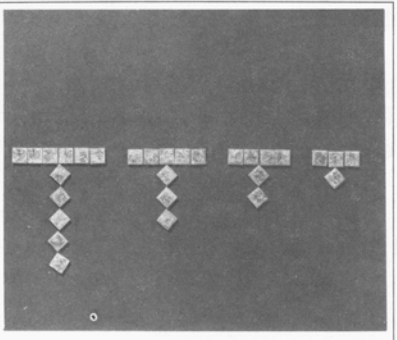
APPENDIX

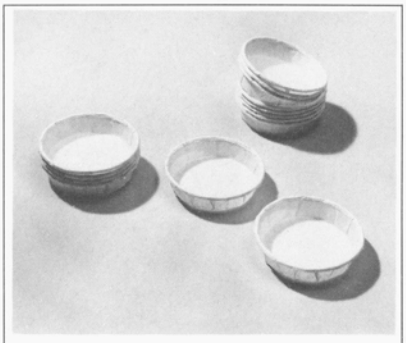
Glossary of Materials

All items in this section are coded with an asterisk (*) in the materials section in the text.

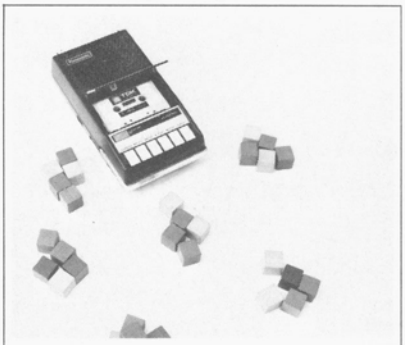


CERAMIC TILES
1″ tiles used for tiling bathrooms and kitchens. (Listed in the yellow pages under Tile, Ceramic. Call the contractors and ask them if you can have their odds and ends.) Quantity needed: 500–600 of *one* color.

COMMON OBJECTS
Objects commonly found around the house. The word identifying the object should be written on a piece of masking tape. Real objects, not plastic substitutes or toys, should be used: A baby's shoe, a bar of soap, a box of crayons taped shut, a can of tuna fish, a small notebook, a roll of tape, a small bottle of glue, a rock, an onion, etc. Quantity needed: 15–20.



COUNTING CUPS
"Portion cups" ½″ high × 2″ in diameter. Sold in supply stores (listed in the yellow pages under Janitor's Supplies or Restaurant Equipment and Supplies). Inexpensive. Quantity needed: 1 box of 250 for jewels; 2 boxes of 3-oz cups for base ten place value activities.

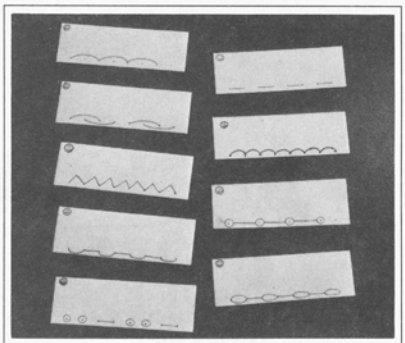


COUNTING TAPE
Record the counting sequence with a one-second interval between each number on three tapes:

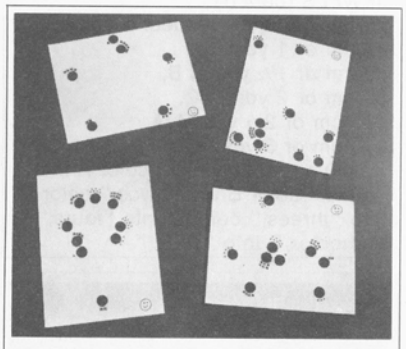
Tape	*Side*	*Counting sequence*
1	A:	1–5
	B:	1–6
2	A:	1–7
	B:	1–8
3	A:	1–9
	B:	1–10

Children having difficulty counting can listen to the appropriate tape and count out groups of wooden cubes.

