

## Chapter 4

## STORIES



Words and letters—the stuff of conventional literacy—are only one category of signs and symbols. These are not the first kinds of symbols people learn to read and write. Children are able to interpret and create other kinds of symbols—such as gestures and graphics—long before they can read or write words and sentences. Consequently, teachers of pre-literate children see work with signs and symbols as integral to the process of developing literacy. The first section of this chapter reflects this approach. Two teachers describe their work on developing literacy through signs and symbols.

For teachers of children who are emergent readers and writers, the focus shifts slightly. Although literacy is still a major concern, so are socialization and classroom behavior. Signs and symbols are used to express the rules and practices needed to guarantee an orderly classroom environment. In the second section of this chapter, two

teachers discuss how their students explored the use of signs and symbols to communicate classroom rules and procedures.

For older children who have already acquired basic literacy, work on signs and symbols offers a new set of possibilities. These students come to see gestures and graphics as alternatives to words for the purpose of conveying a message. They explore how the elements of a graphic symbol work together to make its meaning clear. However, not all symbols are intended to be obvious. It is intriguing to search for the hidden symbols used in advertising and popular culture. Because symbol systems can be tested easily and rapidly, the topic offers excellent opportunities to engage in design. The third section of this chapter reflects this range of possibilities.

# Signs and Symbols on the Road to Literacy

This section includes classroom narratives by two teachers, one who works in an early childhood classroom and another who teaches special education. Theresa Luongo, a pre-K/K teacher, engaged her students in examining

signs in their environment and in creating signs for use in their classroom. Drawing on the work of Frank Smith, Theresa came to see these activities as early experiences in reading and writing. Kathy Aguiar, in her work with third-

grade bilingual special education students, had a similar approach. She used symbols from a museum floor plan to help her students regard reading and writing as natural, non-threatening activities.

## Don't Step on the Beetles!

by Theresa Luongo

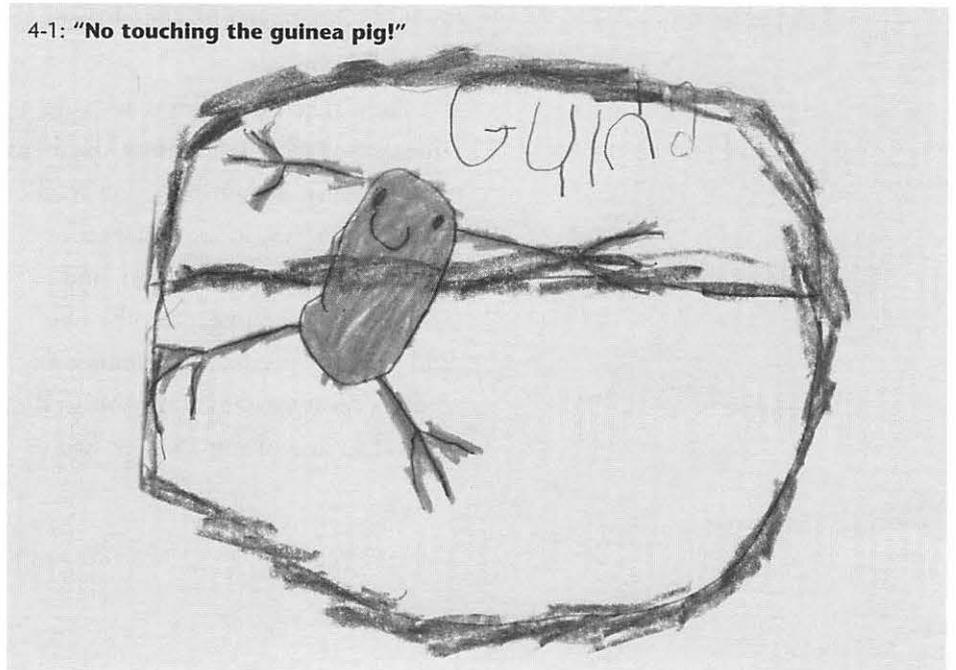
Theresa began by conducting a walk around the neighborhood to look at signs and to discuss them. Next she had her students design signs that they thought might help to address problems in the classroom. Here is Theresa's account:

The early childhood classroom is filled with signs, as is the world we live in. After walking around the neighborhood and discussing signs, I asked the children to think of signs we could use in our classroom. Interestingly, the first signs the students made all had to do with our pets. I continually ask the children to be gentle with the guinea pig, and to try to whisper near him. Marlon made a sign that meant, "No touching the guinea pig!" (See Figure 4-1.) When I asked Marlon why he made his sign, he said, "You shouldn't

touch the guinea pig, because he will get scared." Many of the other signs also came from real needs. Previously, a beetle from our collection had been stepped on. Michelle made a sign that meant, "Don't step on the beetles."

*Theresa Luongo teaches a pre-K/K class at Central Park East II, an alternative school in East Harlem, New York City. In her class, signs and symbols quickly became an engaging topic that raised the children's awareness of basic communication issues and helped to develop early literacy.*

4-1: "No touching the guinea pig!"



We had a sharing session. As each child explained his or her sign, I asked why they had made that particular kind of sign. I think it inspired other children to make signs. Because the signs seemed to be for "real" purposes, they made sense to the kids as they were both making them and reading them.

Although our classroom was already full of signs, I realized that the students hadn't made any of them. Often, the children copy things from around the room, but when it came to making signs, they thought of new signs that they thought were needed. They had somehow internalized that signs can play a role in controlling people's behavior. Therefore it seemed natural to make signs about not stepping on the beetles or not letting the ladybugs out, because these were issues that mattered to them.

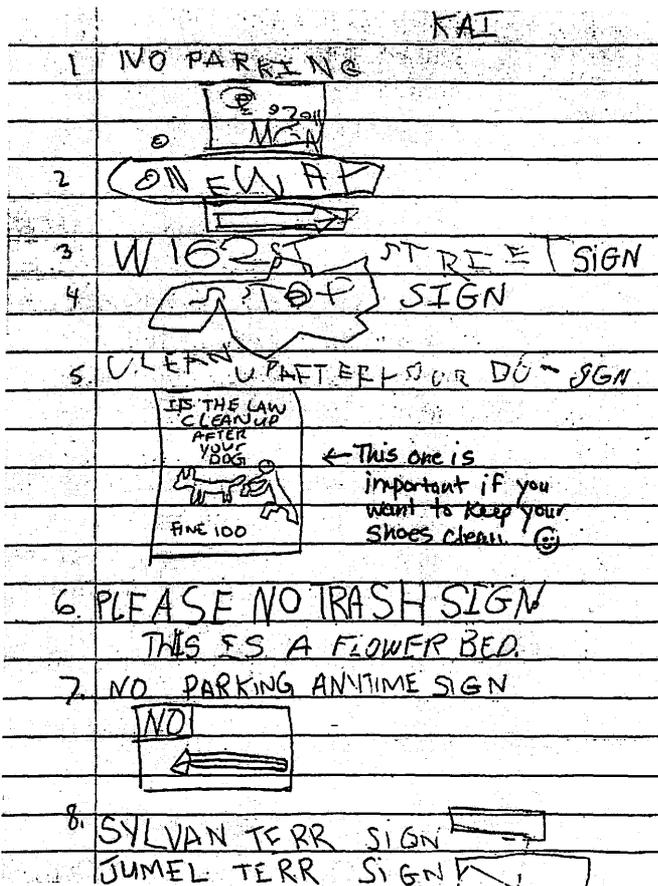
Theresa also gave her students a homework assignment:

*Draw signs that you think are necessary at home or outside.*

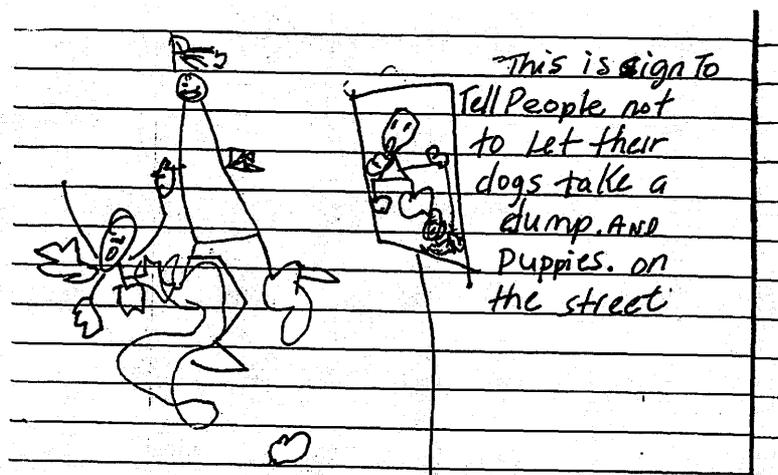
Kai made drawings of some signs she saw on the street: "NO PARKING," "ONE WAY," "CLEAN UP AFTER YOUR DOG," etc. (See Figure 4-2.) Then she made a sign of her own, which is shown in Figure 4-3. Kai's mother wrote down Kai's explanation:

*This is a sign to tell people not to let their dogs (and puppies) take a 'dump' on the street.*

4-2: Kai's drawings of signs she saw on the street



4-3: The sign Kai designed to keep the street clean



By Kai  
(Kai dictated this to her mom)

In Theresa's classroom, children have many opportunities to pursue their own interests and to make choices about their own learning. She regards technology as a subject that will arise naturally, as children encounter problems they want to solve. As the topic of signs began to catch on, some children found new ways to use them. Often, Theresa sees the potential in a child's idea and turns it into an activity for the whole class. This is how she discovered that Shaquill was inventing new uses for signs in the Block Area:

In the Block Area, students started using the small broken wooden signs we have. One sign meant "NO U-TURN." (See Figure 4-4.) Shaquill, a kindergarten student, had

built an arch. He placed the sign on top of his structure. When I asked him what it meant, he said, "Don't go underneath." Because the "U" was upside down, it looked like an arch instead of a "U"!

I was lucky to have been in the Block Area at that moment. I learned how thoughtful Shaquill had been in trying to protect his arch by placing the sign on top. His use of the sign made perfect sense, and it showed me how connected he was to the study of signs.

I learned something else from Shaquill. It dawned on me that the children could be making signs for the Block Area on a daily basis. The next day, I put together a large box for sign-making. Inside the box are various pieces of wood, sticks, glue, tape, paper, markers, crayons, and pencils.

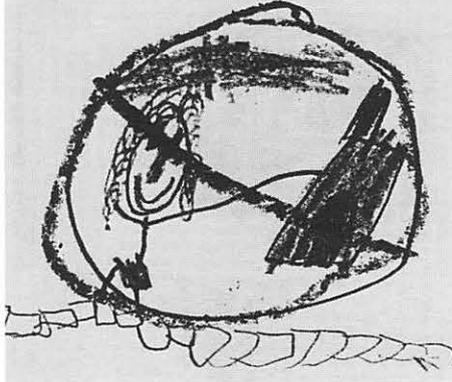
4-4: "NO U-TURN" sign



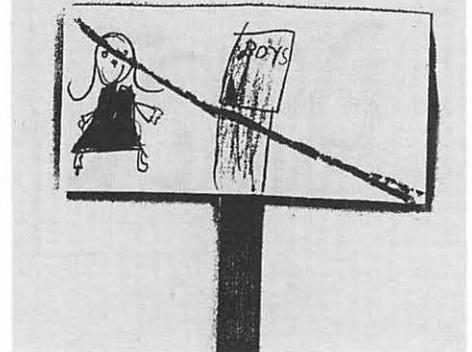
Now the students are making signs for their block structures. These structures are important to them, and now they can extend their block work by adding signs to them. The students clearly understand what signs are used for. Also, a lot is said using a little bit of language or by using a simple picture. I realized that most of the signs were about controlling social behavior. (See Figures 4-5 and 4-6.)

Many of the children saw the need to plan their signs on paper first, before making the final version. Figure 4-7 shows Ana's initial plan for a sign to identify the Listening Center. Figure 4-8 is a picture of the sign that was actually posted. Planning is usually an essential step in design.

4-5: Ana's sign for the Block Area:  
"Don't knock down the building!"



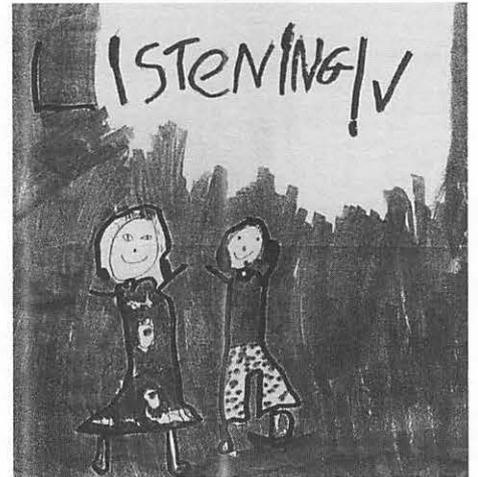
4-6: Bria's sign:  
"No girls in the boys' bathroom!"



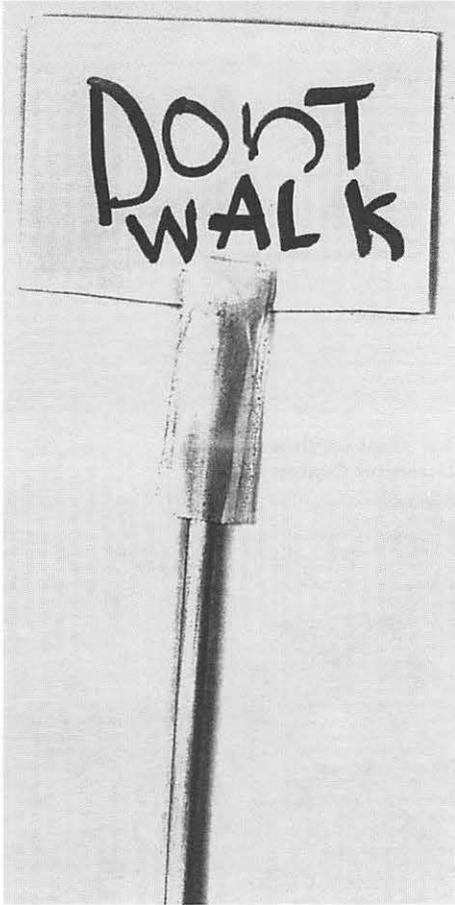
4-7: Ana's preliminary design for a sign  
for the Listening Center



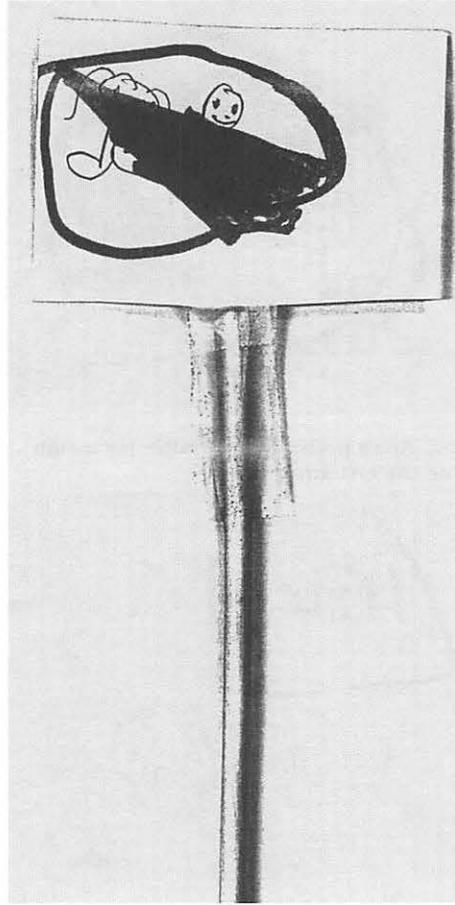
4-8: Final version of Ana's  
Listening Center sign



4-9A: Text side of Nyasia's "Don't Walk" sign



4-9B: Graphic side of Nyasia's "Don't Walk" sign



One of the basic ideas about signs and symbols is that there is more than way to represent any concept. Some children became intrigued with the idea of multiple representations. Nyasia made a two-sided sign that said "Don't walk!" on both sides. One side used words (see Figure 4-9A), while the other expressed the same thing graphically (see Figure 4-9B).

