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FREE EXPLORATION

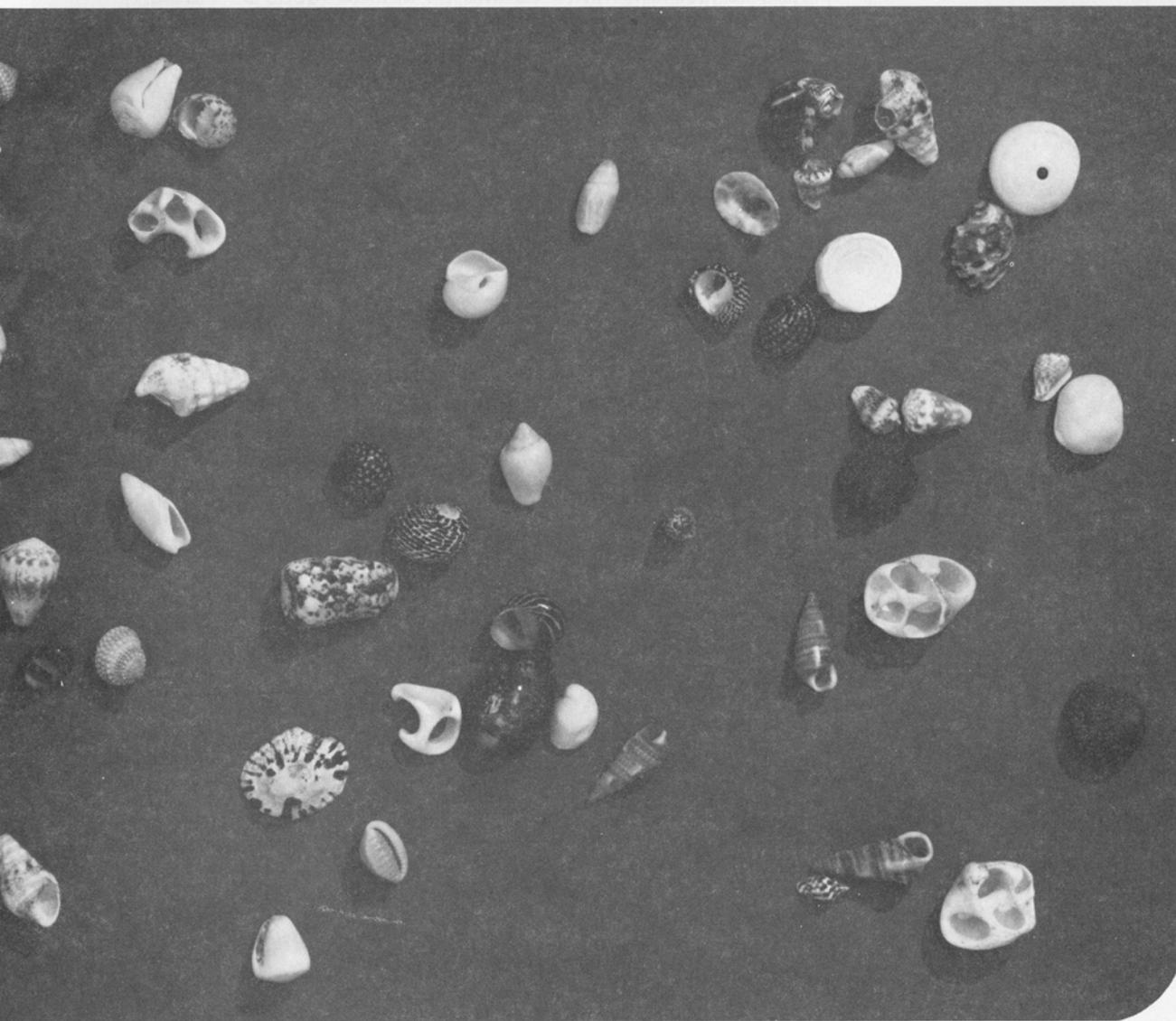


SKILLS AND CONCEPTS _____ Exploring the potentials and limitations of various materials
Observing similarities and differences
Measuring and comparing volume, mass, and length
Developing language skills

