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INTRODUCTION

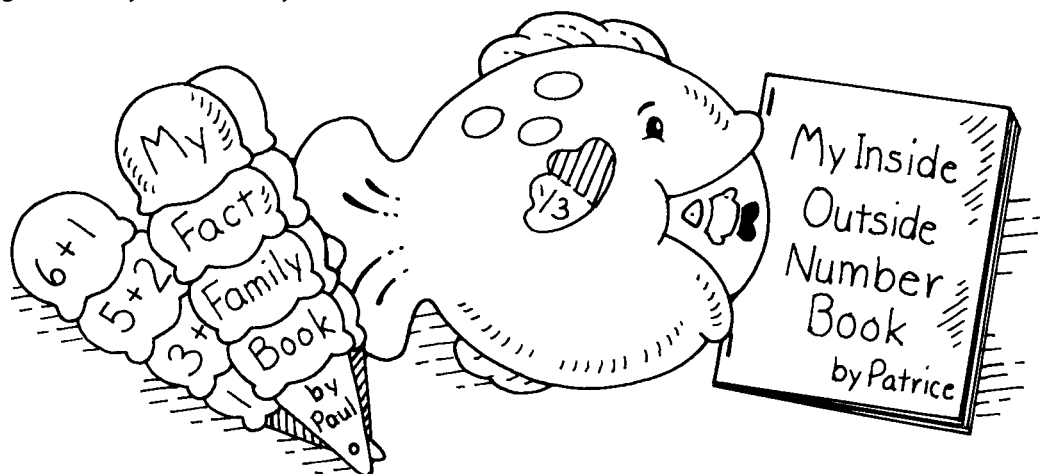
Kid-Created Number Books is a collection of teacher-tested books for children to assemble. In the process, they practice and master important math skills and concepts such as sorting, patterning, addition, subtraction, place value, money, and fractions.

Each section of *Kid-Created Number Books* (except graphing) provides four book ideas that can be constructed by individual students. Refer to the list of activity ideas that follows each book to see how books can be used again with new skills. In addition, there are two whole-class activities in each section where the end product can be bound into a class book, or, if you prefer, mounted to a bulletin board for a display. The Index at the back of the book provides a quick reference to all the ways in which these books can be used for any given skill or combination of skills.

The books in *Kid-Created Number Books* provide experiences with the standards of the National Council of Teachers of Mathematics, including the following:

- number and operation
- patterns, functions, and algebra
- geometry and spatial sense
- measurement
- data analysis
- problem solving
- reasoning and proof
- communication
- connections
- representation

Introduce your children to the books, and then send the books home so parents can share in their child's success as well. This classroom-tested resource is appropriate for any math program, at any time of the year.



HOW TO USE THIS BOOK

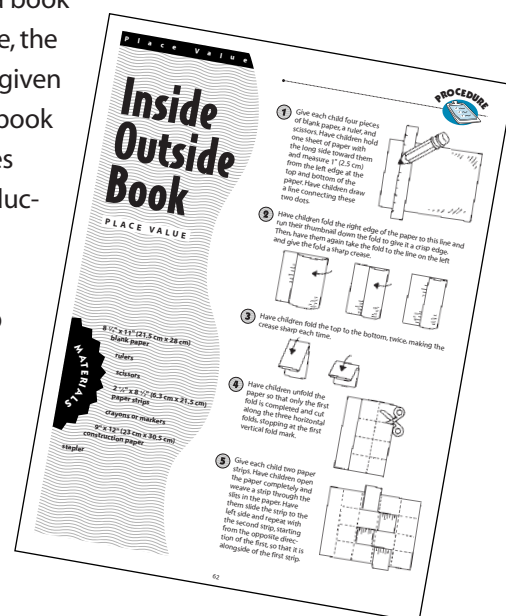
Children at all stages of math fluency will enjoy participating successfully in making their own math books. They may not even realize they are really *thinking* about math! Consider the following modifications when using the bookmaking activities in *Kid-Created Number Books*.

- Children write, illustrate, and assemble their own individual book.
- Each child completes one page, or section of pages, for a class book.
- Cooperative learning groups work together to complete a book.
- Children work in pairs, each child contributing according to his or her own strengths.
- An older and a younger school buddy write, illustrate, and assemble a book together.



MAIN ACTIVITIES

Each main activity gives step-by-step directions for a book that integrates the skills for that chapter. For example, the directions for the Inside Outside book (page 62) are given with the assumption that children will be using the book to practice their place value skills. Each book assumes that children have already received at least an introductory lesson in the skill area addressed. The first time you introduce children to a new book, model the bookmaking process, taking the class or small group step-by-step through the construction of the book. After children have had some practice, some of the books lend themselves to independent work. A complete list of the materials needed is provided for each book, and the directions are supported by detailed illustrations.