As an outcome of these activities, Theresa's students started noticing and reading signs everywhere. Drawing on the work of Frank Smith, Theresa recognized their decoding of signs as a developing form of literacy. In his book *Reading Without Nonsense*, Smith offers a broad definition of "reading," which includes reading signs, maps, and clocks as well as books and poems (1997; see references for Chapter 2, pp. 159). Theresa writes:

The understanding and awareness of signs became quite obvious during a recent trip to the Bronx Zoo. Every time we encountered a sign, such as “NO SMOKING,” the children would run over to it and point it out to me. Some weren’t sure what the “WHEELCHAIR ACCESS” sign meant. It was interesting to listen to the students negotiate the meaning. The children really worked at understanding the signs they encountered. Frank Smith talks about words being merely one type of symbol. I agree with him and his approach to reading. Keeping that in mind, I see the reading of signs as a form of literacy.

Graphic images are only one category of signs and symbols. As we have noted in Chapter 1, every teacher has a method for getting the attention of the class. Nearly always, this method consists of using one or more signals that the teacher has selected and taught to the children. Theresa’s signal was turning off the lights. As part of the study of signs and symbols, she wanted her students to come up with their own ideas about signals for getting their attention. Theresa describes her work in this area:

**From the very first day of school, I have established the rule that when the lights go out, everyone must stop what they are doing, be silent, and put their hands on their heads. As**

**soon as the lights go on again, the children may resume what they were doing. Often, I turn out the lights in order to give instructions, or to give a “five-minute warning” before the end of an activity.**

Now that the classroom routines are established, I feel that a safe environment exists. I therefore feel more comfortable about changing some of the rules. So now I will ask the class, “What can I do in the classroom to get your attention without shutting the lights off?”

I’ll be sure to write down the students’ responses, and test them to see which one will work to get their attention. We’ll have group meetings to decide which one I will implement to take the place of turning off the lights.

## New Symbols for the Museum

by Kathy Aguiar

Kathy's work on signs and symbols took place towards the end of the year, when these children were much more willing to express themselves in all ways. She began with a "symbols puzzle," based on the floor plan for the American Museum of Natural History (Figure 4-10).

Kathy made large drawings of six of the symbols from the key to the museum floor plan and asked her class what each of these represented. Their responses, with English translations, are shown in Table 4-1.

*Kathy Aguiar taught a third-grade bilingual special education class in the South Bronx, New York City. Kathy began the year with a group of students who were in Special Education for the first time. Many of them had been marginalized in general education classrooms and they were reluctant to expose their difficulties in reading and writing. As Kathy worked with them, they gradually overcame some of these barriers. Some of this work was done in the context of studying mechanical devices and electric circuits, and is described in the *Stuff That Works!* guide, Mechanisms and Other Systems.*

4-10: Portion of museum floor plan, including key (© American Museum of Natural History; reprinted with permission.)

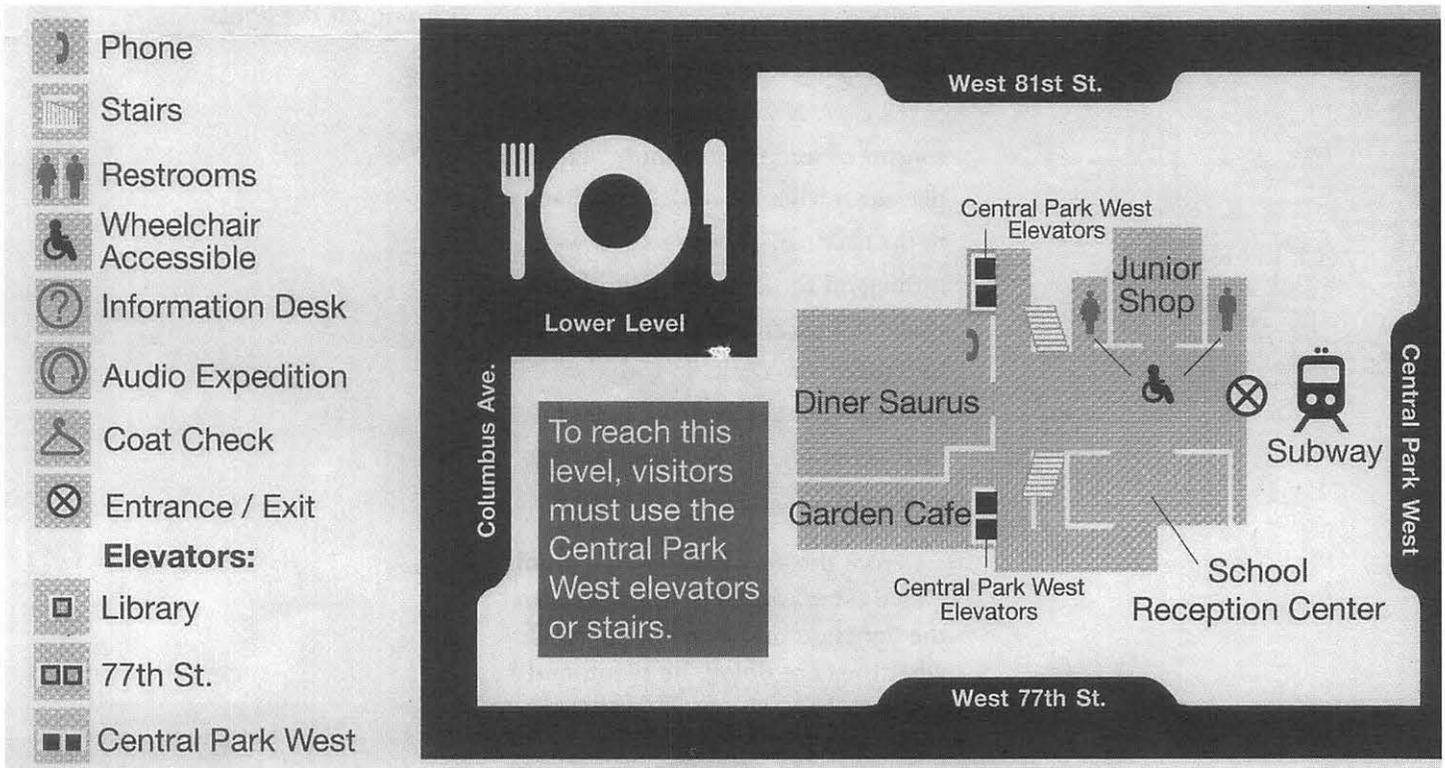
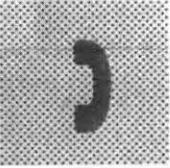
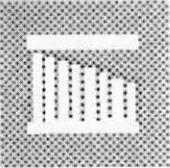
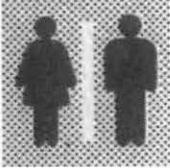
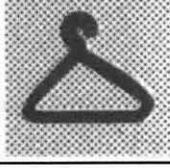


Table 4-1

## HOW KATHY'S STUDENTS INTERPRETED THE SYMBOLS FROM THE MUSEUM FLOOR PLAN

Symbol	Sample Responses
	José: Entrada (Entrance) Freddy: Teléfono (Telephone) Raúl: Algo para el oído (Something for the ear) Jan: Dinosaurio (Dinosaur)
	Marina: Escalera (Stairway) Jan: Algo para el elevador (It stands for the elevator) Andrew: Alguien bajando escaleras (Someone walking down the stairs)
	Marina: Sitio para comer (Place to eat) Stephanie: Baño (Bathroom) José: Haz una linea. (Make a line.) Natalie: Ayuda (Help)
	Lionel: Espere para el autobús. (Wait for the bus.) Marina: Silla de rueda (wheelchair) José: Pasan gente con sillas de ruedas. (People with wheelchairs can go here.)
	Raúl: Alguien perdió algo aquí. (Someone lost something here.) Freddy: Información (Information) Stephanie: ¿Quién es? (Who is it?)
	Freddy: Agarrando ropa (Taking your clothes) Carlos: Cuarto para enganchar ropa como una chaqueta o abrigo (Room for hanging up clothing such as a jacket or overcoat)

Once I had obtained about five responses for each of the six symbols, I gave out copies of the museum map with the explanations of the symbols. I walked the students through the map, discussing the various parts of the museum.

We began with the first symbol. Marina read the explanation: "phone." I instructed the children to find the symbol on the map. Carlos stated, "The phone is next to the North American Mammals." The next

symbol was for "stairs." By looking at the map Jan Carlos was able to tell me that there was a phone next to the stairs. Next they found the boys' and girls' bathrooms. One by one, each symbol was found on the map.

The students seemed to enjoy the activity since it involved a guessing game. The informal discussion helped me to see who was understanding the purposes for a symbol. It also helped me see who was able to read a map, and to follow directions using

symbols. For homework, they were asked to find three symbols outdoors or inside their apartment buildings.

I then asked the students to divide into three groups. Each group had the assignment of creating a new symbol for "phone," "restrooms," or "information." The "restroom" group worked especially well and seemed to have agreed on the type of symbol they wanted.

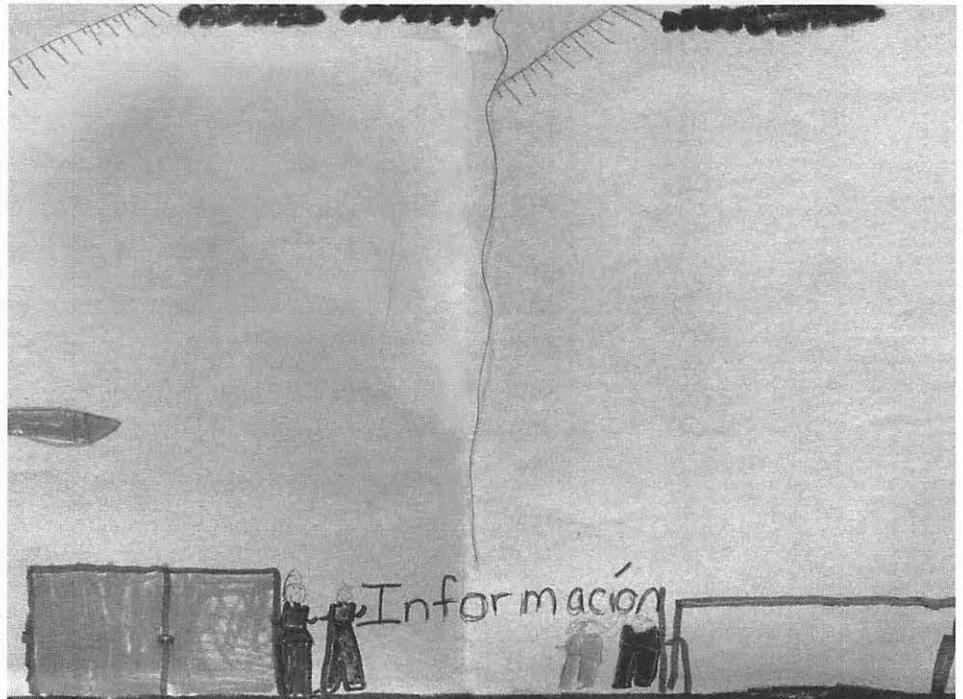
The next group I visited was the “phone” group. Each group member began to draw his or her own symbol. Three students drew conventional pay phones of the kind that would be found in the museum. Natalie drew what looked like a cell phone. The fifth child in the group drew a platano (plantain), because “it has the same shape as a phone.”

At this point, it became clear how prior knowledge and experience play a role in learning. José had no idea what Natalie had drawn, because he had never seen that kind of cell phone. As we continued to talk, I asked them about the types of phones they had at home. Out of this discussion, several other types of phone emerged. They finally agreed on two symbols.

No symbol is totally self-explanatory. In order to decode a symbol properly, the reader or receiver must share some of the context of the person who created the symbol. By showing her symbol to José, Natalie was testing it to see if he could decode it. In asking students what kinds of phones they had at home, Kathy was eliciting some of the background knowledge that might be needed for decoding a symbol for a telephone.

The final group had the most difficult task, which was to develop a symbol for “Information.” They attempted to create this symbol by drawing a scene showing someone asking for information. (See Figure 4-11.)

4-11: Coming up with a symbol for “Information”



Once everyone had finished, each group was asked to show their symbols to the other students, to see if they could understand them. The testers had no problem with the phone symbol. They knew what it was immediately. The bathroom symbol also presented relatively little problem. However, the “Information” group could not get their point across. The conversation went like this:

**TEACHER:**  
What do you think these symbols are trying to say?

**NATALIE:**  
It looks like a school or mall.

**ANDREW:**  
... a store...

**CARLOS:**  
Children are missing from their parents.

**JAN:**  
The picture says that the boy asked where the bathroom is, and the girl said, “It’s over here.”

Jan actually came quite close to the intent of the symbol, which was to symbolize “Information” by showing someone asking for directions. It is not always easy to represent an abstract concept graphically.

Trips to museums and zoos are excellent opportunities to explore signs and symbols. Some teachers have distributed the floor plan prior to the trip and used it to prepare for a signs-and-symbols scavenger hunt at the museum or zoo.

# Signs and Symbols as Expressions of School and Classroom Practice

The next two stories have a slightly different focus. While literacy is still important to these teachers, they are also concerned with the potential of signs and symbols to solve problems in the school. Guillermina Montano, a fourth-grade teacher, begins with a

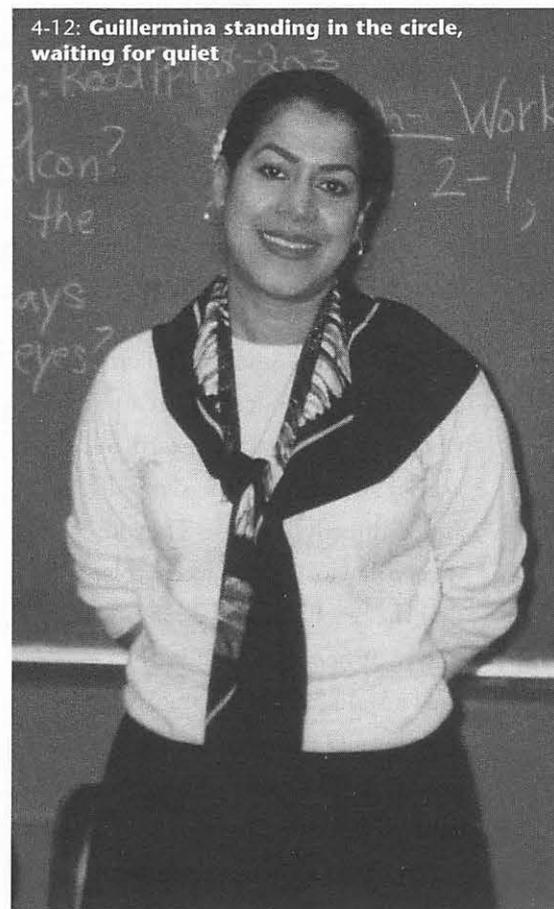
symbol she has just invented: standing in white circle to restore order in the classroom. After decoding this symbol, the students look for situations in the school where a sign or symbol might help to implement the rules. Mary Flores, a special education teacher,

describes her work with Resource Room students from grades two and five in analyzing signs and symbols in their environment. Mary's narrative features considerable dialogue among the children, and many links with literacy.