SELF CONCEPT AND SOCIAL INTERACTION _____ Contributing to the learning environment by collecting materials for classmates to use
Learning to work cooperatively with others
Experiencing and sharing the joy of discovery
Acknowledging the relationship of self to others through role playing

FUTURE APPLICATION _____ Problem solving
Logical thinking

PREREQUISITE CHAPTERS _____ None

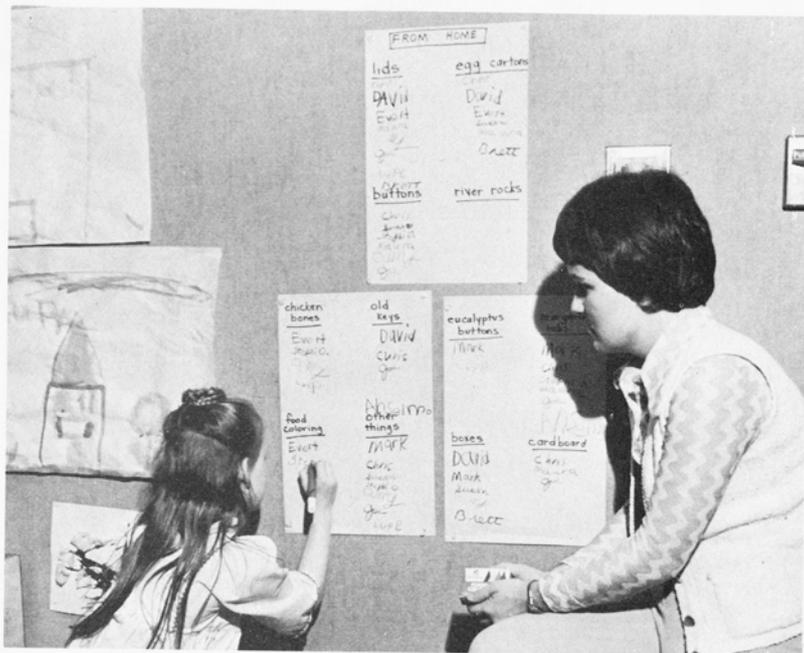


INTRODUCTION

Every child needs time to explore new materials in his or her own way before those explorations are directed. A box of buttons dumped onto the table will spark a unique series of thoughts for each child. One child may begin to sort the buttons by color; another may pick up the ones that resemble buttons on an article of clothing at home and mention it to a friend; another may pick up a clear button and peer through it like a monocle; still another may pair the identical buttons. During this period questions and challenges from another person, no matter how stimulating and fascinating, interfere with the natural and spontaneous interests which the material creates in each child's mind.

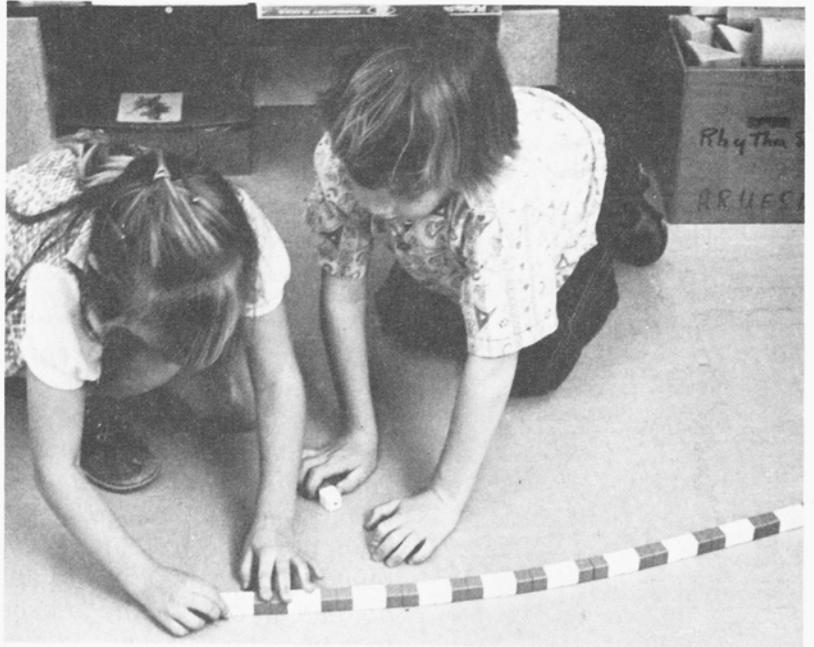
Only when children have had time to play and explore new materials in their own way will they be able to see the materials as *learning materials* and be able to focus on mathematical concepts rather than on the materials themselves. Without free exploration children's play interests are unsatisfied, and until this need is fulfilled, the children will pursue this priority relentlessly.