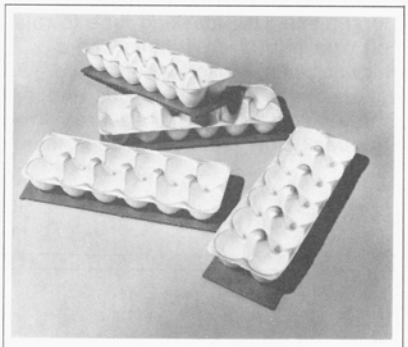
DOT CHART
Piece of tagboard 30 cm × 90 cm or 12″ × 36″, cardboard backing and acetate overlay (from art supply stores). Draw dots approximately 1″ apart with a black marking pen on the tagboard. Cover the tagboard with acetate and attach with masking tape to the cardboard backing. Quantity needed: one.



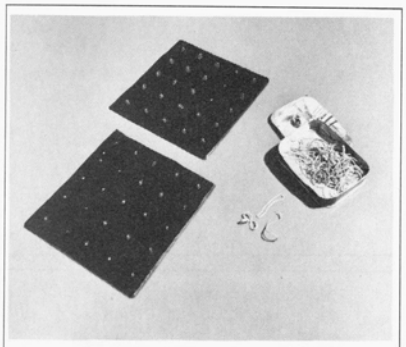
DOT PATTERN CARDS
A set of CARDS (6 cm × 20 cm or 2½ × 8″) with dot patterns. Each card should be a different pattern and the set should contain a variety of levels of difficulty so that children have a range of levels from which to select. Quantity needed: 20–25 cards.



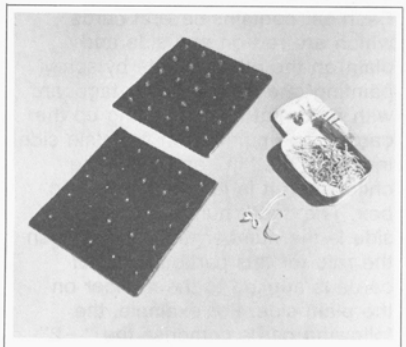
DOT TO DOT TEMPLATES
Simple designs on 21½ cm × 28 cm or 8½″ × 11″ tagboard which forms a dot to dot picture when completed by the child. Cut a hole with a pair of manicuring scissors where each number goes. On one side put numbers above each hole and on the other side put the dots above each hole. This gives children a choice of levels when working with this material. Quantity needed: 10 different designs. (Available from the Center for Innovation in Education)



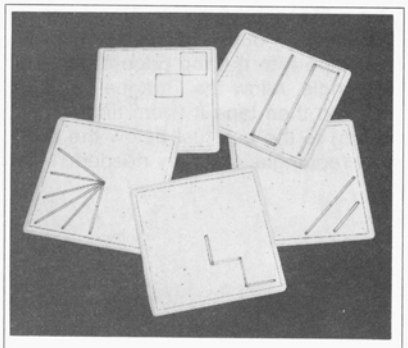
EGG CARTON GRAPHING BOARD
Cut the lid off each Styrofoam egg carton and rubber cement the bottom portion to a 10 cm × 29 cm or 4″ × 11½″ cardboard rectangle. Quantity needed: 10–12.



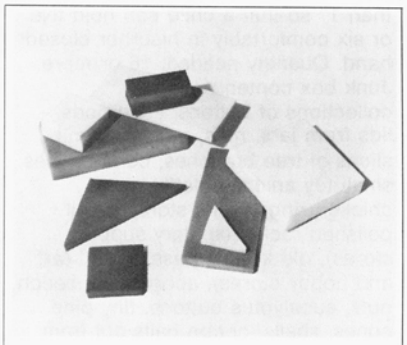
GEOBANDS
Colored rubber bands. Available in good stationary stores or in bulk from business supply stores. Quantity needed: 200 in about four colors.



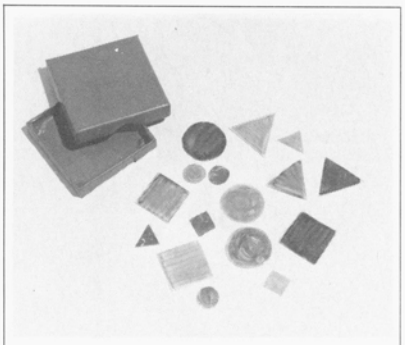
GEOBOARDS
Boards, 20 cm or 8″ square (size can be larger or smaller) with 25 nails in a 5 × 5 array. May be purchased or teacher made. (Use the geoboard paper, Worksheet 17, as a model for hammering nails.) Quantity needed: 16 or more.



