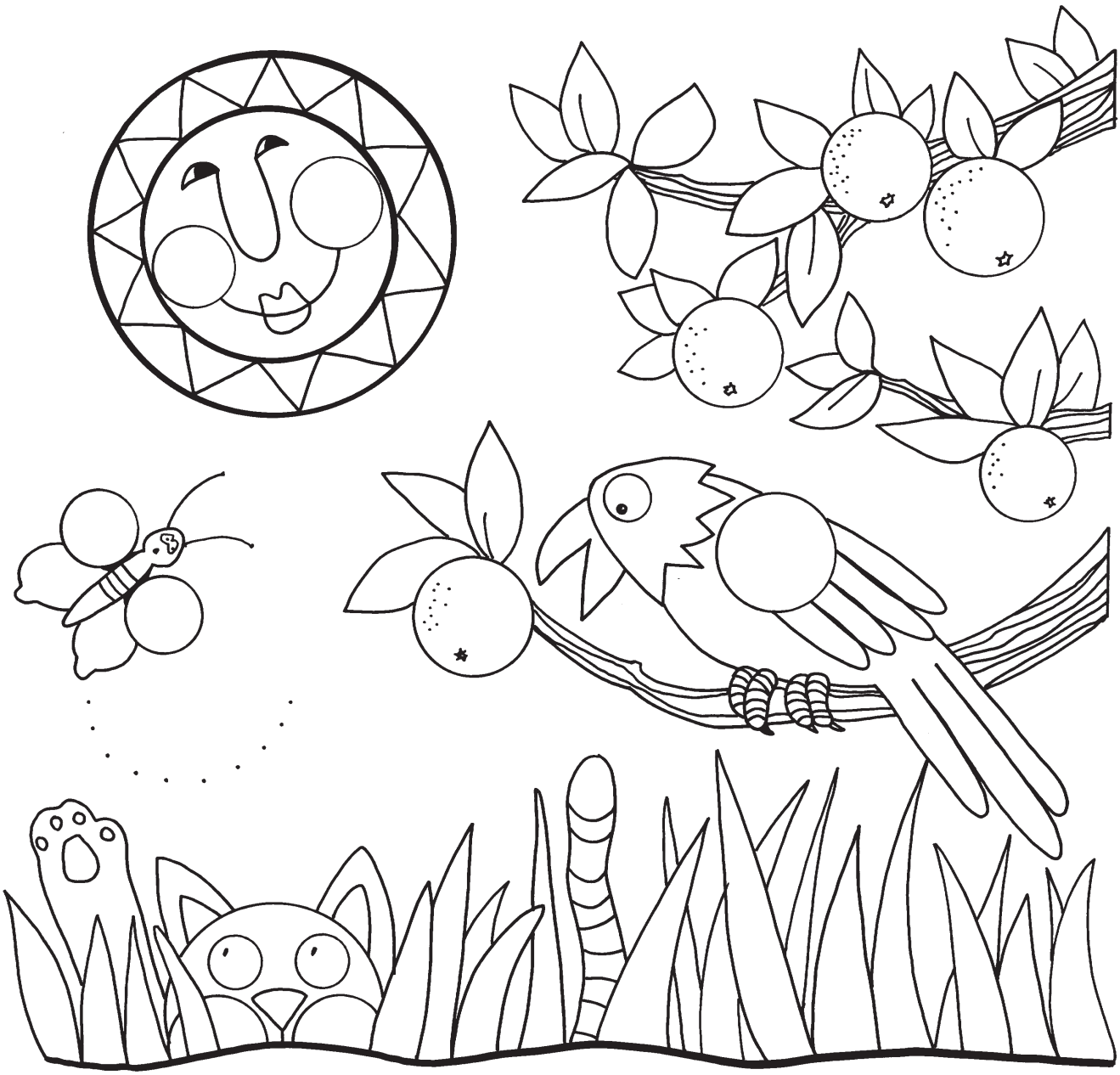
The young child's introduction to fractions should be limited to basic beginning concepts and in most cases should not be extended beyond the whole and half stage. Simple use of parts of a whole and the acquisition of related vocabulary is the chief concern of the activities in this section. Verbalisation of terms such as both, divide, double, middle, alike and two parts is desirable as the activities are being completed. Reinforcement can also be afforded through directions such as 'fold your sheet of paper in the middle and use only one half of it for your picture' or 'divide the stack of coins in half'.

Today's children are naturally curious about and interested in money. They know from an early age that certain objects can be had or not had because of money. Discussion of cost of toys or lollies and money in the piggy bank, trips to the shop and opportunities to spend small amounts of money will give meaning to developing concepts related to money.

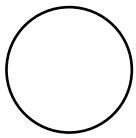
The Vocabulary List (pages 125–127) is composed of words children need to know in order to begin developing maths skills and concept mastery. It is suggested that they be cut apart, pasted on cardboard or index cards and laminated if possible; to be used for flash cards, games and word walls, as well as for drill and reinforcement.

There is no substitute for many and varied real-life experiences planned to be developmental in nature. For most children, the activities in *Creative Maths Experiences for the Young Child* will be motivational in nature and should be solidly reinforced by extensive discussion, trips, games and manipulative experiences.

Circles



Lines that are round in shape are called circles.

This shape is a circle. 

Count the circles.

How many circles can you find in the picture? _____

Use a green crayon to circle each circle.

Name_____