During the first two weeks of school, introduce the materials the children will be using during the first half of the school year. Bring in a few new things each day and show them to the entire class at one time. Tell your students the name of each material and explain where it came from. (If you don't do this, the children assume the materials have appeared out of thin air.) If you sent a note home before school starts asking parents to help collect items for your math program (see Sample Letters to Parents in the appendix), you will be getting things from home by now. Each time a child brings something to class, record it and read the list to the children each day.



1

FREE EXPLORATION



Substitute materials freely. The goal is to introduce gradually whatever materials your class will be using.

Establish a storage place for each item, and code each box of materials and the shelf where it is to be stored. Have your class observe while several volunteers take a material, match it to the appropriate code on the shelf, and put the material away.



To introduce the second ground rule, have the children put their pattern blocks away. Talk about how easy it is in the excitement and fun of cleaning up to forget this rule and throw things into the boxes rather than taking the time to *place* them inside carefully. Then talk about *why* it is dangerous to throw things. Ask the children to tell stories of their past reactions to being hit by something thrown across a room. Special attention to this rule is needed again at clean up time.

Gradually introduce the rest of the materials, reiterating the ground rules each day. At the end of each work period compliment the children on their thoughtfulness for one another's safety and enjoyment. (If there have been no problems, it is still important to mention to the children that you notice they are following the ground rules.)

During the next several days or weeks as your children explore the materials freely, observe the way different children use each material, noting who explores by ordering, sorting, or arranging materials in an organized way, who has difficulty thinking of anything to do, who works with others in a group, who prefers to work alone, and so on. Try to keep informal notes of your observations (see the Observation Sheets in the Black-Line Masters).

FREE EXPLORATION OBSERVATIONS	John	Mary	Bobby	Jack	Judy	Paul B.
Intensity of interest (low) Δ + \star (high)	\star	\star	Δ	\star		
Enjoyment (low) Δ + \star (high)	+	\star	?	\star		
Practicing ground rules (rarely) Δ + \star (usually)	\star	\star	Δ	+		
Spontaneously verbalizing about task (low) Δ + \star (high)	Δ	+	Δ (rare)	\star		
Matching or pairing (tally)	!					
Sorting by color or kind (tally)		!!!				
Sorting by detail (tally)	!					
Patterning (record the pattern made with ABCs)		A2AB				
Ordering (rare) (tally)		1 (size)				
Building (flat or up)	flat	up		up		
Design (simple) Δ + \star (elaborate)	\star	+		\star		
Working preference (alone or with others)	others	others		alone		
Involvement (needs help to be directed) Δ + \star (self-directed)	\star	\star		\star		
Date: <u>Oct 4</u> When to observe: <u>During initial free exploration whenever children are introduced to a new material.</u> Materials from which the child selected: <u>junk boxes</u> <u>pat blocks</u> Are the groups structured by <u>X</u> student or <u> </u> teacher choice? Are children <u> </u> rotating or <u>X</u> changing materials at will? Observer <u>Pauline</u>						

Weighing Common Objects

SKILLS _____ Measurement
Free exploration
Comparing

MATERIALS _____ Common objects,* two milk carton scales*

ACTIVITY _____ Two children weigh objects and tell one another which is heavier or lighter.