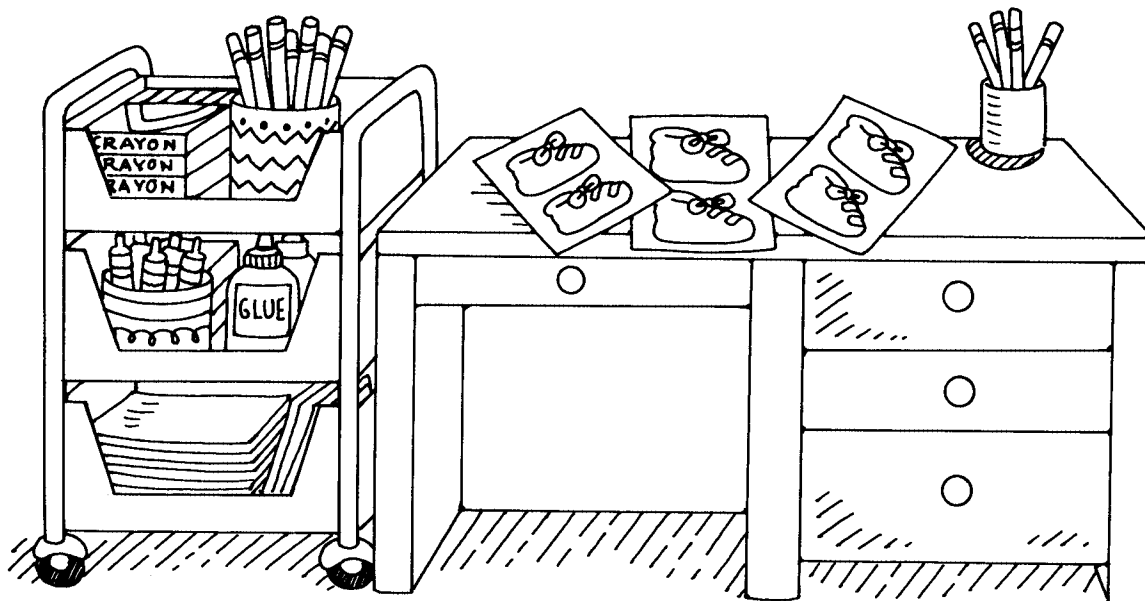
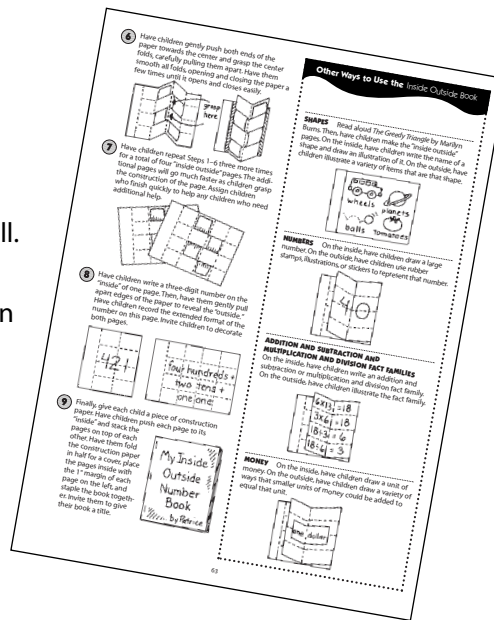


OTHER USES SECTION

Each book has a companion section where three or more additional uses for the same book are outlined. Do not be afraid to repeat a book design while focusing on a new skill. Children take pride in their successes and will enjoy being an “expert” the second time they make a book—even when reinforcing a new skill. Invite your children to become life-long problem solvers in the context of a fun bookmaking activity!

PREPARATION

Use the Table of Contents or Index to find a list of books available for the skill you want children to practice or review. Preview the step-by-step directions for the book, and assemble the necessary materials. Photocopy any needed reproducibles or complete other preparation that you or a parent volunteer may need to do in advance. If you prefer, create one copy of the book to use as a model when introducing the activity to the class.