## What Does It Mean When I Stand in the White Circle? *by Guillermina Montano*

Guillermina began by introducing a new symbol, whose meaning quickly became apparent to the students. Here is her account:

At the beginning of the day, I taped a white circle, about 20 inches in diameter, to the floor in the front of the classroom. As the children entered the room, they asked what the circle was for. I answered that they would find out very shortly. That afternoon, when the prep teacher (relief teacher during a preparation period) relieved me for my prep period, I secretly stayed outside the room. I waited there to see how they would behave with the prep teacher. Of course, they started to "act out." I immediately re-entered the classroom, and stood inside the white circle with my arms behind my back, not saying a word. (See Figure 4-12.) The children immediately quieted down. Then I left the classroom again and did not return until my prep period was over.



*Guillermina Montano teaches fourth grade at P.S. 115 in the Washington Heights section of Manhattan. She recognized classroom practices as a topic of great importance to her students, and wanted to expand their awareness of how symbols are used to express the rules.*

At the end of my prep period, we did another experiment. My prep teacher tried standing in the white circle to see how the children would respond. They immediately told him to step out of the circle, because I was the only one allowed in it! Of course, they failed to become quiet.

Afterwards, we brainstormed about behavior patterns. Some students shared their thoughts about what had just happened. What was the connection between my standing in the circle and their quieting down? Some students went so far as to say that I was trying to control their behavior by doing this.

The next day, I repeated the same behavior without saying anything to the children. Again, they became quiet. No words were spoken, and I did not return to my room until the prep period was over.

The third day, I stood on the circle after the prep teacher had left. I asked the students to write about what had been happening for the past two days, both before and after I stood on the circle. What did the circle represent? Some answers were:

- \* *I think that it reminds her where to stand when everyone is crazy. She stands there and everyone shuts up.*
- \* *I see a circle and I also see feet on it and someone is standing straight with their hands behind their back.*

- \* *When the class is talking and screaming she stands in her spot and everyone chills out.*
- \* *She's waiting for silence. She's waiting for the kids to be quiet so she can give the lesson.*
- \* *Her control is that she's just standing there and her message is to be quiet and in some weird way it works.*

Karen listed a variety of possible meanings for the circle on the floor:

- \* *A happy face*
- \* *A shape with a figure inside*
- \* *A symbol*
- \* *A sign*
- \* *A sphere for world peace*
- \* *A clock*
- \* *A map*
- \* *A sign to be silent*

Like Kathy Aguiar, Guillermina presented her students with a puzzle: what does this symbol mean? But there was an added twist: the symbol was aimed directly at them. They knew that their behavior was unacceptable, and that the teacher had the job of controlling it. When she stood in the circle, they responded almost immediately. The context provided all of the clues to decoding the symbol. At the same time, as Karen pointed out, a circle could have many different meanings. Symbols are interpreted in context.

This opening activity laid the groundwork for the next one, several days later: identifying symbols used by other teachers for a similar purpose. Guillermina continues:

I explained to the class that the circle was a symbol I had invented to ask them to exhibit a certain behavior pattern—i.e., being quiet and attentive. I told them this was going to be a new classroom rule. A few days later, I organized the children in groups of six and designated a recorder for each group. I asked each group to make a list of methods their other teachers had used to control students' behavior. Some of the methods were:

- \* *One teacher used to scream at us.*
- \* *Almost all of them would take our privileges away.*
- \* *Calling names*
- \* *They hit the ruler on the desk.*
- \* *Taking a big ruler and snapping it on the board*
- \* *Stomping*
- \* *Screaming at us*
- \* *Putting us in the corner*
- \* *By banging the book on the table*
- \* *They ring a bell.*
- \* *They call the principal.*
- \* *They change your seat.*
- \* *No taking us to gym or the yard*

I noticed that the children only mentioned teachers who had managed their students with difficulty. They did not make any comments about teachers like Ms. Gonzalez, who is very subtle in her management techniques. They don't realize how much it takes to control children in a quiet way.

Generally speaking, teachers resort to raising their voices, threats, or punishments only after other methods have failed. It is far more effective to use symbols, such as standing in the circle. Of course, a symbol is only effective if there is basic agreement about its meaning and a willingness to respond to its message.

Several days later, Guillermina extended this discussion by asking her students how rules and practices operate in different environments. Here are some of their answers:

**JOSEPH:**

*Signals control us because signals tell us what we can do. They tell us whether to walk or stop, whether you can smoke or not, and stuff like that. Rules control us by telling us exactly what and what not to do. They tell us don't run, don't talk, and don't fight. Both bad and good drugs control us by making us sleepy or hyper, drowsy, or attentive.*

**NATALIE:**

*I think that symbols are important because they help people with directions and rules. I think that music is important because it relaxes you and calms you down. And you get the rhythm on your mind. I think that jail controls people because the police is...*

**ALFREDO:**

*I would make people behave by telling them that they are very nice and by telling them that they are doing good work. Or I would make all of the kids play with him and make him feel like if he was a very good friend to the class, but still I would make him do all of his work.*

These comments are very insightful. Natalie points out that music can be a subtle way of sending messages. Alfredo observes that people often respond in kind to the signals they receive from others. A child is more likely to behave if the teacher indicates that she believes he will.

Building on this new awareness, Guillermina next engaged her students in designing and testing their own signs and symbols for implementing school practices. They began by brainstorming areas where the children's behavior could be improved. The list included:

- Clean bathrooms
- No fighting allowed
- No graffiti
- No pushing on stairwells
- No miniskirts

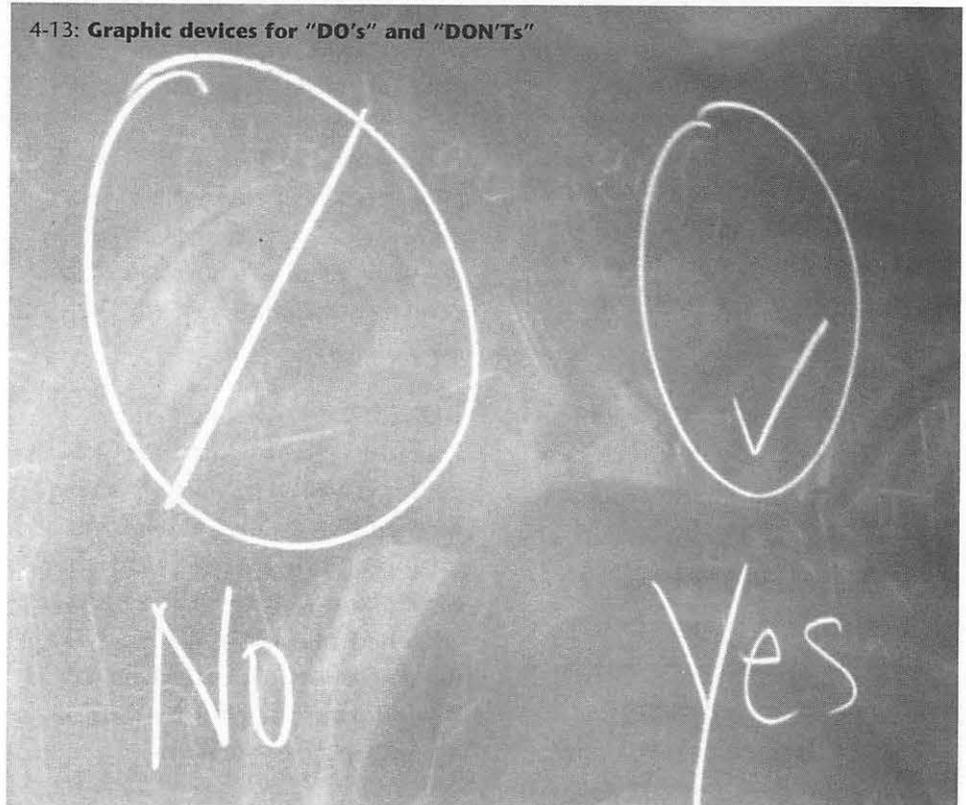
The next task was to collect some data:

Children were sent in groups of four to various places in the school to observe and record where signs were needed. Two issues for which the students decided to make signs were "NO FIGHTING" and "NO LITTERING."

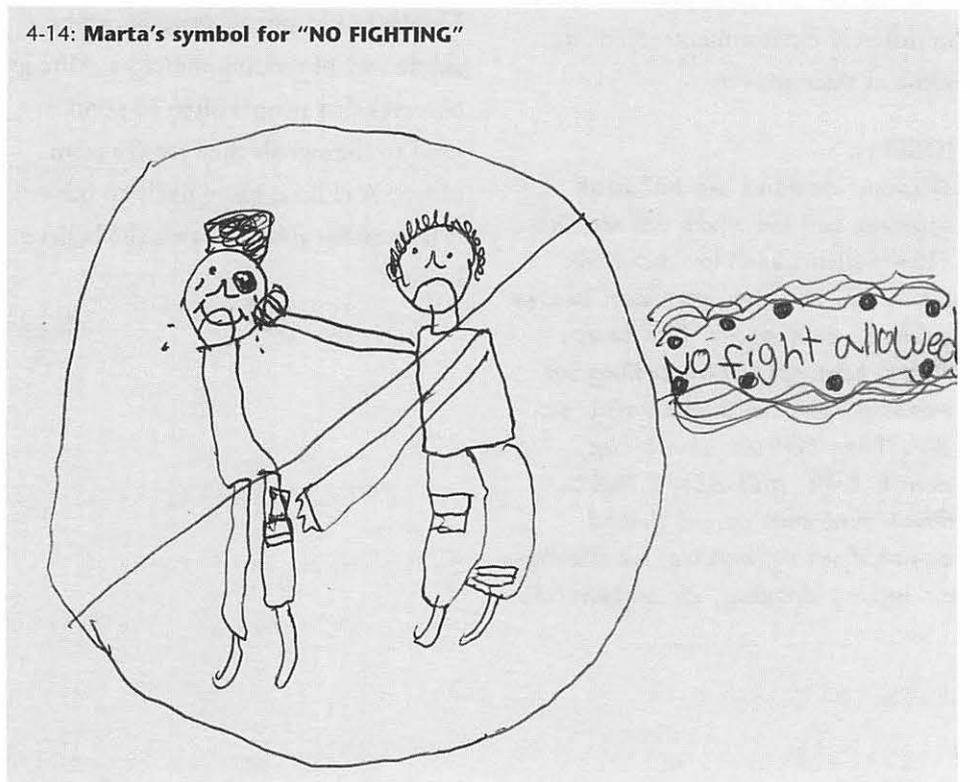
Before the students started making their signs, they discussed graphic symbols that say "Do something" or "Don't do something." These are shown in Figure 4-13.

The students designed their signs and wrote reflections about them. Marta made one sign to say "NO FIGHTING" (Figure 4-14), and another to indicate "NO LITTERING" (Figure 4-15).

4-13: Graphic devices for "DO's" and "DON'Ts"



4-14: Marta's symbol for "NO FIGHTING"



Marta described the first one this way:

*My first symbol represents that fighting is no way to solve your problems. And I think it is important for the school. Because you might get hurt one day and the person who hit you will get in a lot of trouble. So if you get in a fight, you just get out of it, because it might be really bad.*

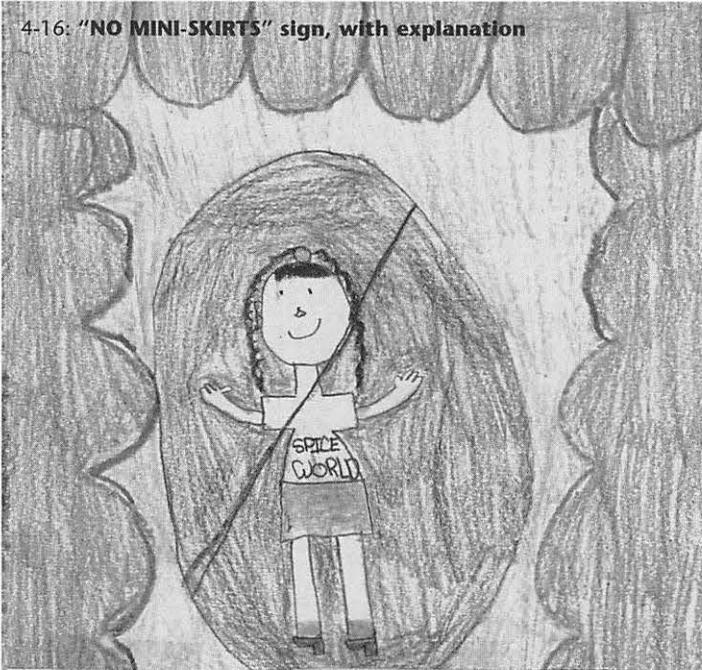
As the students were making and posting their signs, they thought of other issues for which signs might be helpful. Some of the other signs conveyed the messages:

- NO RUNNING ON THE STAIRS!
- NO FLOODING THE WATER FOUNTAIN!
- NO STANDING ON THE TOILETS!

4-15: Marta's symbol for "NO LITTERING"



4-16: "NO MINI-SKIRTS" sign, with explanation



The second one that I drew stands for no mini skirts. The more you show your body the more men in the streets can drinkmen disrespect you. If you cover every part of your body men won't disrespect you. That is some advice from me. So always cover your body and don't be a 'show-off'!

4-17: "NO SLEEVELESS SHIRTS"



NO sleeve less shirt allowed

The second one is sleeveless shirt. A sleeveless shirt can make you cold and sick too.

The need for a dress code also came up. Guillermina describes how this issue arose, and what her students decided to do about it:

During this investigation, some students decided that the dress of some of the students was inappropriate. What followed as a result were signs and symbols indicating what was and was not acceptable for boys and girls in the school. (See Figures 4-16 and 4-17.)

Would these signs be effective? In their predictions about the signs, several of the students were very optimistic, and even passionate.

**MELISSA:**

I think it will work because the signs will help the children understand that they have to care for the school. If they don't care for the school, who is?

**YANERY:**

I feel very good about being in this project. I think people will pay attention to our little posters. Maybe they will stop fighting and all those things. I have faith in God that everything will work out O.K. If everyone stops fighting this school will be the greatest. I just hope that that comes truly true. I think these posters are the best posters I have ever seen in my life.

Of course, there was no way to know how effective the signs would really be except by testing them. Guillermina's class decided to conduct a survey to see how well their signs conveyed their messages and to determine whether other students would follow them. There were three survey questions:

1. What do you think this picture represents?
2. What do you think is the hidden message?
3. If they saw this sign around the school, how do you think people would act?

Here is a typical set of responses to these three questions about one of the "NO LITTERING" signs:

1. Throwing trash
2. "Do not litter."
3. They are going to respect it.

In addition to collecting data, the students wrote about how they felt while they were conducting the surveys. Here is part of what Alfredo wrote:

*I felt very thankful for getting attention from all of the teachers and for the kids that paid attention to us and they all agreed with our signs and symbols. I really felt joyful and thankful. The teachers agreed with what we were doing for the*

*school and they felt surprised when we showed (the signs) and asked them the questions in the survey.*

Guillermina felt in retrospect that the experience had been a very positive one for her students. It had helped them develop their sense of social responsibility, and had also taught them how to convey a message without words. Here is her final reflection:

**Based on my observation during this theme, my students became more conscientious about meeting the needs of the school as a whole. They developed a certain ownership of the school and tried to help maintain order. They are constantly talking about developing new signs and symbols to improve the culture of the school. When they were conducting the surveys, they showed a sense of pride and a sense of belonging. My students were able to recognize that signs and symbols are a form of communication without words. Also, they are more aware of how signs and symbols are all around them, and how much they are a part of their everyday lives.**

## From Sign-and-Symbol Detectives to “Who Ate Nelson García?” by Mary Flores

Mary describes her situation in the following way:

**My Resource Room setting is out of the norm. I have five groups with no more than eight students at a time. If my lesson doesn't work with one group, I have the opportunity to change the activity and do it differently with the next group. By the time I have finished with the fifth group, I have polished the lesson.**

There are major differences among her five groups of students. The youngest group, the second-graders, are mostly non-readers and non-writers, and become frustrated easily. At the opposite extreme are her “veterans,” mostly fifth-graders who have been with her for several years, and have participated in many *Stuff That Works!* activities. These students feel very secure with Mary, and they are eager to express their ideas and to try new things. In this section, Mary describes her work with her second-grade “neophytes” and her fifth-grade “veterans.”