“The orange is heavier than the scissors.”



Mirrors

SKILLS _____

Free exploration
Discovering properties of mirrors

MATERIALS _____

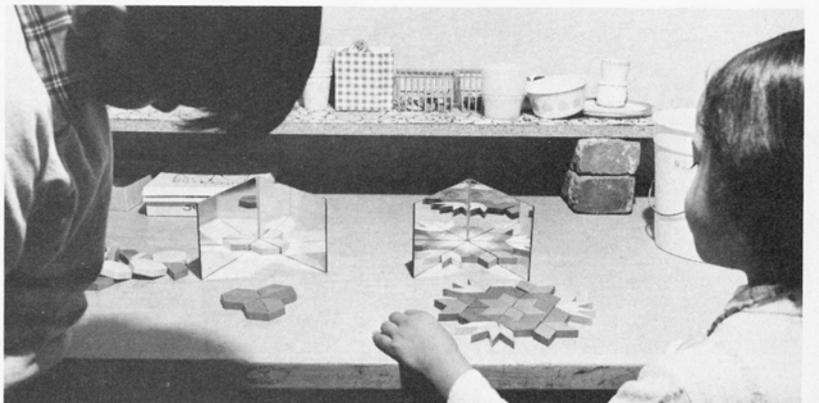
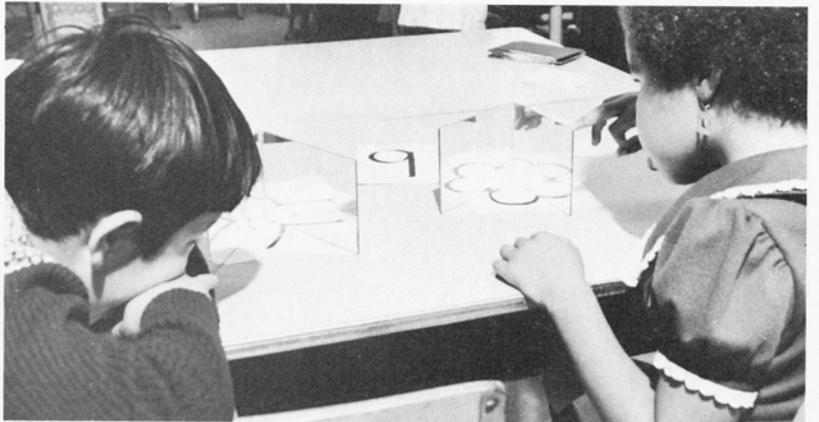
Mirrors, books, and magazines

ACTIVITY _____

The children explore the environment and printed materials with a mirror.



When you sense the children are beginning to lose their initial interest in the mirrors, hinge two together and encourage them to continue exploring.



Food Coloring

SKILLS _____

Free exploration
Pattern
Comparing

MATERIALS _____

Peanut butter jars or other wide-mouthed jars, food coloring

ACTIVITY _____

The children fill a jar with water and look at the pattern and colors formed when they drop food coloring into water.



After a few days, put out salt and sugar so the children can compare salt and sugar water patterns.