Mini-Shape Book

S H A P E S

MATERIALS

8" (20 cm) construction-paper squares

7 1/2" (19 cm) blank-paper squares

yarn

scissors

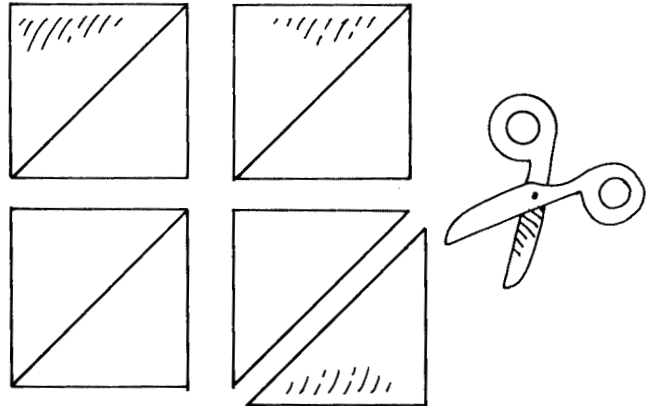
rulers

hole punches

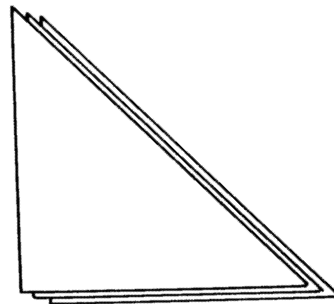
chart paper

crayons or markers

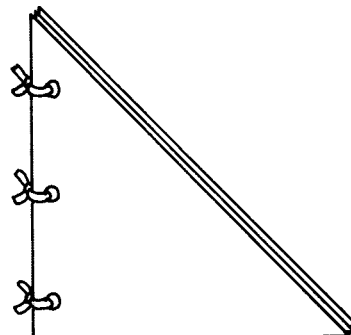
- 1 Distribute to each child a construction-paper square, three blank-paper squares, and one long piece of yarn. Have children use a ruler to draw lines diagonally across all four squares from corner to corner and cut the squares in half, following these lines.



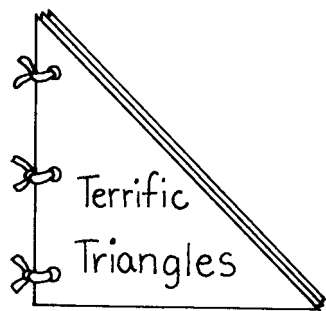
- 2 Have children stack the blank-paper triangles inside the two construction-paper triangles, and orient them so that two sides form an L.



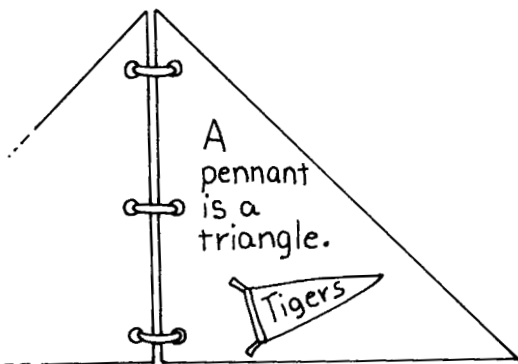
- 3 Have children punch three holes in the vertical side and use the yarn to tie the pages together.



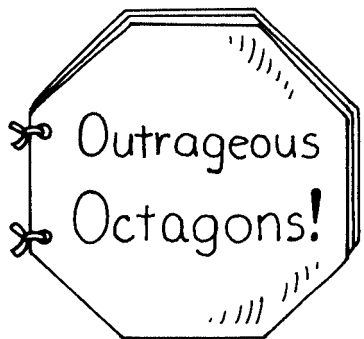
- 4 Invite a volunteer to name the shape of the book, and then have the class give their books a title with this shape name in it.



- 5 Have the class brainstorm a variety of triangular objects, and record children's answers on chart paper. Have children choose six of these objects to illustrate and describe on each page in their book.

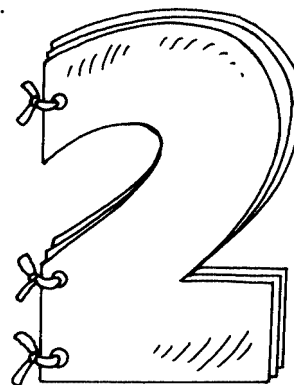


- 6 Repeat the activity with a different shape. As the shapes become more complex, give children patterns to trace on their papers.



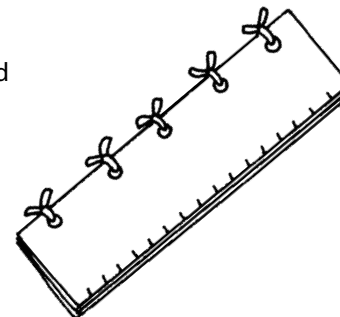
Other Ways to Use the Mini-Shape Book

NUMBERS Have children make books in the shape of a numeral and draw a corresponding number of items on the inside pages. Have them draw the items, or invite them to cut out pictures from catalogs and magazines to glue to the pages.



MEASUREMENT

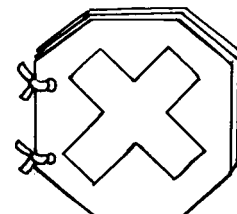
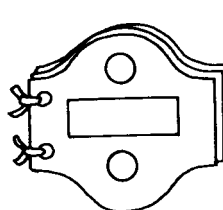
Have children make a ruler-shaped book, and invite them to draw objects and their measurements on the inside pages.



MONEY Have children make round books to decorate like coins. Have them label each page with the same dollar amount and glue money from the Money reproducible (page 103) to show each way that same amount can be made.



MULTIPLICATION AND DIVISION Have children make books in the shape of the multiplication or division sign and record fact families on the inside pages. Invite them to illustrate each fact family.