Mary usually begins a unit with a brainstorming session. She asked her students to think of examples of signs and symbols, and to try to come up with a definition of each of these terms. Here is what happened with her fifth-graders:

### April 26

**I decided to finish off the year with a bang. I suspected that the signs-and-symbols area of technology would be an exciting way to culminate a productive year. This area of technology appeals to me and I anticipate that my students will also become motivated by this topic. I conducted this investigation with my fifth grade veterans. We had the following discussion:**

**TEACHER:**

**What are signs and what were they designed to do?**

**HERIBERTO:**

*Signs are things in the street. They have "STOP" signs.*

*Mary Flores teaches Resource Room at Community Elementary School 42 in the South Bronx. Each day, she works with five small groups of Special Education students, ranging from second to fifth grade. Some of her students have been with her as long as three years.*

**MOISES:**

*... something that makes a command.*

**CYNTHIA:**

*They have different kinds of signs, like who you are.*

**HERIBERTO:**

*Like what?*

**CYNTHIA:**

*... like "Sagittarius."*

**DERRELL:**

*They were designed to give people and objects signals about what way they should go, how, and who.*

**EBONY:**

*They made signs so nobody would get in an accident.*

**TEACHER:**

What signs are found in the school?

**EBONY:**

*... "UP" and "DOWN," "ONE WAY" ... In the bathroom, "WASH YOUR HANDS BEFORE YOU LEAVE THIS ROOM."*

**HERIBERTO:**

*When they are testing, they say, "DO NOT DISTURB."*

**MOISES:**

*The pass is a sign.*

**CYNTHIA:**

*On the door there is a sign.*

Of course they all began to look around the room for anything resembling a sign.

**TEACHER:**

What are symbols?

**CYNTHIA:**

*Flintstones Vitamins. I was only kidding!*

Although she was only kidding, she was looking beyond the printed word. "Flintstones" symbolizes something appealing to children.

**DERRELL:**

*A blueprint is a symbol.*

**HERIBERTO:**

*... like in The Indian in the Cupboard (a chapter book they had been reading). Little Bear had symbols on his teepee like bulls, an ax, and a scalp. Symbols are like drawings or designs like diamonds, hearts. You know, like on cards.*

**CYNTHIA:**

*Like when you go to Egypt, they have some symbols on the walls.*

Moises had gotten out of his seat and was flipping through the pages in the dictionary. He is always curious about the dictionary definition.

**TEACHER:**

Okay, Moises, read the dictionary definition to us.

**MOISES:**

*"Something that stands for or represents something else. The dove is a symbol of peace. The mark '+' is the symbol for addition."*

**TEACHER:**

Well class, do you accept that as our definition? Do we agree?

**ALL:**

*Yes!*

**DERRELL:**

*The Statue of Liberty represents the United States. The Statue of Liberty is a symbol for freedom.*

**TEACHER:**

Do you think signs and symbols are observed in this school?

**MOISES:**

*Some of them, like the "UP" and "DOWN" one (on the staircases) are ignored, because I saw Ms. Flores doing it before (ignoring the signs), and many other teachers too.*

**TEACHER:**

What symbols have you noticed in the school?

**DERRELL:**

*In the yard. They are painted on the concrete. Skelzees (Skelly) board, footprints, that one where it got 10 numbers and you throw a stick on it. That's a symbol.*

**HERIBERTO:**

*The death sign (skull-and-cross-bones) is a symbol.*

**TEACHER:**

Why do children follow the signs on a board game, but don't follow the signs or symbols in the school?

**MOISES:**

*If you don't follow the rules in a game, then the game won't be fun at all. Not only that, but you'll lose. If you don't follow the signs in school, nothing happens.*

**HERIBERTO:**

*Kids don't follow the signs in the school because they think the rules don't apply to them, so they keep crashing.*

**HERIBERTO:**

*In Ms. Roman's room you have symbols. (Ms. Roman is the Art teacher.)*

**CYNTHIA:**

*The numbers on the doors.*

**TEACHER:**

Are numbers symbols?

**CYNTHIA:**

*I don't have a clue.*

**MOISES:**

*I think they are because...*

**DERRELL:**

*...in the Stone Age, they used numbers as symbols.*

**HERIBERTO:**

*In Egypt they have these symbols that show you death and when mummies were alive.*

It's interesting that besides naming the symbols, this group defined "symbol." There was no question about what it meant to each of them. This group is confident about their responses. I have set an environment for them that is non-threatening. They take risks. They are not afraid that I will criticize them.

The issue of numbers as symbols intrigued me. I was surprised that they could refer to history to validate Cynthia's response that "a number is a symbol." Although Cynthia was not sure whether numbers were symbols, the others in the group confirmed this idea for her.

For Mary's students, a "sign" generally uses words, while a "symbol" expresses an idea without words. As one child put it,

*I learned that symbols MEAN words, but they just USE pictures.*

In looking for examples of symbols, the children were very inclusive. They included historical symbols, mathematical symbols, cultural symbols, and symbols for abstract concepts, such as "death" and "freedom."

Mary's next activity was a "Symbols Scavenger Hunt:" a search for symbols in the school building.

We went out on a scavenger hunt in search of symbols. I eliminated signs altogether because I felt scavenging for signs would not pose a challenge for this group. After the hunt, I asked the students to share their findings:

**TEACHER:**

What symbols did you find and what do they represent?

**HERIBERTO:**

*We found masks. In Indian countries they do dances with them.*

**MOISES:**

*... Voodoo stuff ...*

**DERRELL:**

*We found the drama masks. It stands for "acting."*

**EBONY:**

*We found a snail symbol on the staircase. It stands for "slow."*

**CYNTHIA:**

*Yeah, like it means to "walk slow." We found animal pictures.*

**MOISES:**

*The weirdest thing we found is a dragonfly. It was in the library. It may stand for "speed."*

**CYNTHIA:**

*We found pens to write. We found it on the Writing Room door. That means that that is where you will write.*

These veterans had exceeded Mary's expectations in their grasp of symbols and their meaning, but this was her most advanced group. How would the second-graders fare with these kinds of activities? It was time to find out:

## April 27

Now on to my biggest challenge. I have a second grade group that can be difficult to manage. They are virtually non-readers. I suspect that their disability is what causes the acting-out behavior.

I can't help but remember the way they behaved, back in October, when I attempted to introduce a *Stuff That Works!* project to this group. It was pandemonium.

Well, it's now April and time to give it another try. I am going where no man nor woman has gone before. I am going to attempt an inquiry-and-design project with this group.

Why? I guess it's because Annette Purnell (an early childhood teacher and *Stuff That Works!* participant) made me think about how beneficial this project would be to this particular group. This may be a way of reaching them, thereby helping them to overcome their disability. After all, being non-readers, they probably rely on graphic symbols to aid them in negotiating their way around the environment.

I began as I always do, with a sharing of ideas. What understandings did this particular group bring to this topic?

**TEACHER:**

What are signs?

**KEISHA:**

*A sign is when it has a red light. Like look both ways when you are crossing the street so you don't get hit.*

**DARIKIS:**

*Where the things are, like that. Like the staircase. They say "UP" or "DOWN," like that.*

**CARLOS:**

*Follow the "EXIT" (to) where you (are) going.*

**KEISHA:**

*You can learn from right and wrong like the "BE A GOOD LISTENER" sign. It (is) suppose(d) to show you like if you are going to the bathroom, you ask somebody to help you find the bathroom. You gotta look for the sign. That's why you need to learn how to read.*

**DARIKIS:**

*They help you to find the cafeteria.*

**TEACHER:**

Is there a sign in this school that says "CAFETERIA"?

**KEISHA:**

*Yes there is. It's like a picture. It got a picture of food.*

**TEACHER:**

Is that a sign or a symbol?

**KEISHA:**

*It (is) a symbol. A symbol shows you a picture, a sign tells you the word. Once I was going out with my father. He was not paying attention to the sign, but I was paying attention and it said, "DO NOT WALK INSIDE THE RESTAURANT." I was looking at the symbol. It was a picture of the store and people walking in. But this time it had an arrow going beside it and a little box said, "COME BACK AT 5 O'CLOCK."*

WOW! That response made me realize that I had hit pay dirt.

Mary's hunch was correct. These children seemed to be highly attentive to graphic symbols in their environment, perhaps even more than children who could read and write. Could these students be introduced to decoding of words through the much less threatening route of decoding graphic symbols?

Next, Mary wanted to take them on a scavenger hunt, but she had to find a way to make it exciting for them. She came up with an analogy that was very effective:

I told them, "Today we are going to pretend we are detectives. We need to find clues. We have to determine where a sign or symbol needs to be posted, so as to help the younger kids that can't read. But first we have to see what signs or symbols are already there."

I don't know why, but these silly little stories always get the students interested. They couldn't line up fast enough. Notice that I did not point out their own reading disabilities.

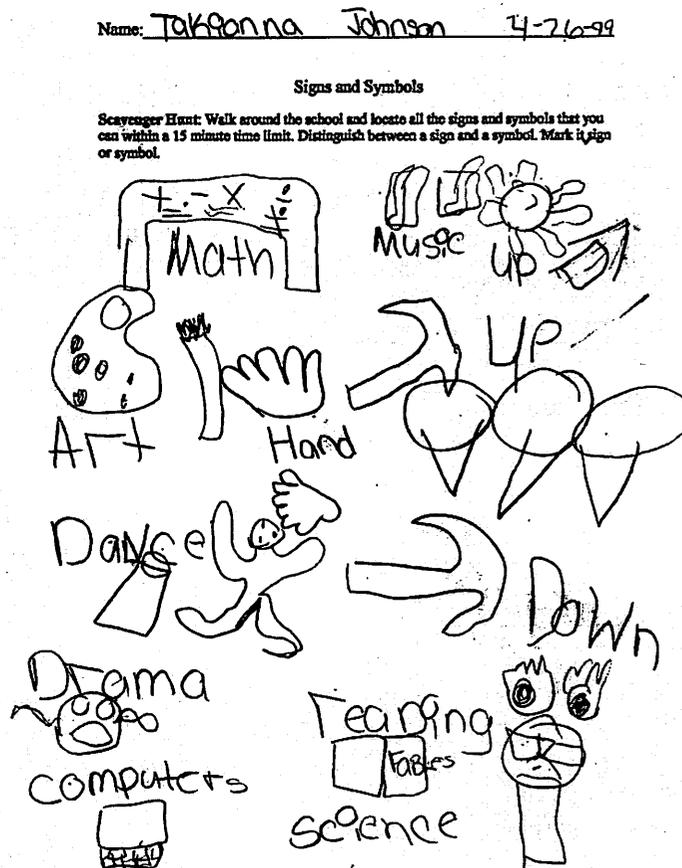
We proceeded on our scavenger hunt. Immediately upon leaving the room, the students found the "DOWN" sign on the staircase.

I asked Darikis, "If we were to design a symbol for this sign, what would it be?" He stated, "A boy walking down the stairs."

We spent the whole time on the first floor. At every turn, they found either a sign or a symbol. They couldn't write them down fast enough.

We found many signs and symbols. Then we got to the quilt on the first floor, which has symbols for all the school subjects. I asked them what the purpose of this quilt was. Takianna commented, "It shows you all the things that this school teaches." (See Figure 4-18.)

4-18: Takianna shows the school subject symbols



I then posed the same question that I had posed to other groups:

**TEACHER:**

If the words were not written below the symbols, would you be able to tell what the pictures represented?

**DARIKIS:**

You would know the math one because it has the "+" and take-away sign, so I know it means "Math."

Some of the symbols were easy to identify, while others were not so simple. Nevertheless, they were gaining knowledge of what a symbol is. I had accomplished more

with THIS topic, on THIS day, than I had with any other in the past seven months!

Keisha forced Ben, our security guard, to stand still while she sketched his badge, as well as its inscription, on her paper. (See Figure 4-19.)

On our way back to the classroom, Keisha detoured us. She stated, "I know where there is a symbol for Earth Day and I can read it." I couldn't let that remark get away, so we all followed her. Keisha immediately led us to a poster that shows the journey that paper takes to be recycled. She could decipher what the symbols on the poster represented. I was impressed.

Mary felt that this scavenger hunt had given these students an outstanding opportunity to demonstrate their understanding of signs and symbols. Next, she wanted to find out what they felt they had gained from it.

**TEACHER:**

What did you learn?

**DARIKIS:**

A sign tells you a word.

**KEISHA:**

I found out that teachers and children have symbols on they shirts, they pants, they shoes, they sneakers. A badge is a symbol. A calendar has a whole bunch of symbols like "April."

**CARLOS:**

I learned that some are words and some are pictures.

**DARIKIS:**

I learned about following the signs. They help you look for something.

**TEACHER:**

What questions do you have?

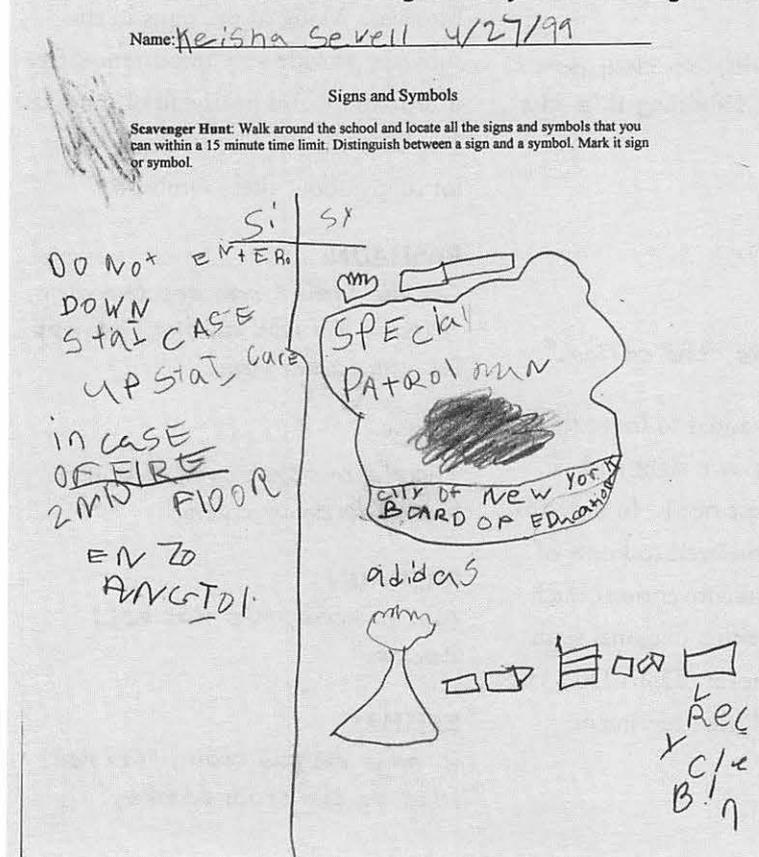
**KEISHA:**

I want to know, if people can't see, how can people cross the street?

**DARIKIS:**

Why do signs have pictures?

4-19: What Keisha found on the Signs and Symbols Scavenger Hunt



**CARLOS:**

*Because if you don't know the words the pictures will give you the answers.*

**DARIKIS:**

*Why do we need symbols?*

**CARLOS:**

*So the picture could help you.*

**DARIKIS:**

*We could help the little kids read it.*

**CARLOS:**

*By the arrows. It's up or down.*

**JOEL:**

*We can help them by talking to them.*

**KEISHA:**

*Don't put the word, just put the pictures.*

**DARIKAS:**

*If you see a kid looking at the sign and he don't know how to say it, we help them.*

This discussion indicates that these students are paying attention to symbols found in their environment. I didn't expect that they would gain such a rapid understanding of signs and symbols. They brought a great deal of prior knowledge with them. Keisha, in particular, seemed to find signs and symbols everywhere, which in turn stimulated the rest of

the group. She noticed the security guard's badge, the symbol on my slippers, another on a student's shirt, and yet another on the ring a teacher was wearing. It confirmed my belief that these students rely on the signs and symbols they find in their environment for their understanding.