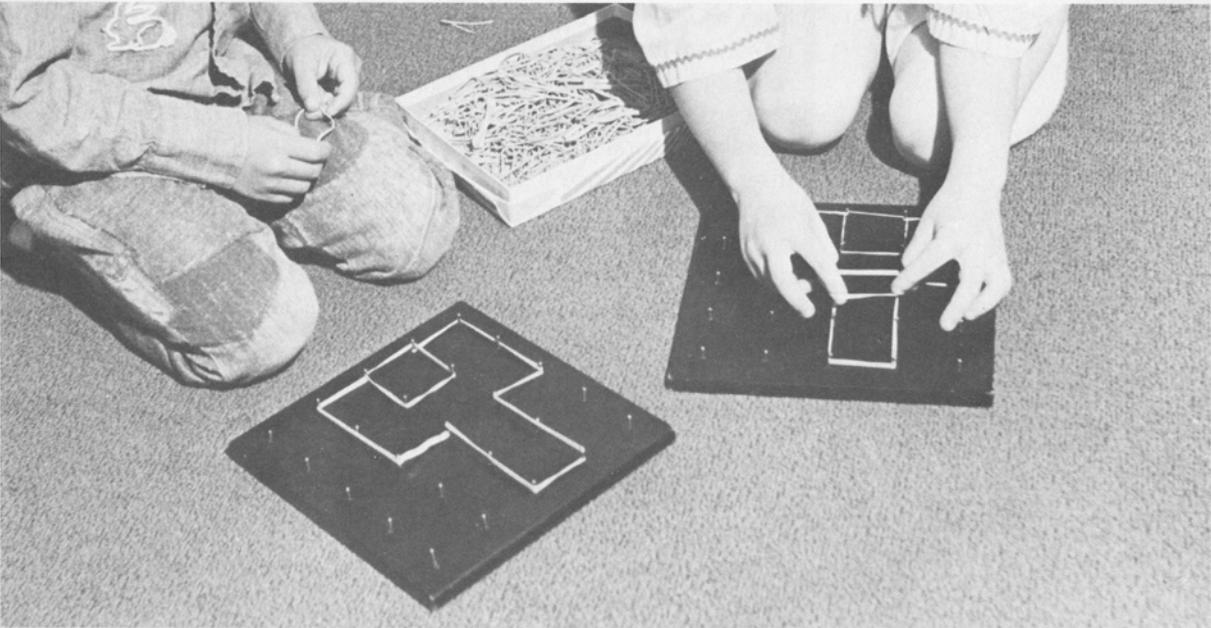
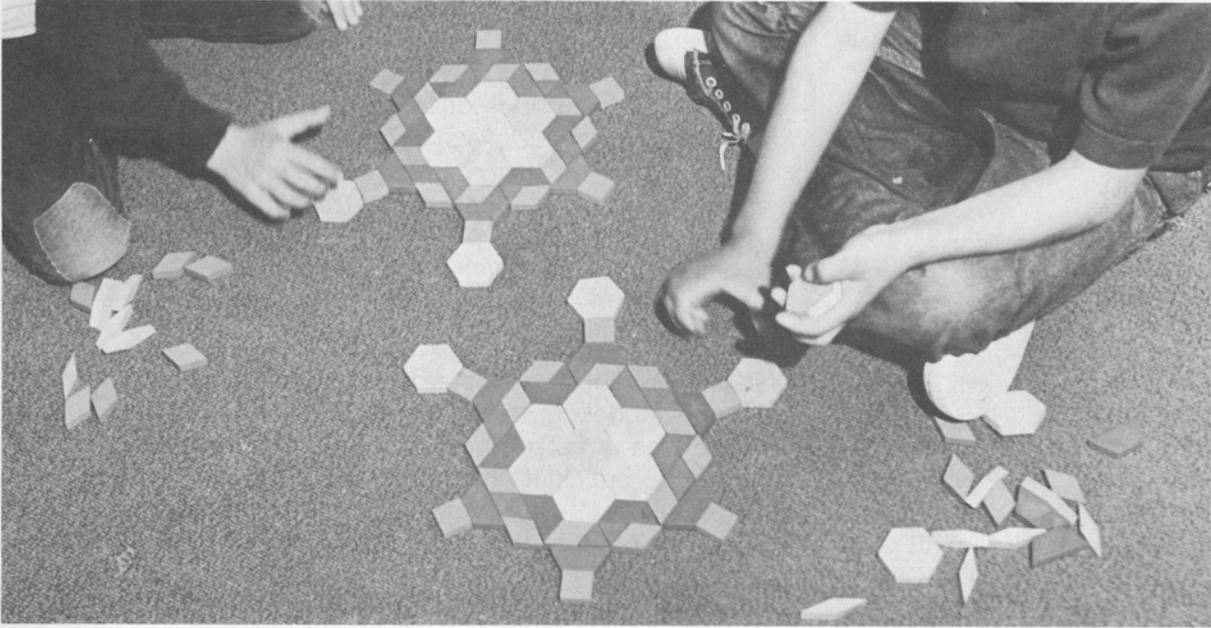
Reproducing Designs

SKILLS _____ Hand-eye coordination
Matching
Comparing

MATERIALS _____ Geoboards and geobands,* pattern blocks,* Unifix cubes* or wooden cubes*

ACTIVITY _____ The children work in pairs. One child makes a design and the second child copies it using the same material.