Step Book

S H A P E S

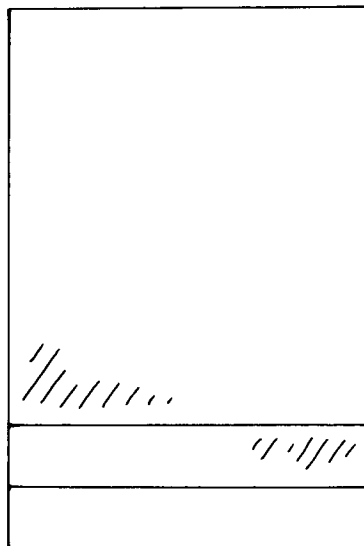
MATERIALS

8 1/2" x 11" (21.5 cm x 28 cm)
blank paper

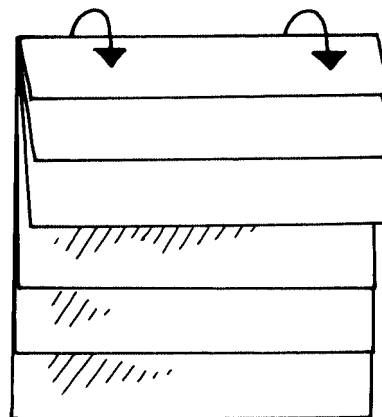
stapler

crayons or markers

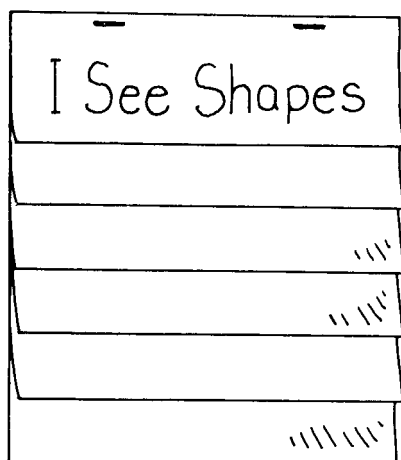
- 1 Give each child three sheets of blank paper, and have him or her overlap the three sheets as shown, leaving a 1" (2.5 cm) margin at the bottom of each page.



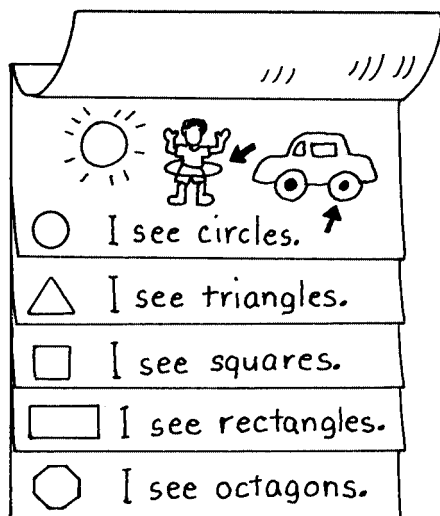
- 2 Have children hold the pages securely so they remain overlapped, and fold the top sheet so that its top edge folds to 1" above its bottom. The book now has six pages.



- 3 Have children staple through all layers at the fold and write *I See Shapes* on the top page.

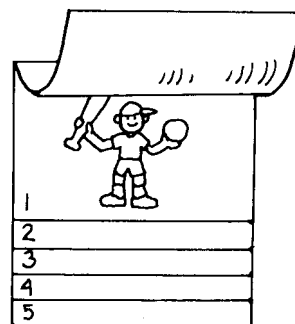


- 4 Have children select five different shapes and draw one on each step. Have students write *I see _____* next to each shape. After children fill in the blanks with the name of each shape, have them draw an item that contains that shape on each corresponding page.



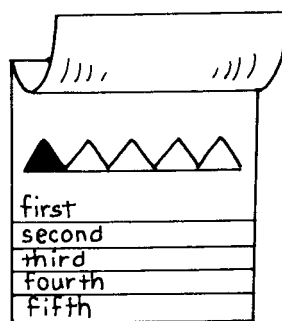
Other Ways to Use the Step Book

COUNTING Have children write a numeral on each step. Direct children to draw the correct number of objects to go with each numeral. Alternatively, provide children with small manipulatives, such as dried beans, buttons, or pasta, that can be glued to each page.

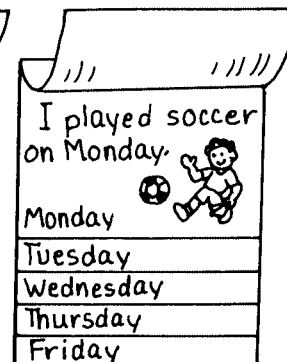
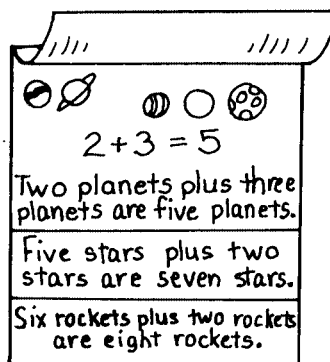


ORDINAL NUMBERS

Have children write an ordinal number on each step. On each page, have children draw the outline of five objects in a row and color the one that matches the ordinal number.