Having established the importance of signs and symbols, and the reasons for using them, Mary felt ready to take the next step. She wanted her students to think about where new signs and symbols might be needed in the school.

**TEACHER:**

*Where do you think we can use a symbol?*

**KEISHA:**

*By the basement, so they don't go down there thinking it's the bathroom.*

**CARLOS:**

*By the office...*

**KEISHA:**

*...a arrow says "the office."*

Next, Mary wanted to move them to designing their own signs and symbols to fill these needs. In order to do this, they would need to know of some basic symbol conventions, such as the red circle with a diagonal slash through it that means "Don't Do This." She did a little experiment:

I wanted to test their prior knowledge. I drew a symbol that says "No Smoking" on a piece of paper. Keisha figured it out:

**KEISHA:**

*It has two circles and two lines going across the cigarette. You want to know how I know? She is a security guard and she be wearing a pink thing that has "NO SMOKING."*

This exchange triggered a discussion on symbols the students remembered from another environment: the New York City subway system. Most of the children have spent considerable amounts of time riding subway trains, so this was a major source of experience for them. Many of the signs in the subways provide very important safety information, and nearly all of them use graphic symbols. The students had a lot to say about these symbols:

**RASHAUN:**

*On the train I can see the sign, "Please do not smoke, do not let the radio play."*

**JOEL:**

*There's another one, "Do not push the door open."*

**RASHAUN:**

*And it says, "Do not hold doors."*

**KEISHA:**

*It says on the train, "Do not step by the train tracks,"*

because when the train leaves there's a little space so you don't fall inside.

**DARIKIS:**

One says, "Do not pull the red string" (the cord for the emergency brake).

**KEISHA:**

Sometimes inside a handicapped train stop, they will have like a little path (ramp) so you can push yourself on it.

**RASHAUN:**

When I was on the train, I saw what the sign says. It says, "Do not throw cigarettes under the train." (See Figure 4-20.)

Mary wanted to see how her older students would respond to the idea of making signs for the school environment. This group already had experience in a

variety of analysis and design experiences, including the following:

- mapping the classroom to scale (see *Stuff That Works!* guide, *Mapping*);
- collection of data about which rules are broken by students in the corridors and bathrooms (see *Stuff That Works!* guide, *Designed Environments: Places, Practices, and Plans*);
- analysis of simple mechanisms, and design of "Rube Goldberg" devices (see *Stuff That Works!* guide, *Mechanisms and Other Systems*).

Mary was eager to see what carryover there might be from these experiences to their latest challenge: design of signs and symbols for the school. Their studies of rule-breaking had made them

aware of problems that might be addressed by creating appropriate signs.

Later that afternoon, I met with my veterans. Of course, they never cease to amaze me. What would today bring? I decided to pose the same question to them that I had asked the second-graders:

**TEACHER:**

Where do you think we could use a sign or a symbol in this school?

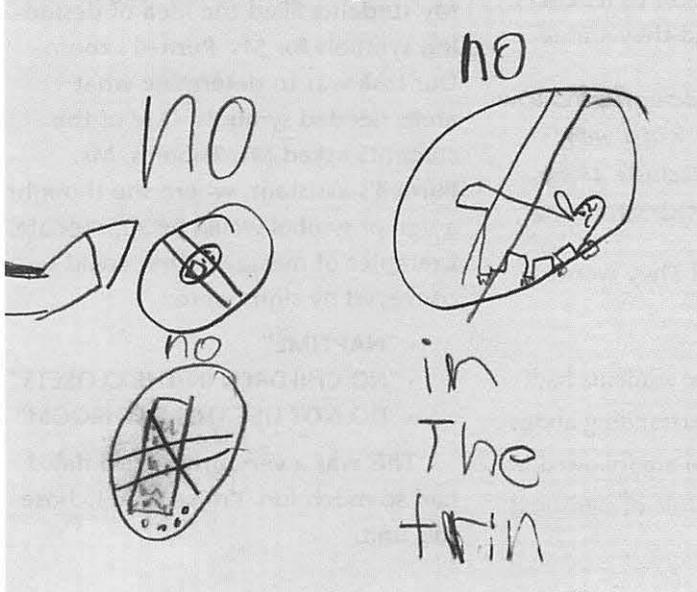
**MOISES:**

In the bathroom because there are some nasty people in the school. They don't wash their hands when they leave the bathroom.

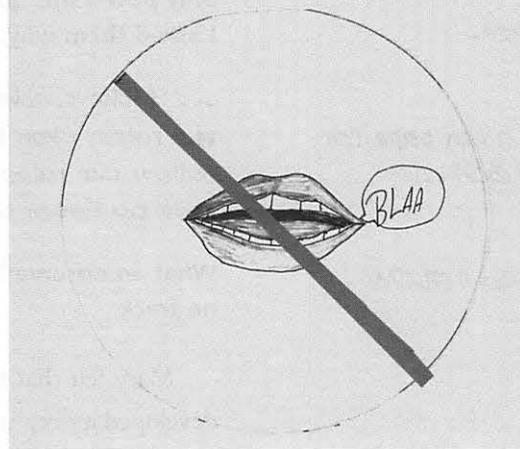
**EBONY:**

I say the classroom. "NO TALKING." I'll use a mouth. (See Figure 4-21.)

4-20: Rashaun's drawings of signs in the subway



4-21: Ebony's "NO TALKING" sign



**HERIBERTO:**

*I say in the Teachers' Lounge because kids just go in and buy soda. A symbol could be a big gigantic hand that says, "STOP, NO KIDS ALLOWED."*

**EBONY:**

*... in the garden, because people throw their trash in the garden.*

**MOISES:**

*This could be the motto: "STOP THAT TRASH AND SAVE THE GRASS."*

**HERIBERTO:**

*Hallways! "NO RUNNING IN THE HALLWAYS. RUNNING IN THE HALLWAY, YOU GET A WEEK'S DETENTION."*

**MOISES:**

*"KEEP TO THE RIGHT."*

**TEACHER:**

What could we use to make this sign?

**MOISES:**

*Cardboard, tape.*

**EBONY:**

*Red tape and green tape for "STOP" and "GO"...*

**HERIBERTO:**

*...and yellow to "SLOW DOWN."*

**MOISES:**

*Ooh, ooh! We could put the yellow tape in the hall and tell them "SLOW DOWN," but I doubt it's gonna work.*

**HERIBERTO:**

*I got one. We could get somebody's camera and when we see them breaking the rules we can take a picture and we develop them, we can write a note and say "This kid is not following our rules."*

**TEACHER:**

Keep thinking about this investigation. Think about how we should proceed. Heriberto, you talked about collecting data. I think this would be a good starting point for us. This way, we can determine if our signs worked or not.

I allowed Moises and Heriberto to go out and collect data that would answer their question, "Do you follow the signs and symbols in the school?" It was interesting that they only posed this question to teachers. I asked them why, and they stated,

*... if the teacher doesn't follow the rules, then the kids won't follow the rules because they have to listen to the teacher.*

What an observation! They were on track.

Mary felt that these students had developed a deep understanding about how rules in the school are followed or not followed, and the role of signs and

symbols in expressing them. Also, they came up with some good suggestions about signs that could influence behavior, although they were skeptical about the effect that signs alone could have.

As in any good brainstorming session, they had covered a wide range of territory. Mary's next step was to narrow their focus to designs that could be created and tested easily. Once again, Mary's colleague Annette Purnell provided a crucial suggestion:

## April 29

I had a discussion with Annette Purnell. She suggested that my students could design symbols for her kindergarten classroom. She recognized that there were problem areas in her room, where symbols could be helpful.

This afternoon, I met with my veterans. We visited Ms. Purnell's room. She and I had coordinated our schedules so that her students would not be in the room when we entered. My students liked the idea of designing symbols for Ms. Purnell's room. Our task was to determine what areas needed symbols. One of the students asked Ms. Thomas, Ms. Purnell's assistant, where she thought a sign or symbol would be appropriate. Examples of messages that could be conveyed by signs were:

- "NAPTIME"
- "NO CHILDREN IN THE CLOSETS"
- "DO NOT USE THIS BATHROOM"

This was a very productive day. I had so much fun. I'm so glad I chose this unit.

The following day, Mary borrowed a set of wooden signs and symbols from the block area of one of the early childhood classrooms in her school. Her purpose was to have her students sort these signs into categories, as a way of exploring the differences and similarities among them. Here is what happened:

### April 30

It was almost time for me to meet with my veterans. As usual, Moises was ten minutes early. I was standing by the door talking to a colleague. I never indicated to Moises what I intended to do with the signs and symbols. When I turned to look into the room, Moises had divided all the signs on the table into two groups. He had done this spontaneously, without any suggestion from me. We then had the following exchange:

**TEACHER:**

What are your two categories?

**MOISES:**

*...things with four sides, and things with more or less than four sides.*

**TEACHER:**

What made you decide to group them?

**MOISES:**

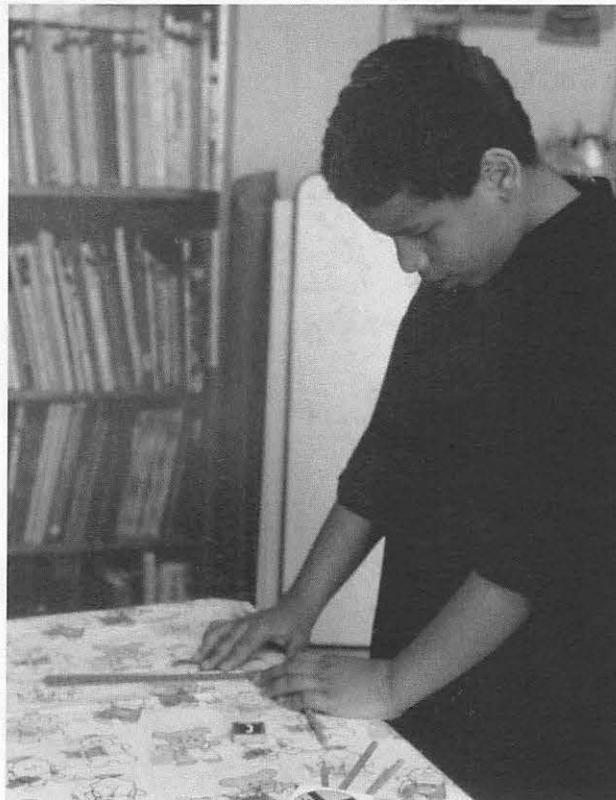
*I was bored.*

He rearranged them again, this time into four groups, and asked me to guess what the categories were. Hard as I tried, I couldn't figure them out. Moises explained his categories this way:

1. *(The signs that show) bikes go together because they are both about bikes.*
2. *The "ONE WAY" and the "CROSSING" signs are talking about rules on the street.*
3. *"YIELD," "STOP," and "RAILROAD CROSSING" go together because they are talking about stopping.*
4. *"PHONE" and "HANDICAP" go together because they are blue."*

I asked him if he could find another way of categorizing the signs and symbols. His next method was the icing on the cake:

4-22: Moises measures his signs



**MOISES:**

*I used the ruler to measure all the signs. If they were above 6 cm., I put them in one pile. If they were below 6 cm., I put them into another (pile). (See Figure 4-22.)*

**TEACHER:**

What does someone think about when designing a sign or symbol?

**MOISES:**

*If something is wrong, you make a sign. Signs have to have specific kinds of shapes, different colors. If you want someone to slow down, you use yellow. If you want somebody to stop, you use red. Ooh! I got a new way to categorize: things you CAN do and things you CAN'T do.*

Meanwhile, Mary's second-graders started working on the signs and symbols for the school. They especially liked the idea of making signs for children who couldn't read yet. Although they were barely literate themselves, it made them feel good that they would be helping these younger children out.

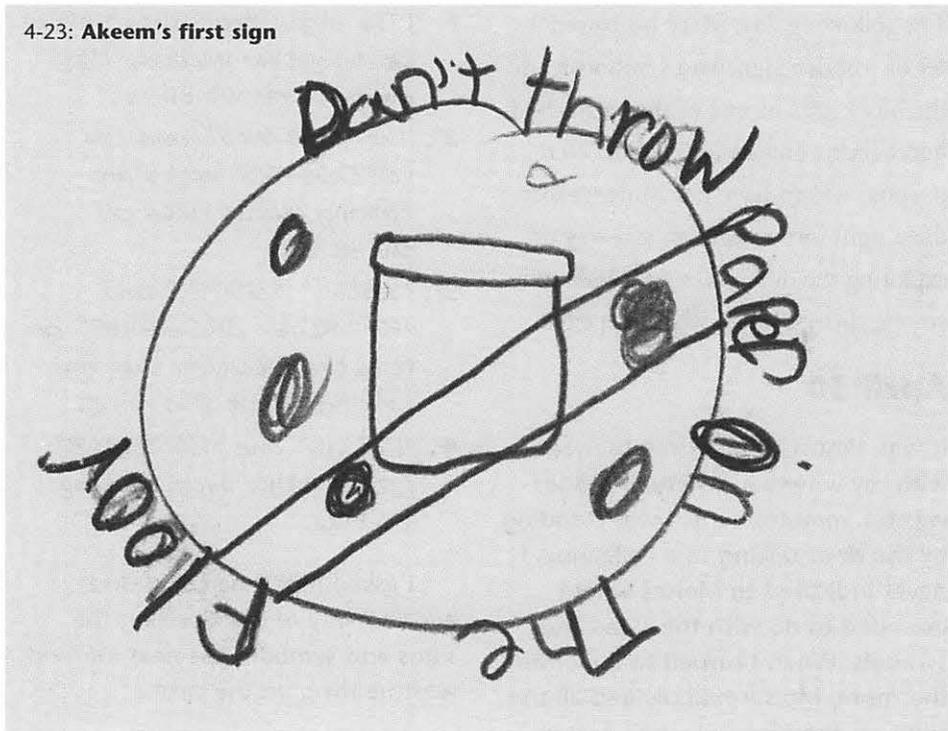
### May 7

Akeem entered the classroom and asked if he could work on his sign. He is a student that has difficulty remaining on task. He becomes frustrated because he can't write, but he was motivated by this activity.