When you feel a child is successful with these activities and in need of an additional challenge, the child can copy geoboard designs onto dot paper (Worksheets 17–19) and pattern block designs by gluing down construction paper pattern block shapes (Worksheets 2–6) or by using the pattern block template*.

QUESTIONS FROM TEACHERS

DOESN'T IT TAKE FOREVER
TO COLLECT ALL THE JUNK
FOR THE JUNK BOXES?

Yes, unless you get some help from parents and your students. Before school starts, I mail a note to my children telling them I am going to be their teacher during the next year. I ask them to bring collections of buttons, lids, toys, bottle caps, rocks, old keys, acorn tops, or other local items. I collect only a few things: perhaps the chicken rings, the glass blobs, and the cotton puffs. This makes collecting easy and turns it into a class project rather than an additional responsibility for the teacher.

I'M AFRAID MY CHILDREN
WILL THROW THESE THINGS
AT EACH OTHER RATHER
THAN EXPLORE THEM.
THEORETICALLY, I WANT
THEM TO HAVE THESE
EXPERIENCES, BUT I DON'T
KNOW IF IT'S REALLY
POSSIBLE.

Children who throw material or delight in knocking over other children's models or designs are problems I face, too. (This is how the idea of establishing "ground rules" came about.) It is important to anticipate these two problems and prepare the children *before* these situations arise in the classroom. Role playing is a good way of helping children understand these ground rules. After this, I observe the children's behavior while they work and use this observation to indicate whether or not we need to role play the ground rules more often. As long as there are no problems and things are going smoothly, I assume the children understand the logic of the ground rules. The important thing is not whether each child was present when the *words* were said, but, rather, has each child translated those words into action? When problems arise, as they inevitably do, I stop right then, gather the children together, and discuss the problem that has arisen. Remember, our focus as teachers is on the *child*, not on the "lessons," and we need to be just as eager to teach our children social skills as those of counting or division, being patient while both types of skills develop.

We shouldn't expect every child to be perfect in his or her behavior by the time she or he reaches the grade we teach, any more than we would expect every child to have learned to tell time or count to a hundred by twos. We are each a product of our earlier experiences. The only difference between a child who "knows how to behave" and a child who doesn't is the former has been fortunate enough to have had a sympathetic adult spend the necessary time teaching him or her while the latter is still in need of someone's teaching.

If a child in my classroom is not using a material according to

the stated ground rules, I immediately remove the child from the group. I never give a warning; there is simply an immediate, serious consequence for behavior that is inappropriate. I seat the child where she or he can observe but cannot participate with the group. As I do this I say something like, "When you threw the buttons at John you showed me you could not stay with the group. Throwing buttons could hurt someone and keeps you and others from learning." In three or four minutes I go back to the child and we talk together about the appropriate behavior; then I invite the child to go back to work and try again. As long as a child can handle an activity appropriately, she or he remains in the group. As soon as I observe inappropriate behavior, the child is removed. It is very simple and, if it is handled consistently and matter-of-factly, it really works. Removing a child redirects his or her attention to the behavior that is expected. Keep your perspective and your focus—social skills are really the *most important* skills we can teach our children. If we teach a child or a group of children how to work side by side purposefully and cooperatively with others, we will be helping that child far more than if we give only intellectual guidance.

ALL THESE THINGS LOOK LIKE GREAT FUN, BUT IN MY CLASS, I'M SURE EVERYTHING WOULD GO HOME IN THE KIDS' POCKETS ON THE FIRST DAY!