ADDITION Have children use small rubber stamps or stickers to illustrate addition problems and then write an equation for the problem on each page. On each step, have children write a word problem to accompany each equation and illustration. Invite children to use your current thematic unit as a basis for their story problems.



TIME Ask children to write the name of a school day on each step. Have children use each day in a sentence and draw a picture of something they did for each corresponding day.



Seed Book

P A T T E R N S

MATERIALS

seed packets

large bowl

measuring cup

small resealable plastic bags

small index cards

scissors

tagboard

coin envelopes

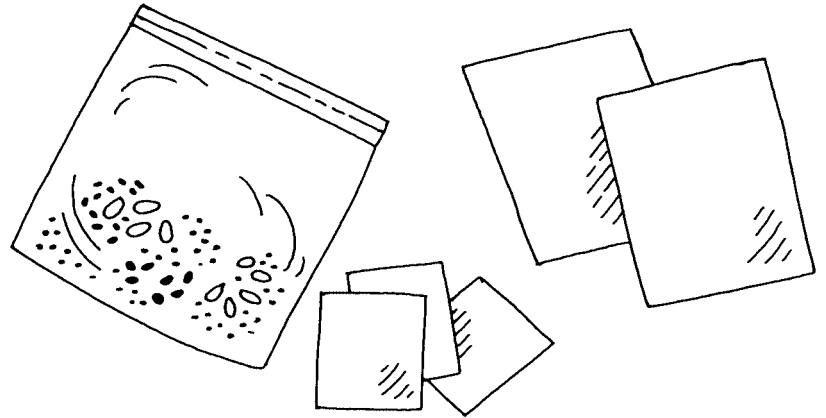
book rings

crayons or markers

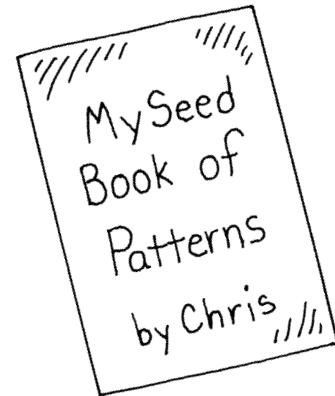
glue sticks

hole punches

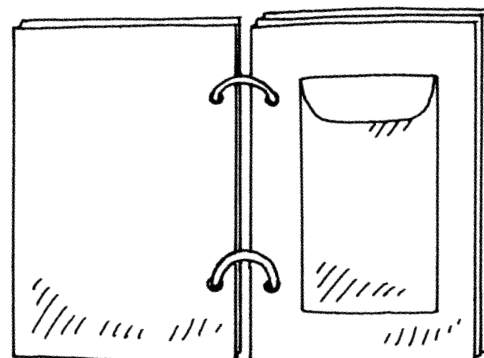
- 1 In advance, mix packets of seeds of varying sizes in a large bowl. Place $\frac{1}{4}$ cup (50 ml) of the mixture in a resealable plastic bag for each child. Cut small index cards in half and tagboard into 5" x 7" (12.5 cm x 18 cm) pieces.



- 2 Give each child six tagboard pieces, five coin envelopes, two book rings, and a bag of seeds. Have children label one piece of tagboard with the title *My Seed Book of Patterns* and their name.



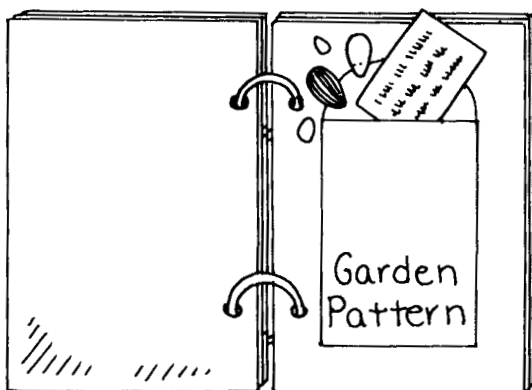
- 3 Have children glue an open coin envelope to each remaining piece of tagboard, punch two holes in the side of each piece, and bind the pieces together with the book rings. Have children set the book aside to dry.



- 4 Invite children to open their bag of seeds and sort them carefully on their desk. Challenge children to create five different patterns. While children are creating patterns, give them each five small index-card halves.



- 5 Have children draw their patterns on the index cards and then place each card and the seeds for that pattern in one of the coin envelopes of their book. Finally, have children name each pattern and write it on the coin envelope and on the back of the card in the envelope.