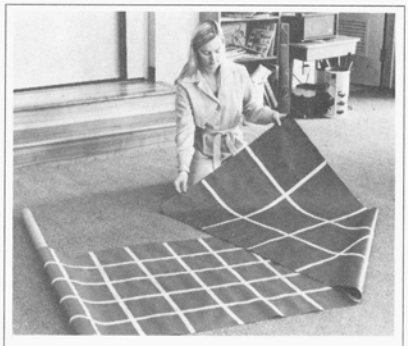
GEOBOARD SEQUENCE CARDS
A series of geometric designs on 20 cm or 8″ square paper which are to be copied onto a geoboard and then "finished" by the child. Quantity needed: 15–20 different designs.



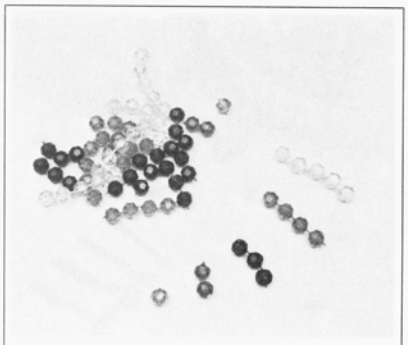
GEOMETRIC SHAPES
Cut from thick and thin foam rubber scraps from upholstery stores. Foam is also available by the yard from fabric and dime stores. (Pattern on Worksheets 20–21.) Spray paint the shapes in three colors according to the directions. Quantity needed: one set.



GEOMETRIC SHAPES FOR THE OVERHEAD PROJECTOR
Cut from a plastic lid and colored with permanent marking pens. (Pattern on Worksheet 20.) Quantity needed: 1 set.



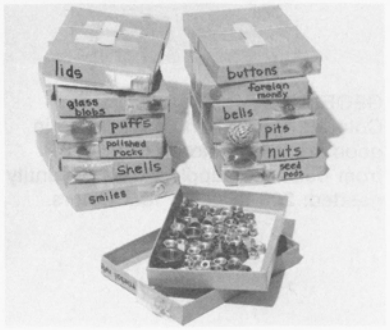
GRAPHING PLASTIC
Go to discount fabric stores and buy two yards of vinyl. It comes very wide and you should be able to get it for less than $4.00. Cut it in half and tape it together so you have one very



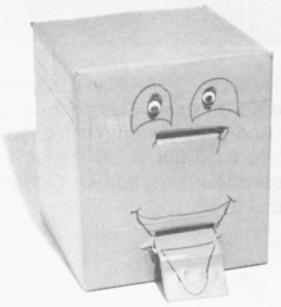
JEWELS
Plastic beads strung together (commonly used to make room dividers). Available in hobby stores, through mail order catalogues, and in art supply departments of discount

GRAPHING PLASTIC (*cont'd*)
long piece. Use masking tape to rule off your grid or draw lines with a marking pen. Make five or six columns of squares on one side and three columns of larger squares on the back side. Quantity needed: one.

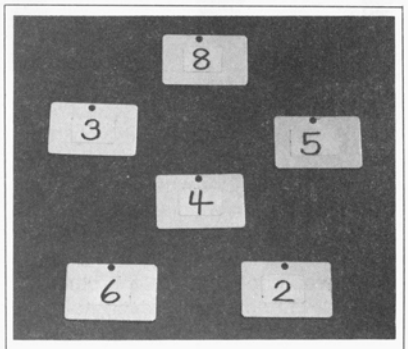
JEWELS (*cont'd*)
stores. Quantity needed: 5 colors:
40 cm or 1 yd of A,
60 cm or 1½ yds of B,
80 cm or 2 yds of C,
100 cm or 2½ yds of D,
120 cm or 3 yds of E.
Have your children cut color A into "ones," color B into "twos," color C into "threes," color D into "fours," and color E into "fives."