I have learned from experience that "hoping" children will not take things from my classroom does not produce magic results. At first I ignored the problem; I expected the children to *know better* than to take things from the classroom or from anywhere else that didn't belong to them and if something was missing, I usually got mad but eventually replaced the missing part. Every time this happened I thought about how ungrateful the children were and how quickly they could ruin all my efforts to make a nice classroom for them. It was only after going back to worksheets and the textbook and being *reconvinced* that I couldn't face teaching from those materials that I started experimenting to solve the problem. The problem is not 100 percent solved; it never can be; but it is certainly manageable now.

Here's what I do now. I discuss a new material with very honest and straightforward talk about the inevitability that *every person* in our classroom is going to want to take some of the school materials home. I explain that *wanting* to take something is a very natural and normal human emotion that all people feel—even grownups. I mention other teachers' classes and the great games or special books those teachers have. I admit frankly that I would like those games for *my* class to use, and how easy it would be to take them. The children all know the teachers and soon they begin commenting—"My sister Julie is in that class. If our class had Mrs. Murphy's games, Julie wouldn't have them to use." "Yeah, and next year I might be in Mrs. Murphy's class and

then I wouldn't get to use them." And so on. Then we talk about all the children who will be coming to our room next year—brothers and sisters of children in our class who are a year younger—and help the children to begin to see our class materials as *their* materials too. This seems to make a lot of sense to the children because they identify with their friends and siblings who are younger and sincerely enjoy the idea that they too will be using these materials in the future.

The children are relieved to know that adults experience the same feelings they do, wishing they could have things they don't have. The children see the *feeling* is not bad; it's normal, and they should *expect* to feel it. *Acting* on your feeling is what is thoughtless and irresponsible because it deprives other people of what is rightfully theirs. Wanting to do it is okay. Doing it is not. And doing or not doing is under each person's control.

After we've talked about this together, I tell the children that if one day their need to take something overpowers them to the point that they are unable to talk themselves out of taking it, they should come to me and tell me. If they really need it that badly, I will find some way they can earn it rather than take it. (In the last three years that I have been using this approach, I have only had one child come to me, and we arranged for him to earn the thing he couldn't live without.)

BUT WHAT EXACTLY HAS
BEEN THE RESULT?

I now lose very little compared to what I lost before. I may replace a dollar's worth at the end of the year, when before it was a dollar's worth every two or three weeks. Part way through the year if I notice things are disappearing, I talk to the children again. This usually occurs after new children have come into our class who missed the initial talk. After I talk to the children again, the problem is always liveable. The magic is talking honestly about the real needs the children feel and helping the children see that other people share those feelings. Ideas of morality develop slowly over time, with repeated experiences, both slips and successes. Values cannot be adopted all at once like learning colors or multiplication tables. They are very personal and grow as our consciousness of other people's rights grows.

HOW DO YOU FIND TIME
TO SET UP ALL THE
DIFFERENT THINGS
EACH DAY?

I don't! I assign different children to do this for me. I make a map of the room and indicate the location for each material. I ask for two volunteers for each material and explain to them exactly what has to be done to set up each center. (By having two volunteers, the material still gets put out, even if one child is absent.) Children keep their job for as long as they wish. When a child tires of a job, it is his or her responsibility to recruit and train a replacement.

HOW DO I CHALLENGE THOSE FEW CHILDREN WHO SEEM TO LOSE INTEREST IN FREE EXPLORATION BEFORE THE REST OF THE CLASS DOES?

These children may enjoy making permanent records of their explorations. They can use the pattern block template* or glue pattern block shapes (see Worksheets 2-6) to paper and copy their pattern block design. They can copy geoboard designs onto geoboard dot paper (see appendix, Worksheets 17-19). These recording activities extend free exploration and you may find that many children gravitate to them. This is evidence that these children are ready for more structure and gives you a clue that soon your class will be ready to move to pattern or sorting activities.