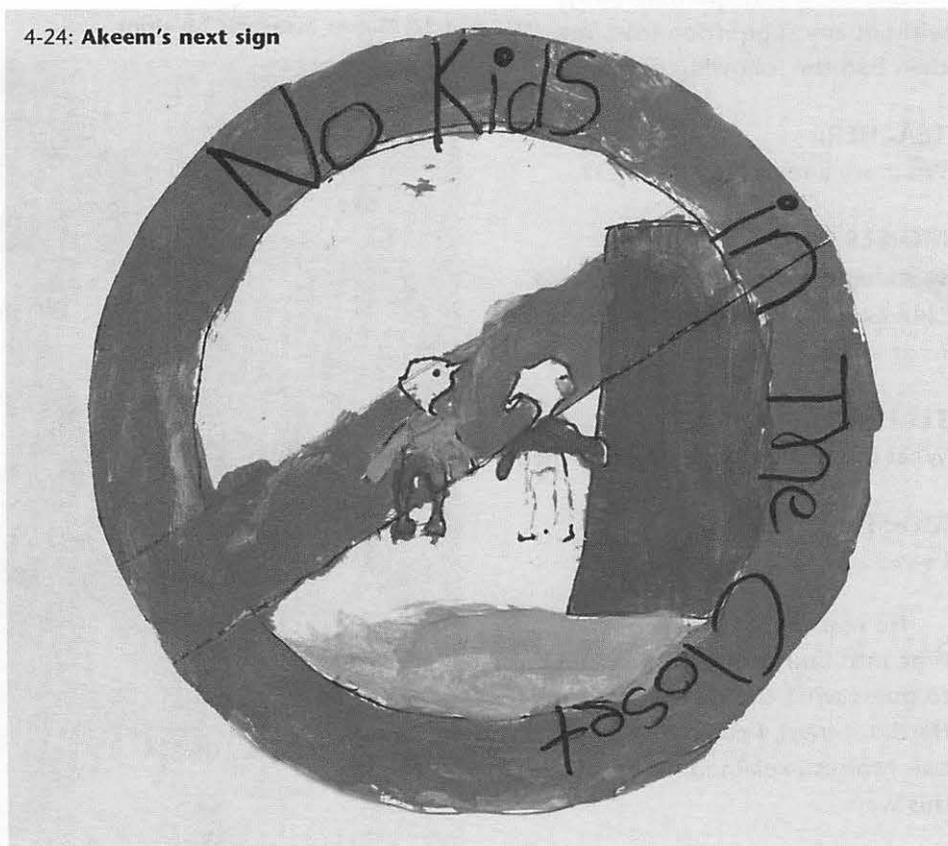
He worked diligently on his sign. It was the longest I have ever seen him remain on task. The sign had just six words: "DON'T THROW PAPER ON THE FLOOR," but this is a good start for him. (See Figure 4-23.) I will attempt to lead him in the direction of a longer piece of writing. I am hoping the symbols will motivate him to write.

Once he completed his first sign, he begged to make another sign. I offered him some suggestions, but he told me it would be hard for him to draw the ones I'd suggested. He finally agreed to make a sign for Ms. Purnell's kindergarten classroom that read, "NO KIDS IN THE CLOSET." This time he used paint and stencils to make the sign. He remained on task for the full 45 minutes. (See Figure 4-24.)

4-23: Akeem's first sign



4-24: Akeem's next sign



Mary began to feel that she could engage these second-graders in writing by encouraging them to integrate graphic symbols with words. A few days later, it appeared that this strategy had been successful with Rashaun:

I decided to propose to the students the idea of designing their own game boards. Where will the symbols come from? We will use the ones we have obtained from computer clip art, catalogs of safety signs, packaging signs, etc. My second graders were in the process of beginning to draw plans for their games. Rashaun decided that he didn't want to make a game plan. He chose to write a story. Often, I let him do what pleases him, because it's easier than the challenge of getting him to do what I want him to do.

Of his own accord, he decided to use symbols in his story. As he worked he commented,

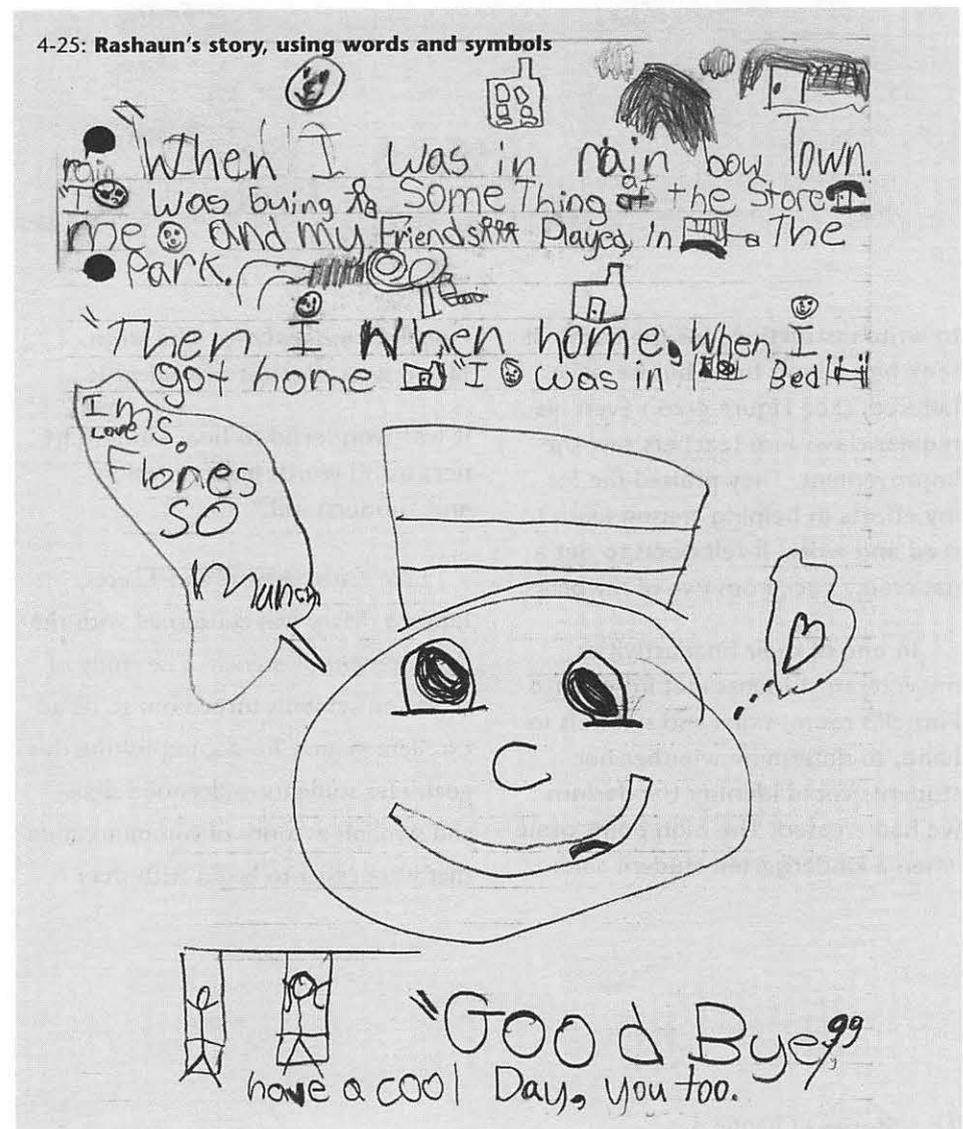
I am not going to act silly any more. I am going to listen and be nice to the teacher. I am not going to act crazy either in Ms. Wilson's room (his regular classroom) or Ms. Flores's room.

Rashaun is my most difficult child. He has a short attention span, is confrontational and can turn the class upside down. I was pleased with the story he'd created, because it showed me that although he is not always paying attention, something is getting through. I praised his efforts and encouraged him to read his story to the class. (See Figure 4-25.)

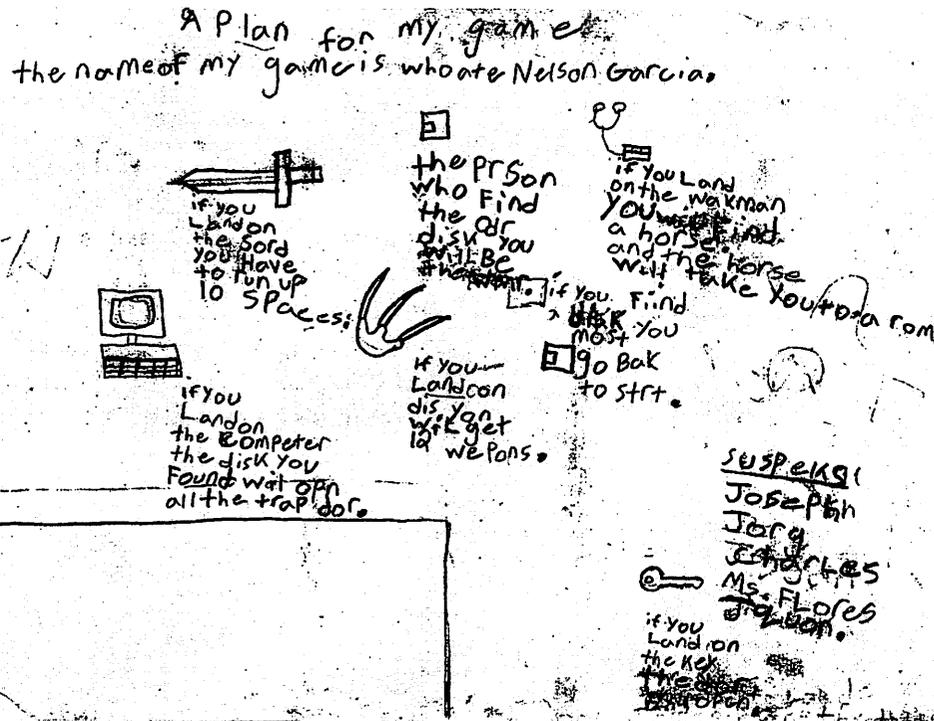
Overall, Mary was very pleased with the outcomes of her work on signs and symbols. She felt that this theme had unlocked a great deal of the potential of her special education students, who find traditional reading and writing instruction frustrating. By exposing them to other ways of communicating, they could both use their artistic talents and simultaneously see the value of written language from a different angle.

The effects of this unit reached well beyond her Resource Room, as Mary recounts:

My biggest challenge was teaching Luís, a second-grade student who only three months earlier had entered my setting as a virtual non-reader. He was driven by the design of his game, "Who Ate Nelson García?" (Nelson García was another student in his class.) I instructed him



4-26: Luis's instructions for playing the game "Who Ate Nelson Garcia?"



to write instructions for the game. It took him a long time, but he never faltered. (See Figure 4-26.) Even his regular classroom teachers saw the improvement. They praised me for my efforts in helping Nelson learn to read and write. It felt good to get a pat on my back from two of my peers.

In one of their final activities, my veteran students met in Annette Purnell's room, signs and symbols in hand, to determine whether her students could identify the designs we had created. The high point came when a kindergarten student said:

*I don't understand the sign. I think you should redesign it.*

It was wonderful to hear kindergartners using words like "redesign" and "understand."

Like Kathy Aguiar and Theresa Luongo, Mary was concerned with the development of literacy. The study of signs and symbols turned out to be an excellent vehicle for accomplishing this goal. Her students understood signs and symbols as forms of communication that were easier to begin with than

written language. Having acquired some experience with signs and symbols, it seemed natural that they would begin to value words as well as graphics. Keisha expressed this point when she said, "You gotta look for the sign. That's why you need to learn how to read." Thus, signs and symbols provided a non-threatening route into the world of written language.

Like Guillermina Montano, Mary wanted her students to understand how signs and symbols can govern behavior. They were able to see that every sign and symbol is created for a purpose, and that it may or may not be effective. When Heriberto said, "Kids don't follow the signs in the school because they think the rules don't apply to them," he was evaluating the signs and finding them wanting. They then went on to create signs that they thought would be effective, particularly with the kindergarten students. These signs provided lessons in literacy for these younger students as well.

# Analysis and Design of Signs, Symbols, and Codes

In this section, three upper-elementary-grade teachers describe the units they developed for their students. Felice Piggott, a fourth-grade teacher, and Christine Smith, working with her sixth-grade science class, both engaged their students in designing and testing signs. Felice's students developed signs that signified "DANGER." They then devised innovative ways to test them by posting them around the school and

observing people's reactions. Christine gave each group a "secret message," such as "DON'T FALL IN THE HOLE!" or "BE CAREFUL OF THE HOT LIQUID!" They had to design a graphic sign that could convey this message without words. Then they tested these signs by seeing if everyone else could understand them.

This chapter concludes with two signs-and-symbols units Angel

Gonzalez developed for two fifth-grade science classes. In the first of these, his students designed hand signals for students to use in the classroom. Angel's second unit begins with the analysis of symbols used in advertisements and product packaging. The students then designed marketing campaigns for snack packages that would be sold for hurricane relief.

## How Will We Know If Our "DANGER" Signs Are Effective? *by Felice Piggott*

New York State had just instituted new high-stakes tests for the fourth grade, and Felice had spent most of the year preparing her students for these exams. Once they were over, she wanted to engage them in some activities that would be both educational and fun. She decided to focus on the design of signs and symbols. Felice describes what happened:

**I needed to get something going after the sheer drudgery of test preparation. My spirits were low, as were the kids'. So I got them started with signs, and POW!!! The kids were very excited about designing something, and really took the next step independently of me: the notion of testing their designs.**

### First Session

The warm-up for this activity was a chat about signs:

- What is the purpose of a sign?
- Are all signs the same?

Here, I elicited the idea that some signs use words and some use symbols.

Next, Felice organized the students into groups and asked each group to come up with an idea for a "DANGER" sign. They had to produce a preliminary sketch and a decision about the sign's shape and colors. Felice writes:

**VERY EXCITING! After the kids broke up into groups, the room was buzzing! There was lots of discussion about what the sign should look like:**

*Felice Piggott teaches fourth grade at P.S. 145 in the Manhattan Valley section of Manhattan. Felice has considerable experience in implementing long-term design projects. For example, her students once redesigned their school cafeteria (see *Stuff That Works!* guide Designed Environments: Places, Practices, and Plans).*

**MANDI:**

A railroad track with two people and a question mark, like whether they should cross or not...

**STEPHANIE:**

I'm afraid of dogs, so maybe the sign should be in the shape of a dog. Like, "WATCH OUT!" (for the dog or something).

**GABRIEL:**

The symbol should be something dangerous, like fire or lightning.

**STEPHANIE:**

The colors should be blue and black, 'cause that's what will happen to you if you don't watch out!

**SHEVAUN:**

The symbol should just be a face, like a smiley face, but with the mouth in an "O" shape and the eyes real wide.

**MUSTAFA:**

The sign should be like an intersection, with a person in the middle, and a car coming.

## Second Session

The purpose of this session was for each group to make its sign, with all the group members contributing. The kids got busy. Sign-making went on for an uninterrupted 30 minutes. The kids really didn't ask me to do much except say they were doing the right thing and stay out of their way. As the signs were completed, they were displayed. (See Figure 4-27.) The children IMMEDIATELY began to view each other's work critically:

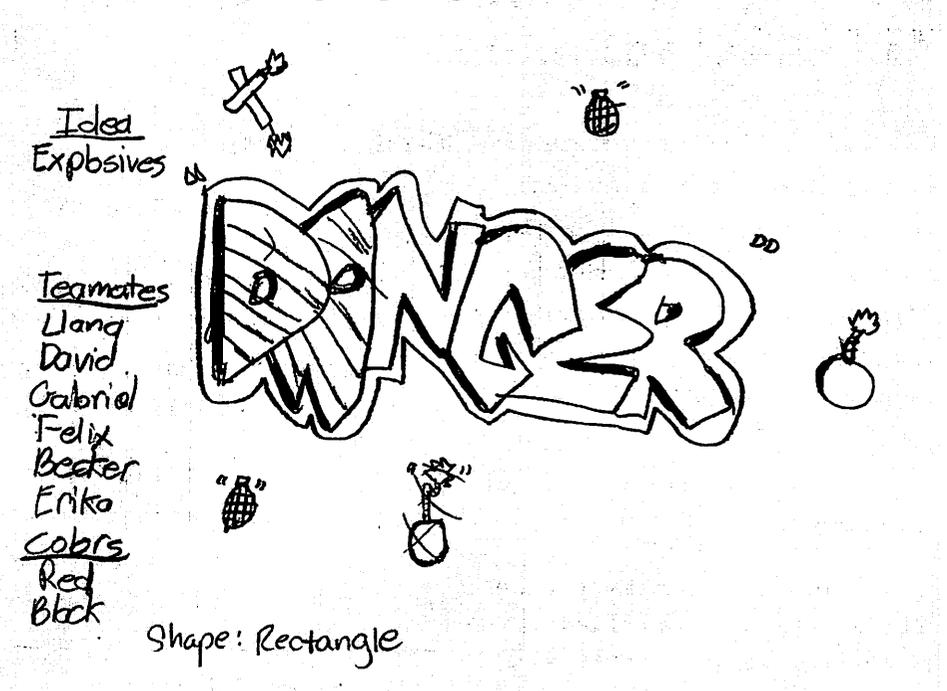
What is THAT? Oh, it's a TRAIN? No, no, it's GOOD, but it takes a while to see that...