JUNK BOX
An empty stocking box (available, free, from hosiery departments) with a collection of 50–75 items (each less than 1" so that a child can hold five or six comfortably in hisorher closed hand. Quantity needed: 16 or more.
Junk box contents:
collections of buttons, seed pods, lids from jars, nuts, pits from fruit, slices of tree branches, ceramic tiles, small toy animals, bottle caps, chicken rings (dime store), small polished rocks (lapidary supply stores), old keys, "glass blobs" (art and hobby stores), acorn tops, beech nuts, eucalyptus buttons, tiny pine cones, shells, cotton balls cut from fabric trims, Indian corn kernels, rosehips, beans, river rocks, small pieces of buffalo chips, nuts and bolts, old erasers, small sticks, etc., etc., etc.



MAGIC BOX
Made from any size or shape box. Cut out two rectangles (8 cm × 2 cm or 3½" × ¾") in the front of the box. Cut a "tongue" 8 cm × 45 cm (or 3½" × 18") out of red poster board and tape it to the top edge of the top rectangle. Allow the "tongue" to stick out and then tape it (from underneath) to the box just below the bottom rectangle. Quantity needed: 1–3.



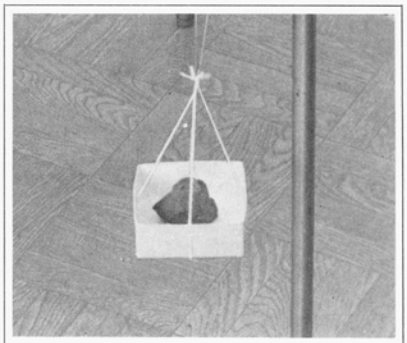
MAGIC BOX NUMBERS
Eight sets of cards, each set of which must be easily told apart from every other set.
Each set contains several cards which are red on one side and plain on the other. (Made by spray painting one side of heavy tagboard with red paint before cutting up the cards.) The number on the plain side indicates the "in" and faces the child when it is fed into the magic box. The "out" number on the red side is the number that results when the rule for this particular set of cards is applied to the number on the plain side. For example, the following cards comprise the "−2" set:

	in	out		in	out
Card A	2	0	Card F	6	4
Card B	5	3	Card G	3	1
Card C	10	8	Card H	8	6
Card D	7	5	Card I	9	7
Card E	4	2			

Similar sets should be prepared to demonstrate the rules −1, +1, −2, +2, −3, +3, −4, and +4.

MEASURING SET WITH JARS
Assorted jars, all different, varying in height. circumference, volume, and shape. A set of measuring cups and measuring spoons. Water or 6 lbs of rice or millet (available in feed stores)

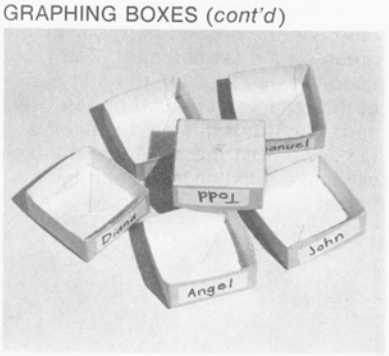
MILK CARTON GRAPHING BOXES
A. Empty ½ gallon milk cartons, cut off square, and cover with contact paper. A child's pictures is taped to the bottom. Quantity needed: one per student.



MILK CARTON SCALE
One ½ gallon milk carton cut down to 3 cm or 1¼". Punch a hole in the four sides and thread a piece of string through the holes. Tie the string at the top and attach it to a

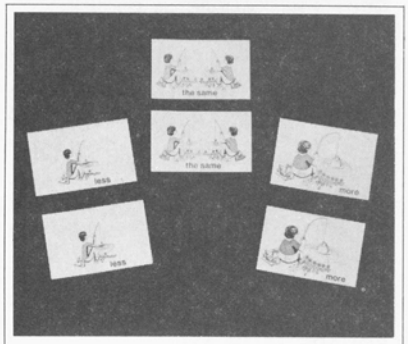
MEASURING SET (*cont'd*)
if dry measuring is preferable to liquid. Paper funnels, container for rice and jars. Quantity needed: 15–20 jars.

GRAPHING BOXES (*cont'd*)

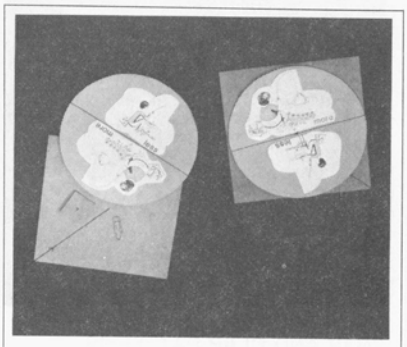


B. Empty ½ gallon milk cartons, cut off at 4 cm or 1½″ from the bottom, covered with plain contact paper. One child's name is written on each. Quantity needed: one per student.