- 6 Invite children to trade books and recreate the patterns their partners made. Have children look at the cards and use the seeds to make each pattern. Remind them to be respectful of the work of their partners and to keep track of the seeds in each envelope.



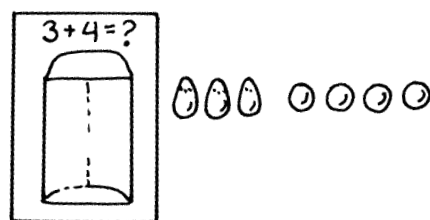
Other Ways to Use the Seed Book

COUNTING Have children make the book with eleven tagboard pieces for this activity. Have children label ten coin envelopes with the numerals 1–10. Have them fill each envelope with the corresponding number of seeds. Have children count as they fill the envelopes. Have them count backward from 10 to 1, as well.

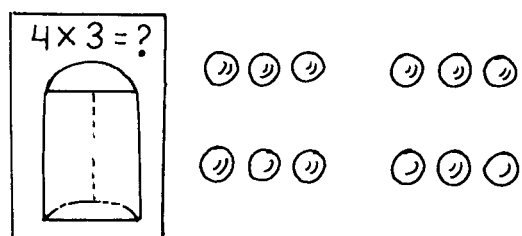
ESTIMATION Have children trade books with a partner. Ask them to estimate the number of seeds in each coin envelope. Have them pour out the seeds, look at the amount for two seconds, cover them with a piece of paper, and then record their estimate. Finally, have them count the seeds to see how close their estimate was.



PROBLEM SOLVING Give children addition and subtraction problems for five tagboard pages with coin envelopes and bags with ten varieties of seeds. For example, ask them to add together their corn and pea seeds or subtract their pumpkin seeds from a handful of mixed seeds. Invite them to record each problem on an envelope and place the seeds they used in the corresponding envelope.



MULTIPLICATION Have children label each of five envelopes with one multiplication equation they need to learn or review. Have children put into each envelope the corresponding number of seeds to match the product on the envelope. Finally, invite them to trade books to solve the multiplication problems in their partner's book.





Double Spirals Book

P A T T E R N S

MATERIALS

construction paper

scissors

spiral binding combs

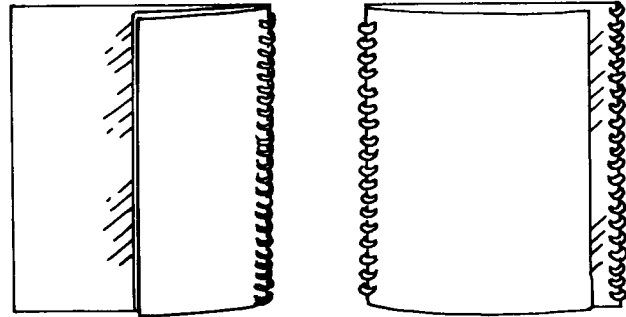
ruler

crayons or markers

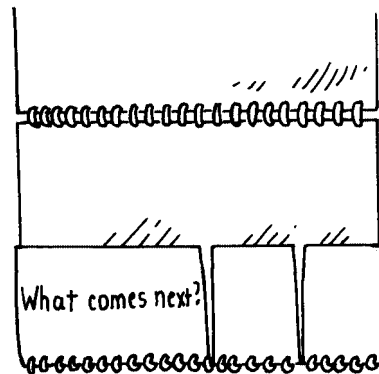
small patterning materials

glue

- 1 Cut construction paper into $4\frac{1}{2}$ " x 12" (11.5 cm x 30.5 cm) strips. Use a spiral binding comb to bind six strips to the right side of a 9" x 12" (23 cm x 30.5 cm) piece of construction paper. Make sure the 9" x 12" piece is on the bottom.
- 2 Stack six $4\frac{1}{2}$ " x 12" strips on the left side, and place an $8\frac{1}{2}$ " x 12" (21.5 cm x 30.5 cm) piece of construction paper on top. Bind this stack to the left side of the 9" x 12" paper.

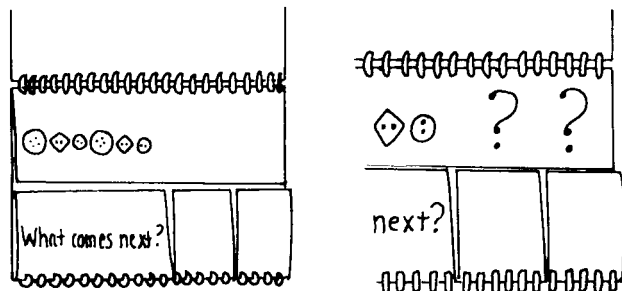


- 3 Turn the book so that the $8\frac{1}{2}$ " x 12" piece swings up. Hold a ruler along the top edge of the bottom strips, measure 3" (7.5 cm) from the right, and use a pencil to make a mark on the $1\frac{1}{2}$ " (4 cm) line and the 3" line. Cut down from the marks, through the stack, to create two smaller flaps (as shown).
- 4 Give each child a book, or have children work in pairs. Invite children to use crayons or markers to write *Patterns in My World* on the cover and decorate it. Have children write *What comes next?* on each of the first, long, lower flaps. Show children a completed pattern book, and model how the book works.