As they looked at the signs, this became a natural opportunity to discuss:

- How will we know if our signs are effective?
- How can we test the signs?
- What is an effective test?

Here are some of their ideas:

4-27: Plan for the "Exploding Danger" sign



**TROY:**

*Test it on the bathroom door.  
See if it keeps people out.*

**ERIKA:**

*What if someone has to go,  
really bad?*

**TROY:**

*Well, then they'll have to go to  
another floor, and then we'll  
know if it is good or not!*

**GEORGIE:**

*We could go around and  
ask some kids what they think  
it means.*

**MANDI:**

*We could take a field trip  
outside to see if people know  
what it means. ... strangers,  
you know?*

**TROY:**

*I think we should put it on our  
classroom door to cut down on  
all the interruptions. You know,  
all those kids who ask you to  
read things, or sign stuff. Maybe  
it'll keep people out.*

**TRACEY:**

*I think you should try it on the  
teacher bathroom to see if it  
works on the teachers!*

The kids were really into the idea of testing their signs. So, guess what we did next!

Felice did not need to convince the students of the importance of testing their signs, but there was a further step she wanted them to take. They would have to find a way to record the test data. In presenting this challenge, Felice was underlining a key component of a valid test: there has to be a method of presenting the data so others can examine it. Felice introduced this requirement by posing a logistical problem.

### Third Session

I explained to the groups that MY dilemma was that I couldn't watch all the teams do their tests. Therefore, I would need a way to know what the groups had done and how people had reacted to their signs. I asked each group to devise a test for their sign and a way to record the data from the test. Each team began to brainstorm ideas for testing and for collecting data. Generally, each group came up with a site for their test and a tally sheet or check-off list to record people's reactions. (See Figure 4-28.)

The "Skull Danger" group originally wanted to test in the teachers' bathrooms, but Tracey objected:

*I think the teachers would start to wonder why we were sitting there and would probably scream at us to go back to our room!*

After careful consideration, they decided to test it in the boys' and girls' bathrooms. They placed their sign on a closed stall door and stood nearby to observe reactions. This team was the most specific in their test criterion:

*If the sign is effective, then kids won't go in the stall. If it's not, then kids will crawl under the door, and use the stall anyway. That's what they sometimes do when they KNOW they're NOT supposed to go in.*

The students were able to plan the tests in considerable detail, before actually performing them.

The tests included:

- Asking people what they thought the sign meant;
- Asking people how effective the sign was; and
- Observing whether people actually paid attention to the signs.

In the next session, they actually conducted their tests:

4-28: "Car Danger" group's plan for testing their sign

Don't Drive Fast.

Members	
Natasha	Recorder
George	Asker
April	
Mostafa	
Cythia	

Step 1: Looks for 10 strangers one by one and ask how it is.

Step 2: Ask for the person's name

Step 3: Ask the person how effective is it, Bad, Good, Great, or Excellent.

Step 4: Write their Idea.

Step 5: Make a graph that shows how many people pick Bad, Good, Great or Excellent.

### Fourth Session

I received many phone calls from other teachers, who were wondering why my kids were:

- hiding behind bathroom doors;
- scaring children in the halls; or
- asking to sit in other classrooms, e.g., to observe across a hall.

Figure 4-29 shows the data from the "Car Danger" group's survey. In Figure 4-30, the "Skull Danger" group presents the results of its covert observations of whether students "fall for" their sign by not using the toilet. In the final session, Felice's students discussed what had happened during the tests and drew some conclusions. They had a lot to say about other people in the school, about their signs, and even about themselves:

### Fifth Session

TEACHER:

What did you learn from the tests?

TROY:

... that we probably should have used different colors, because green means "GO," not "DANGER," and our design wasn't good.

GEORGIE:

... that only one team should do the testing, or that we should have discussed it more.

4-29: How effective is the "Car Danger" sign?

BAD	O.K.	Great	Excellent
Total —	Total —	Total —	Total —

4-30: Data from the observation study of the "Skull Danger" sign

Goal = To see if the sign really works

Sign on the Bathroom door?

Observer	Girls who Fall for it (guess)	Girls who don't Fall for it (guess)
Jerry	10	2
recorder: Josh	3	
	10 + 3 = 13	2 = 2
	16	28
	Total 25	Total

**GABRIEL:**

*I think we did a good job, and that our sign was good. It's just that we didn't ask the same people, or that we DID ask the same people. Otherwise, we did good. (Some team members had asked school staff only, while others had asked both staff members and children.)*

**NATASHA:**

*I was afraid to ask people, but they were mostly nice about it, helpful. That surprised me.*

**GEORGIE:**

*We needed to be more organized with our notes and stuff. (Tally sheets had gotten lost.)*

**VINCENT:**

*Most people don't notice things. A lot of people didn't see the sign, even when it was RIGHT THERE!*

**SHEVAUN:**

*EVERYBODY on the team needs to contribute. I mean, after the whole test thing, some people on my team were saying, "Well, my idea was better," though they had NO ideas to contribute when we designed the thing!*

**GEORGIE:**

*I guess this is what the guy who invented the "STOP" sign went through!*

This last comment is very insightful. Georgie realized that every sign is a product of some sort of design-and-test procedure similar to the one they had just done. Felice was very pleased by the outcomes of this activity, although she had some critical reflections of her own:

**It's great that kids can devise their own tests, but how can I observe them as they are doing the testing? Obviously, they can work in their groups and record the data, but I wanted to be there too!**

**How do I get the idea across that testing must be uniform—that all the data should be collected under the same conditions?**

**How do I stop the testing from degenerating into "tricking someone" or "trying to scare someone"? These things happened with some teams.**

**If we had more time, I would envision this leading to the next step of redesigning their signs based on the tests.**

## You Need to Warn People That There Is a Hole in the Ground! *by Christine Smith*

Christine developed a unit on symbols for her most difficult class, a sixth-grade science class. She met with this group for three single periods and one double period per week. With some exceptions, the students in this class were poorly motivated to do work, either in class or at home. A steady influx of new students during the year made matters even worse. She began her work on signs and symbols with a brainstorming session:

### Day 1: Brainstorming Signs

I gathered the class together for a brainstorming session on signs. Some of my questions were:

- What is a sign?
- Why do we have signs?
- What are some examples of signs?

The results of the brainstorm really surprised me. The class had great ways of describing signs, and came up with a lot of ideas that I hadn't thought of. Some of their responses were:

**EDWIN:**

*A sign tells you something.*

**NIORKA:**

*... tells you what to do.*

**JOSHUA:**

*... tells you what you CAN'T do.*

**LUISA:**

*... tells you where to go.*

**HAROLD:**

*Signs are for communicating.*

**NIORKA:**

*A sign is a command someone gives you when they are trying to communicate.*

They gave lots of examples of signs, such as "STOP" signs, "NO PARKING" signs, and traffic lights.

I wasn't sure how to classify traffic lights initially, so I asked the class how they are different from "STOP" signs. Someone suggested they are signs that are constantly changing. This was a new category I hadn't thought of. Also, the idea of sign language came up. The class decided that it didn't quite fit in the same category as traffic lights, but we never determined how to categorize hand signals.

*Christine Smith was in her second year of teaching science at I.S. 164, a large middle school in the Washington Heights section of Manhattan. There were many behavior problems in her classes, and she saw signs and symbols as a topic that would engage her students.*

Christine’s students quickly moved from a narrow conception of “sign”—a posted notice using graphic symbols and/or words—to a more general view. Both traffic lights and sign language use visual symbols, just as “STOP” signs and “NO PARKING” signs do. The difference, as one of the students pointed out, is that traffic lights (and sign language) are dynamic rather than static. They generate a sequence of symbols that change over time, while printed or painted signs always show the same thing. This distinction is also one of the major differences between written language, which is usually static, and spoken language, which is dynamic. Christine finished this session with a little game:

The brainstorms and discussion can get tiresome for the students, so I often try to incorporate a game toward the end of class. I asked the students to list as many signs as they could in four minutes. This was fun, because then we went through the answers and students had to cross signs off their lists that other students had too. The person who had the most non-duplicated signs would win the game. We didn’t actually finish, but the students really liked it.

Next, Christine wanted her students to make their own sense of the concepts of a “sign” and a “symbol.” She introduced this discussion with a fanciful tale about a distant planet:

## Day 2 (double period): Definitions and Symbols Game

I told my students: “Pretend I am a visitor from another planet where we do not have signs. Write a definition of ‘sign’ that will help me understand what it is.”

This warm-up activity worked great! Every student understood “sign” well enough to create a definition. Some of them were almost a page in length. As a class, we selected the most important ideas that needed to be incorporated in the definition. One resourceful student took a peek in the dictionary, and that helped too. We settled on the definition of a “sign” as “a piece of metal, wood, or paper, or a gesture, that gives information.”

In their written assignments, some students expanded this definition. For example, Gina wrote:

*To me, I think a sign is like a warning. It tells you not to bring a pet or it is a red light*

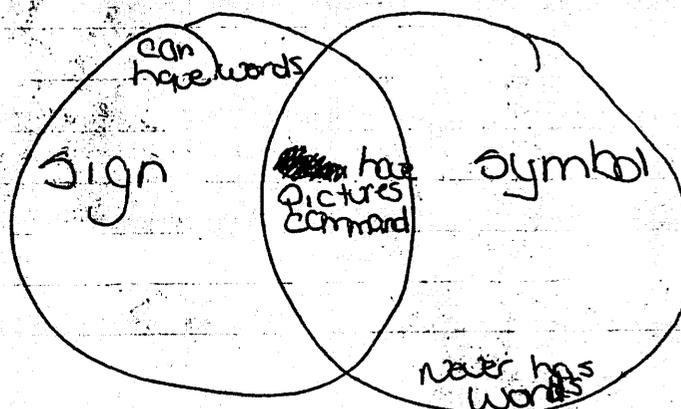
*for cars to stop or it is a green light for cars to go. It says to be quiet in a library.*

Christine then had her class consider the meaning of “symbol.” Again, she led a brainstorming session. These are some of the characteristics of a “symbol” that they came up with:

- \* *Drawing words*
- \* *Symbols never have words*
- \* *A short way to say something*
- \* *A picture or drawing that tells a command*

The brainstorms always provide good opportunities for students to share their ideas and participate in class discussions. I’ve noticed that by writing students’ names next to their ideas, I get an overwhelming number of comments, even from students who might otherwise not participate. One student created a Venn diagram showing the relationship between symbols and signs. (See Figure 4-31.) Our definition for “symbol” ended up being: “A picture that stands for or represents something.”

4-31: Venn diagram relating signs and symbols



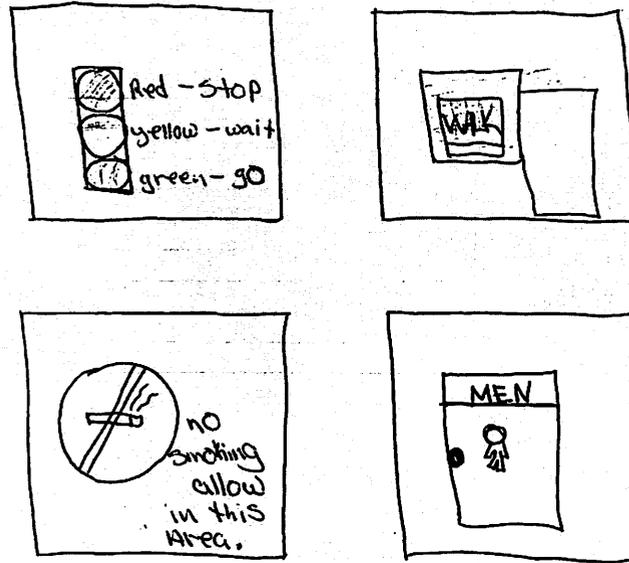
By this point, they were in the middle of a double-period class of about 80 minutes. The students were beginning to get restless, so Christine introduced another symbols game. Her classroom had six rows of six seats each, divided in the middle by a wide aisle. She made all the students on each side of the aisle into a team and challenged each of the two teams to be the first to come up with the meaning of each “mystery symbol.” Christine writes:

We made up a symbol guessing game where each team could get a point for being the first to guess the correct message behind a symbol. At first, I drew the symbols on the board, but after the first few, I started having students come up to draw them. The class really seemed to like this activity. I think a large part of it was the excitement of writing on the board. I was surprised at how many symbols they were familiar with!

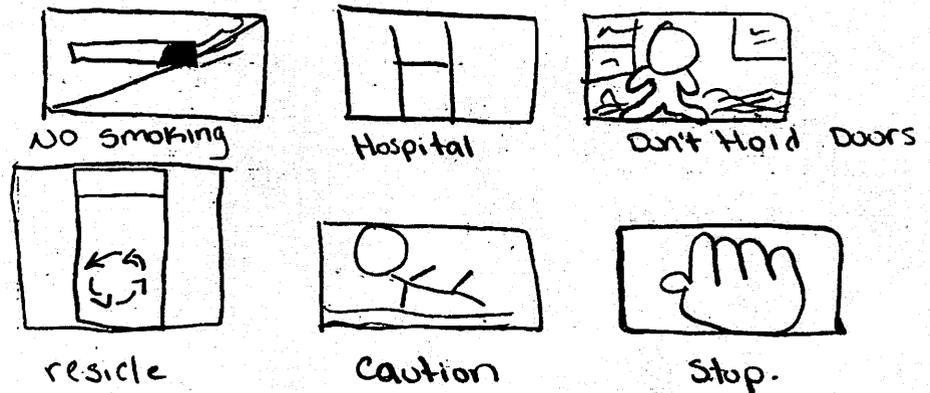
For homework, I asked them to find signs with just words, signs with only symbols, and signs with both words and symbols. (See Figure 4-32.)

Christine had now engaged her students in thinking about what signs and symbols are, how they work and what they mean. The next step was to have them design some. As a warm-up activity, Christine asked them to think of and draw some signs that used no words. An example is shown in Figure 4-33.

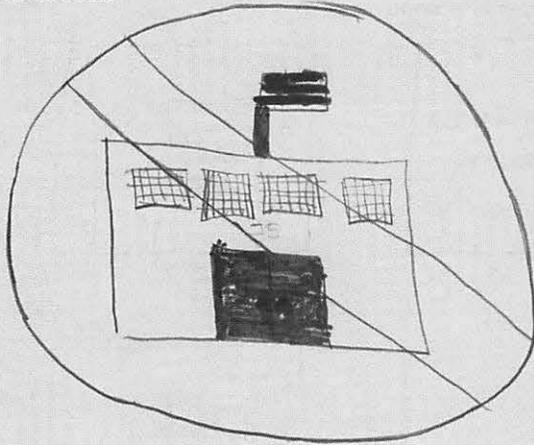
4-32: Examples of signs and symbols



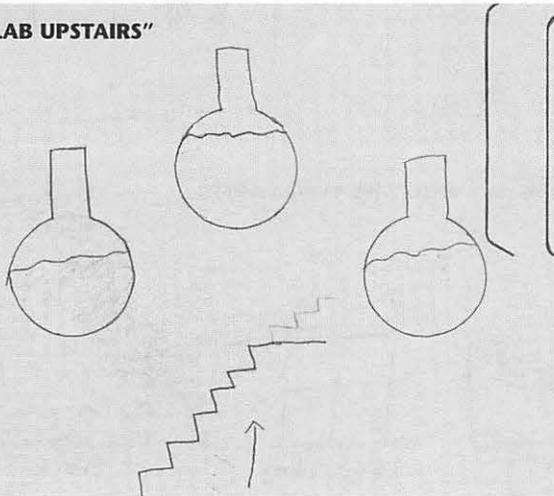
4-33: Signs that use no words, with explanations



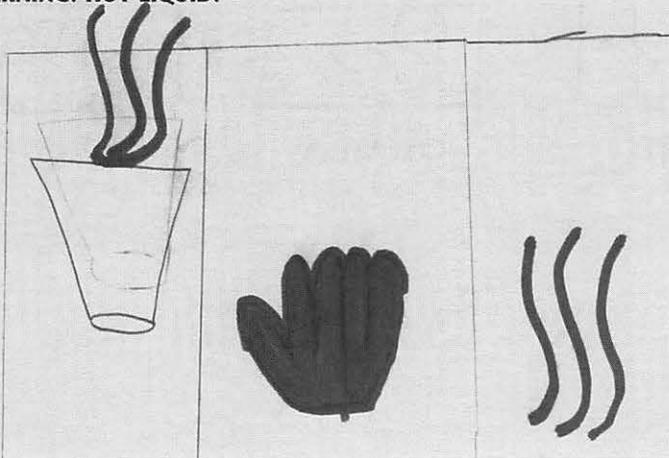
4-34: "SCHOOL IS CLOSED"



4-35: "SCIENCE LAB UPSTAIRS"



4-36: "WARNING! HOT LIQUID!"