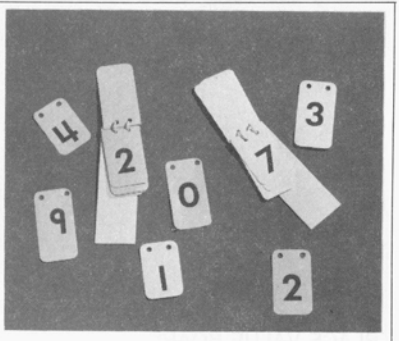
MILK CARTON SCALE (*cont'd*)
rubber band. An old ruler taped to the desk or placed on top of a bookcase provides the attachment point. Quantity needed: two.



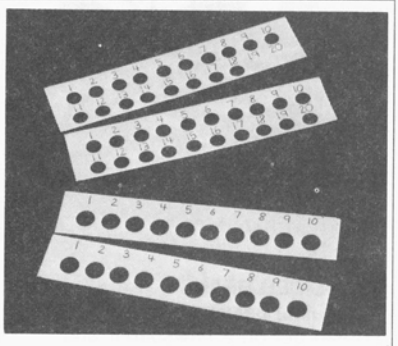
MORE-LESS-SAME CARDS
Tagboard cards 5 cm × 10 cm or 2″ × 4″ with the words "more," "less," or "same" written on them. (See Worksheet 24 for pictures.) Quantity needed: approximately 20–25 of each.



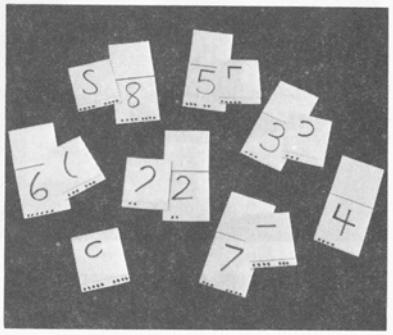
MORE-LESS SPINNER
Made from a square and a circle of poster board attached to an opened paper clip. The closed half of the paper clip is taped to the bottom of the square. A small square of cardboard is threaded onto the open half of the paper clip between the square and the circle to act as a washer. After the circle is in place and the open portion of the paper clip is re-bent into its original position. (See Worksheet 24 for pictures.) Quantity needed: approximately 8. See the December 1974 *Arithmetic Teacher* Ideas Section, written by Marilyn Burns.



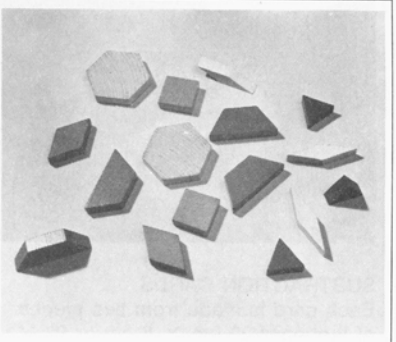
NUMBER FLIPS
Ten cards 3 cm × 7 cm or 1⅛″ × 2¾″. Each card has one numeral written on it so the set contains all the numerals from 0–9 in sequence. The cards are punched at the top and tied loosely with string. Chicken rings or small metal chart rings can also be used. One set constitutes ten white cards and ten blue cards. Quantity needed: 16 or more sets. (Available from the Center for Innovation in Education)



NUMBER LINE TEMPLATES
A number line written on heavy tagboard 5 cm × 28 cm or 2″ × 11″ with a hole under each number (cut with a pair of manicuring scissors, a circle cutter, or punched out with a



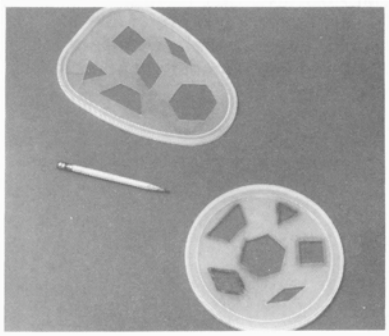
NUMERAL SEQUENCE CARDS
Each card is made from two pieces of tagboard 10 cm × 13 cm or 4″ × 5″ and the second, 10 cm × 15 cm or 4″ × 6″. The first part of the number is written in purple on the top