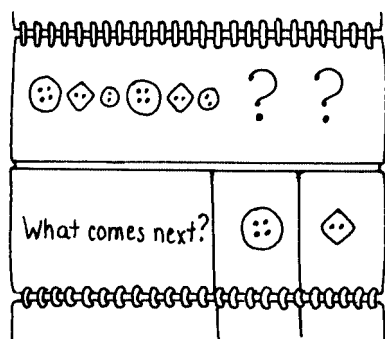


- 5 Over the next few days, have children collect small patterning materials that can be glued to a page. Choose at least one material to use as a class. For example, provide each child with a set of 12 buttons made up of three or four different kinds. Have children assemble their buttons in a pattern on the first page of the upper set of pages. After you have checked their pattern, have children glue their buttons in a pattern on the left half of the page, leaving the area above the two small flaps on the lower sets of pages blank.

- 6 Have children use crayons or markers to draw a question mark above each of the two small flaps.

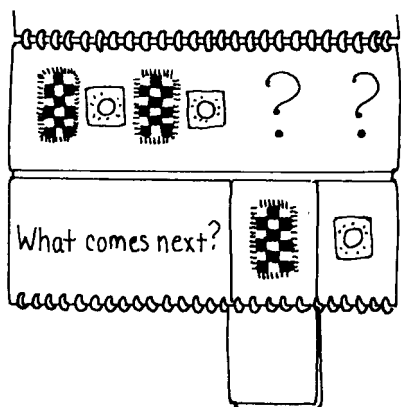


- 7 Invite children to glue the next button in the series on any one of the middle lower flaps. Then have them complete the pattern by gluing the last button in the pattern to any one of the last lower flaps.



- 8 Continue to have children collect materials, create and glue a pattern to a top page, and place the materials that finish the pattern on the last two bottom flaps in random order. Be sure to remind them to place the second to last material on any flap in the first set of small flaps, and the last material on any flap in the last set of small flaps.

- 9 When the books are complete, invite children to reread their book of patterns, looking through the small flaps on the bottom to find the two pieces that will complete each pattern. Invite children to exchange books to read and complete the patterns of their peers.

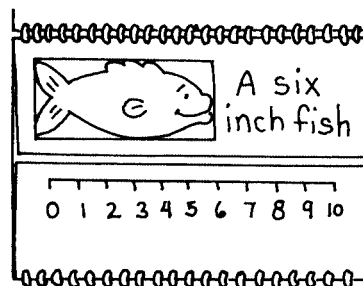


Other Ways to Use the Double Spirals Book

For these activities, skip Step 3.

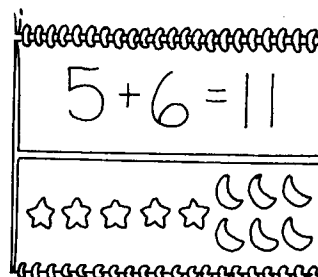
NUMBERS Have children write numbers and number words on the upper pages and glue the corresponding number of cutout shapes in random order on the lower pages.

MEASUREMENT Invite children to write the title *How long am I?* on the cover. Have children copy onto each lower page the inch (or centimeter) marks, up to 10" (25.5 cm), from a ruler and label them. Have children draw a picture or glue an illustration from a magazine or newspaper on each upper page, aligning the left edge of the picture with the 0 on the ruler. Have children record the measurement of each picture on a lower page.

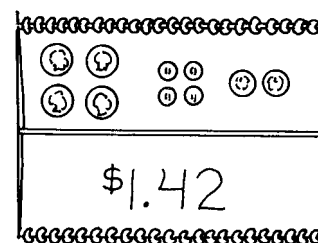


ADDITION, SUBTRACTION, MULTIPLICATION, AND DIVISION

Have children write an equation on each upper page and draw each answer in pictures on a lower page. Alternatively, have children write word problems on the upper pages and equations on the lower pages.



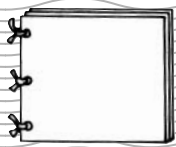
MONEY Have children glue coins from the Money reproducible (page 103) on the upper pages and write the dollar amounts on the lower pages.





Let's Get in Shape!