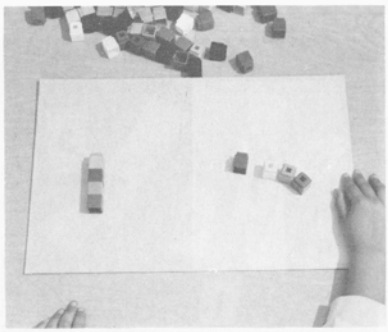
PATTERN BLOCKS
Six wooden geometric shapes in large quantity. Available from Dale Seymour Publications and others. Quantity needed: 3 sets or more.

NUMBER LINE TEMPLATES (*cont'd*)
hole punch). The child writes the appropriate number in each hole. Made either 1–10, or 1–20. Quantity needed: approximately 16 of each. (Available from the Center for Innovation in Education)

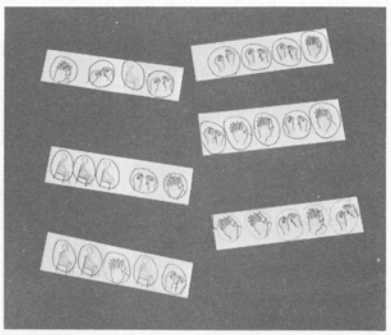
NUMERAL SEQUENCES (*cont'd*)
card and the second part is written in green on the second card. The shorter card (showing the first part of the numeral) is taped on top of the second card. If this card is placed ⅛″ down from the top edge, the tape will make a better hinge and lay flatter.



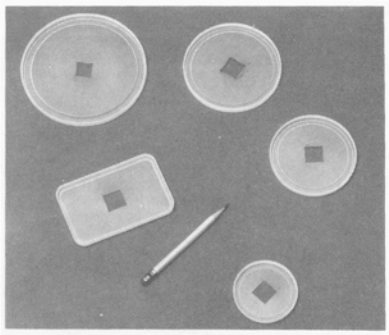
PATTERN BLOCK TEMPLATE
Made by cutting the pattern block shapes out of the lid from a 3-lb coffee can. Quantity needed: 4–5.



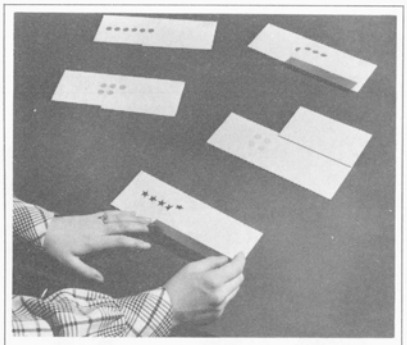
PLACE VALUE BOARD
Pieces of tagboard and light weight cardboard 23 cm × 31 cm or 12″ × 9 with a piece of 14 cm × 21.5 cm or 5½″ × 8½″ blue mimeograph paper glued on the left side of the tagboard. (The colors should match the colors of the number flips.) The paper should be protected with lamination, clear contact paper or acetate. Tape two 6½ cm × 10 cm or 2½ × 4″ pieces of tagboard on the back of the board to form a pocket for attaching the number flips. Quantity needed: 16 or more sets.



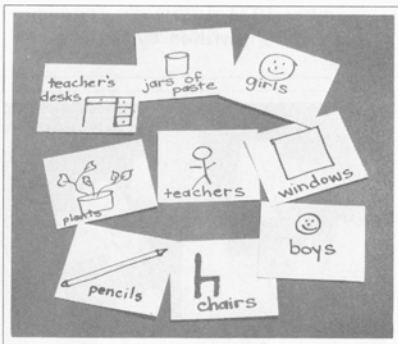
SNAP AND CLAP PATTERNS
Tagboard cards (6 cm × 20 cm or 2½″ × 8″) showing hands snapping and clapping. Each card illustrates a different pattern and a set should have patterns representing a variety of difficulties. (See Worksheet 7 pictures.) Quantity needed: 15–20 cards.



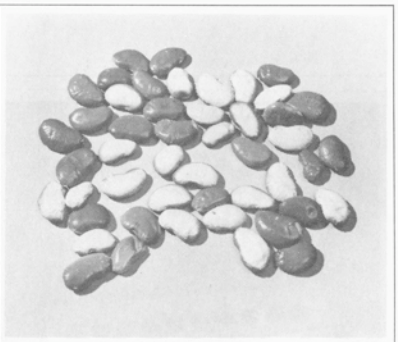
SQUARE TEMPLATE
Made by cutting a square out of a small plastic lid with a single-edged razor blade or an Exacto Knife. Quantity needed: 10–15



SUBTRACTION CARDS
Each card is made from two pieces of tagboard 20 cm × 8 cm or 9″ × 3″ and 10 cm × 8 cm or 4″ × 3″. Place the smaller card about ⅛″ down from the top edge of the larger card and tape it to form two "hinges."

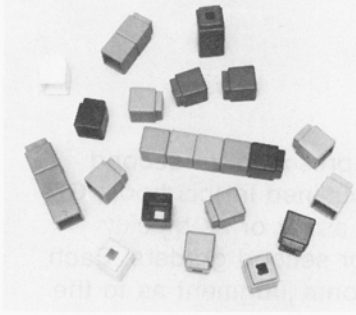


THINGS IN THE ROOM CARDS
Simple line drawings of objects commonly found in the classroom: pencils, desks, male students, female students, sinks, doors, windows, plants, blackboards, shelves, flags, adult teachers, chairs, etc. Quantity needed: 15–20 pictures.

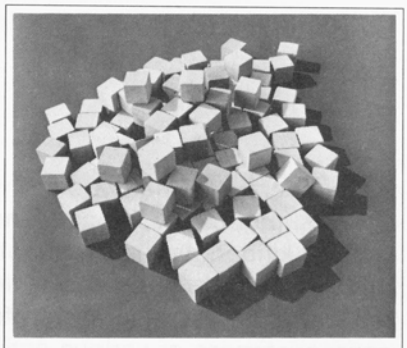


TWO-SIDED BEANS
Large lima beans which have been spread out on a newspaper and spray painted on one side. Quantity needed: 1 lb.

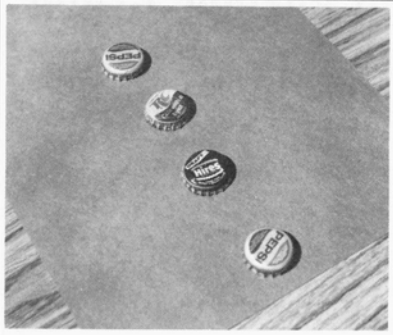
SUBTRACTION CARDS (*cont'd*)
When you have the cards assembled, use a marking pen to draw on dots. Be careful to make the dots straight across so it is not obvious how many are to be subtracted until the right hand card is lifted. Quantity needed: One card for each combination making up the numbers from 1–10.



UNIFIX CUBES
¾″ interlocking plastic cubes. Available from Dale Seymour Publications and others. Quantity needed: 1000.



WOODEN CUBES
2 cm or 1″ blocks of wood. Available colored and plain. Quantity needed: 300–400.



WORKING SPACE PAPERS
A 20 cm × 30 cm or 9″ × 12″ piece of construction paper in dark blue or green, that acts as a clear space on which the children arrange their work. Quantity needed: one per student.

PHOTOCOPIED PICTURES
Take a picture of each child in class so the head sizes are about the size of a quarter. (Pictures smaller than this do not copy clearly, but larger pictures are fine.) You can include several chidren in each photograph. When developed, cut around each child's head and paste it onto the paper included as a black-line master for this purpose (see Worksheet 1). Have each child write hisorher name under the picture.
Now take this to your District office and show them the activities from this book which you plan to use the pictures for. Ask them to please make 35–40 copies for use in your math program. If you have access to an IBM II copier, it makes excellent reproductions of these pictures.

Addresses of sources listed:

The Center for Innovation in Education, Inc.
19225 Vineyard Lane
Saratoga, California 95070

Dale Seymour Publications
P.O. Box 10888
Palo Alto, CA 94303-0879

Educational Teaching Aids
159 West Kinzie Street
Chicago, Illinois 60610

Webster Mc Graw-Hill
1221 Avenue of the Americas
New York, New York 10020