S H A P E S



MATERIALS

Shapes reproducible (page 88)

chart paper

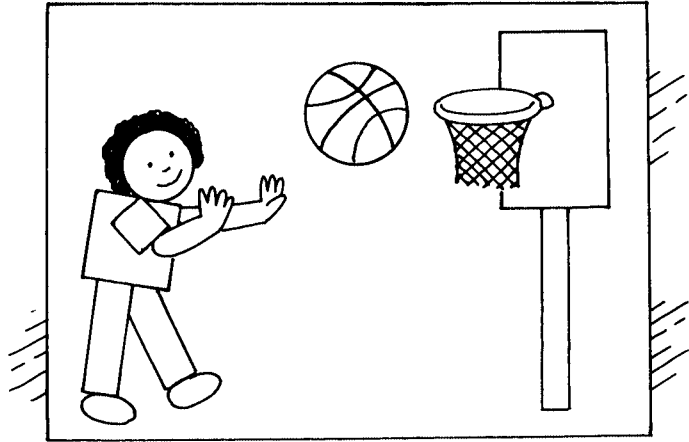
construction paper

scissors

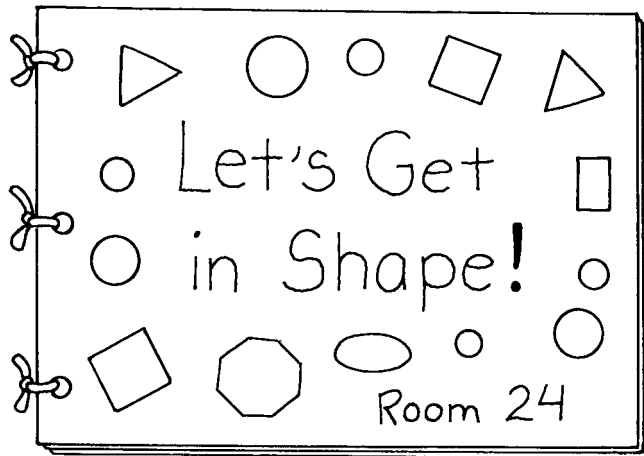
glue

crayons or markers

- 1 Have children brainstorm a list of indoor and outdoor activities that people do to keep in shape (e.g., jumping rope, swimming, running). Record their answers on chart paper. Give each child a Shapes reproducible and construction paper, and invite children to cut out the shapes and glue them onto construction paper to create a picture of people exercising.

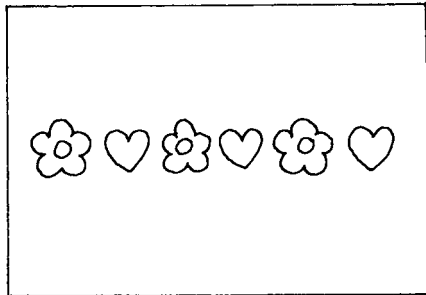


- 2 Title the book *Let's Get in Shape!*, and invite a volunteer to decorate the cover and bind the pages into a class book.

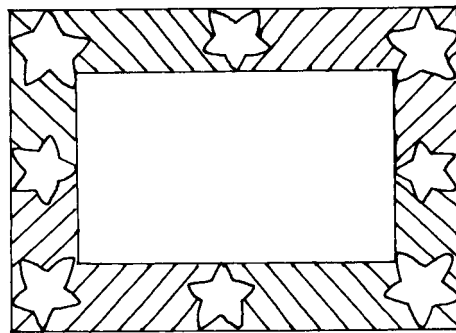


PROCEDURE

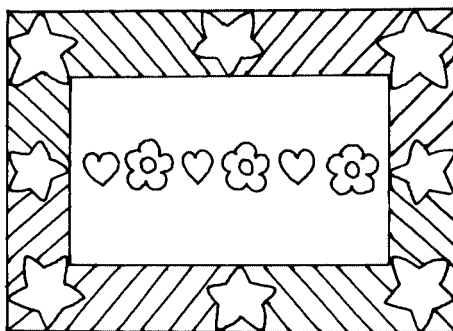
- 1 Discuss various patterns children see in the classroom and around the school, such as patterns on clothing, patterns on a bulletin board, or patterns in the floor tile or carpeting. Give each child a piece of blank paper, and invite children to use construction paper or rubber stamps or stickers to create a "picture-perfect pattern."



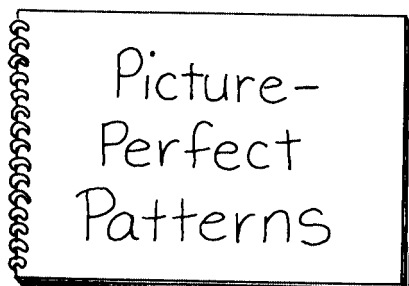
- 2 Next, give each child a Picture Frame reproducible, and encourage children to color a pattern on the frame.



- 3 Then, have children glue their finished pattern on the reproducible.

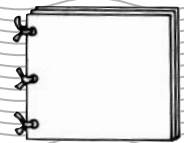


- 4 Bind the pages into a class book, and title it *Picture-Perfect Patterns*.



Picture-Perfect Patterns

P A T T E R N S



Picture Frame reproducible
(page 89)

blank paper

construction paper

rubber stamps or stickers
(optional)

scissors

crayons or markers

glue

MATERIALS