### Day 3: Creating Signs Without Words

After the warm-up activity, I gave each group an index card with a message on it and told them not to show anyone else their card. They needed to create a sign to tell people this message without using any words. Some of the messages were:

- You want to tell people that school is closed.
- You need to warn people that there is a hole in the ground, so they won't fall in.
- You want to tell people not to shut the shades.
- You want to tell people that the sun is so bright, they should buy sunglasses.
- You want to tell people that the Science Lab is upstairs.
- You want to tell people that they can get the subway downstairs.
- You want to warn people to be careful of a hot liquid, such as cocoa or coffee.

Some samples of the students' work are shown in Figures 4-34, 4-35, and 4-36.

The class really liked this activity, which came off much better than I had expected. Most of the class worked in pairs, but there were a few students who preferred to work on their own. I was surprised by the number of common symbols the students already knew about and incorporated into their signs.

Giancarlo and Joshua had the problem of symbolizing a hole in the road and of warning pedestrians not to fall in. They drew road barriers set up in a square. I was surprised that they thought of that, and even more shocked when the class later translated the sign to mean “DANGER!” Another group drew a price tag with a “\$” on it to represent “FOR SALE.”

To finish this unit, Christine wanted to do something that would both be fun and provide some closure. Her plan was to have the students try to identify what each sign meant. Like Felice, she also wanted her students to look at the signs critically and to think about how they could be improved. Here is her account:

#### Day 4: Sign Quiz/Game

Initially, I designed this game as a quiz. Although they had been doing well so far with signs and symbols, they tend to need a lot of structure to get anything accomplished.

I had them number a paper from 1 to 9, the number of signs. I then held up each of their signs from the previous day, one by one, and asked everyone to write down the message they thought the sign was supposed to give. They loved trying to figure out the signs.

Once everyone had written down their answers, we went through them again, and they began to guess

out loud. I had been certain that most of the signs would be too confusing for them, but I was wrong. I guess that sixth-grade minds must all be on the same wavelength!

They recognized the flask as representing the Science Lab, saw-horses as symbols for “DANGER,” and interpreted the circle on top of a pole as “SUBWAY ENTRANCE.”

As we discussed each sign, I raised several questions with them:

- What is confusing about this sign?
- Which symbols make the meaning clear?
- What could we do to make the sign easier to understand?

Everyone was really nice about giving and receiving suggestions for how the signs could be improved. We spent a lot of time talking about the warning sign for hot liquids (Figure 4-36). One of the issues was color. The steam was drawn in blue, and no one figured out what it was. Edwin suggested using red around the cup, to indicate heat. It became clear that color is important in some signs, in helping people to understand the message.

We also had some different ways of representing “NO” or “DON’T DO THIS” in signs. The class picked up on this. Also, they wanted to know:

*Are there times when we must use words on a sign to get the message across?*

The discussion after the quiz/game was the best opportunity the students had for sharing. When the students’ work was presented to the class for critique, they were able to explain the ideas behind the various symbols they had included.

Like Felice Piggott, Christine enabled her students to look at their own and one another’s designs critically, and to analyze what parts did and didn’t work. However, Christine’s class had little experience in doing this kind of evaluation, which made their achievement all the more impressive. One of the most important goals of a design activity should be to foster children’s willingness to subject their own work to some sort of objective evaluation. Developing respect for evidence is a major goal in both science and technology education.

In reflecting on this unit, Christine felt that it had been more successful than she had anticipated. Her students had worked together as a group, and many students took their ideas and questions home with them. At the same time, there were some pieces that she felt were lacking. Here is Christine’s overall evaluation:

Looking back, the class did a really good job with these activities. They thought a lot, and participated in class discussions more than usual. There were definitely some complaints, along the lines of “What does this have to do with science?” On the whole, though, the students were finally thinking about our class outside of the building. They would come

in with stories about interesting or misleading signs, or show me signs they had created themselves. Unfortunately, they sometimes created these signs during a class discussion or other unrelated activity.

I saw positive sides of students who previously had contributed very little. The Quiz/Game Day was the first really fun day we had had as a

class in a long time.

The next time I do this activity, I will incorporate graphing as a way of representing how well people understand the signs. I would have liked to have them figure out a way to gather, categorize, and represent the data on the effectiveness of their signs.

## Hand Signals for Student Needs

by *Angel Gonzalez*

### September 9 (the first day of school)

The class had just completed a few hours with their regular teacher, Mr. Johnson, and had begun to review rules and routines. I introduced the topic by asking the class how order, respect, and organization are maintained in a classroom. The students listed various rules. I pointed out that in any situation, people will devise ways of working, living, or playing with each other to prevent chaos and have a happy and productive time together. These methods could be called “social practices.”

Eric added that social practices are like demands on people. I agreed, and asked the class to think of organizational problems that they faced in class, and that they could work together to solve. Here is the brainstorming list:

1. Seating arrangements;
2. Students asking to go to the toilet, and thereby disrupting the flow of a story or class discussion;
3. Students talking out of turn;
4. Chaotic class line-ups;
5. Need for more time for fun activities such as gym, recess, and games.

Angel has wisely chosen to begin this unit on the very first day of school, a time when new rules and procedures are being established. He used this occasion to involve the students in a discussion of how rules and procedures are used to govern their behavior. The brainstorming session on social practices set the stage for the signs-and-symbols design project that followed:

*Angel Gonzalez is a science specialist at the Family Academy, a public elementary school in Central Harlem, New York City. Angel meets with one class at a time, while their regular teacher has a “prep” period. Often, he tries to collaborate with the regular classroom teachers, so that his lessons will carry over into the rest of the curriculum.*

## September 16

We reviewed the definition of “social practices” and went over the examples we had listed. As a class, we could come up with ways to lessen the disruptions caused by students needing to go to the bathroom. What other needs could lead to disruptions, if students had to ask each time? The class made the following list of issues, which could result in a student disrupting the class:

- \* *Wanting water to drink;*
- \* *Needing to sharpen one's pencil;*
- \* *Having to go to the Office;*
- \* *Needing to use the bathroom.*

I asked each individual to write down their ideas for solving these problems. I then divided the students into groups of three or four, and had the students share their ideas within each group. Each group then had to present its best solution to the class.

The overwhelming consensus was that we should devise signals to communicate these needs without speaking. We discussed how the signals could be made by the hands, by any other part of the body, or in any other way. I asked for other uses of signals made with the hands or body. They came up with examples from baseball:

- \* *The catcher signals the pitcher;*
- \* *The umpire makes a signal that means, "You're out!"*
- \* *The umpire has another signal that says, "Safe!"*

In looking for solutions to the classroom interruption problem, Angel's students recognized that they would have to come up with a means of silent communication. What techniques could they use? Drawings and graphic images can communicate without sound, but these would have to be drawn each time or kept handy for use when needed. A simpler solution is to use one's own body to make the signals.

The teams met again to devise their codes. As an assignment, I asked them to refine their ideas, and to come back ready to write them down. We would have to figure out how to select the best ideas.

## September 23 & 24

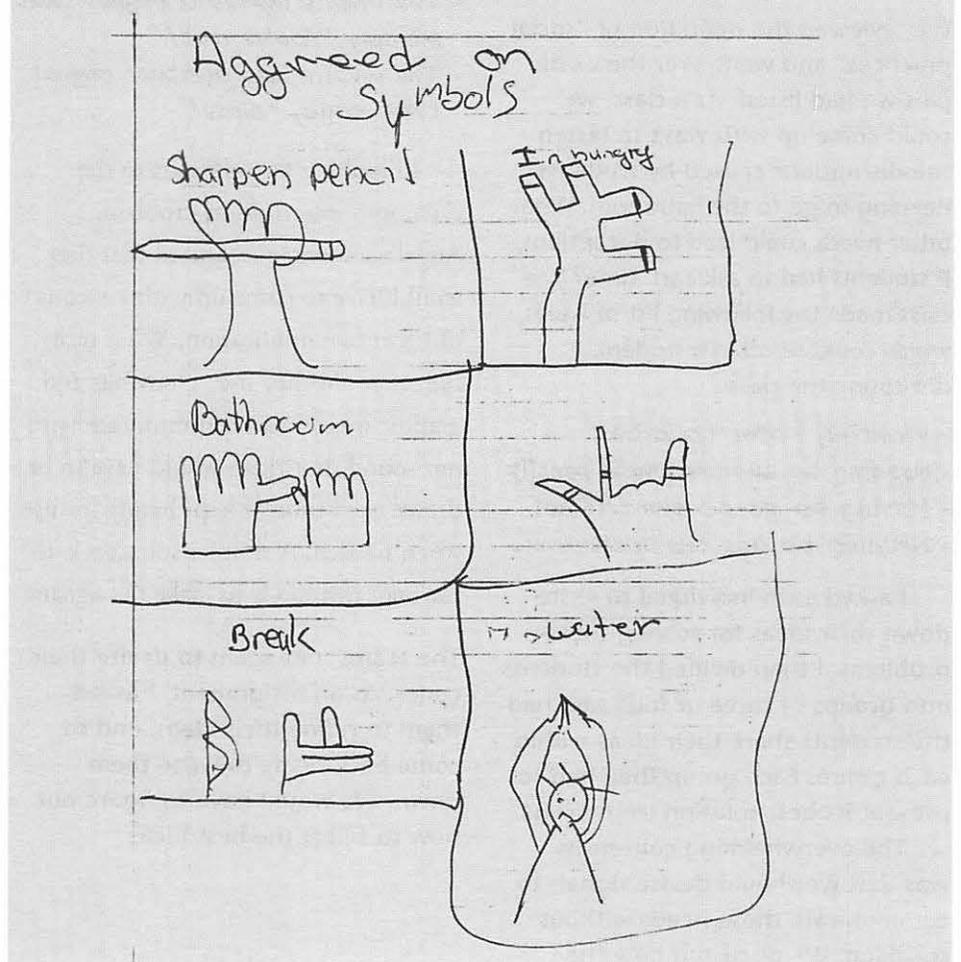
Each team proposed signals to be used for six different messages. (See Figure 4-37.) Only one set of symbols could be tested. We decided that we would vote on all of the groups' proposals for each symbol by a show of hands. The process of voting was tedious but productive. We decided in a fair way, and everyone's ideas were considered and respected.

After we had decided exactly which hand signals would be tested, I asked each team to take one of the signals and make a few drawings of it. (See Figure 4-38.)

The students had an important stake in selecting the designs to be tested. Not only would they be using these signals themselves, but also the signals would eventually be introduced throughout the school. It was essential that everyone's voice be heard and that the decisions be made in the fairest possible way.

Once the decisions had been made, the students faced another design problem: How would they inform everyone about the new hand signals? They decided to have each group make its own drawings of the six hand signals and to empower a committee to select the best ones.

4-37: Proposed set of symbols



4-38: Tracing the drawing for "I need to go to the bathroom"



**October 1**

Today, the teams finished their drawings. We had an adequate number of drawings of each hand signal. During lunch period, a committee of seven students met and made the final selection for each one. I suggested that they pick the one that demonstrated how to make the signal most clearly.

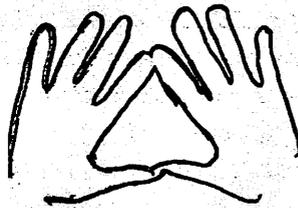
After the selections had been made, I had the students trace the drawings with a marker, to improve their legibility when photocopied. Some had to be reduced, while others had to be enlarged. I typed the meaning of each symbol, and let them choose the font. (See Figure 4-39.) Then the committee photocopied the key and gave them to Mr. Johnson to begin using them. His class would pilot-test them. He agreed to introduce them one at a time until they were all learned.

For homework, Angel asked the students to discuss the evaluation of the symbols and reflect on the process of designing them:

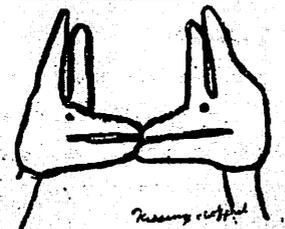
4-39: Key to hand signals

# Signals For Student Needs

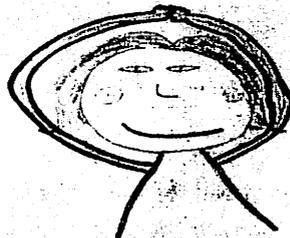
I need to go to the bathroom.



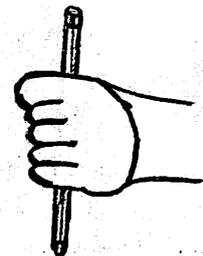
Someone is BOTHERING me.



I want to drink water.



I need to sharpen my pencil.



I have an ACCIDENT.



I need my note book.



Developed by Mr. Johnson's 5<sup>th</sup> Grade to help stop interruptions during lessons.

1. How will we know if the signals are successful?

**SOPHIE:**

*Because if we could make new signals, then all kids in the Family Academy and all people would love it.*

- \* *Students will (use the) signals.*
- \* *There'll be less interruptions.*
- \* *Adults will know what they mean.*

**CHRISTOPHER:**

*First we will know by trying it on the first grade. Then we come back a couple of days later and we see how the signals are working. If the signals work*

*then we go to every other class, and see if it works there. If it doesn't work then we come back to Science. The committee would pick some more signs. Then we do that all over again.*

2. What are your feelings and reflections about our work with signals?

**SOPHIE:**

*We had fun and I felt good when just us the 5th grade made the first grade try to learn how to make signals when they grow up. They already are starting to learn how to do it. ...When Mr. Angel told us that they were*

*learning how to do it, I was so excited because (of) all the hard work to make them.*

**STEPHANIE:**

*I think it (is) fun when you do that and it (is) fun when you vote... Some of the signals are not right, and I think we should have a vote on the signals again so we can know which one is good. We should try the signals first before putting it around the room.... If interruptions are what we talk about, maybe other people in the world can learn signals.*

## Design Your Own Brand! *by Angel Gonzalez*

Working with another fifth-grade class, Angel developed an activity that explores how symbols often work covertly to influence people. He had his students analyze advertisements and product packaging for symbols and hidden messages. They then designed their own advertising campaigns for snack packages, which they sold in the school to raise funds for hurricane relief. Here is Angel's account:

### September 28

I provided Ms. Harris's class with a bulk supply of snack foods. These were to be sold to the rest of the school community to raise funds for victims of Hurricane Georges, which had recently struck the Caribbean.

The idea was to put the snack products in small plastic bags and market them as though they came in a variety of brands. Each team would have to design its own brand and develop a marketing campaign for selling it.

I divided the class into teams of four to six each and explained that the mission of each team would be to sell the largest quantity of a particular type of snack. They would have to compete with the other teams by creating advertising messages that would influence students to buy their brand.

After I presented this idea of marketing snacks, the students asked if they could actually taste the snacks that they would be trying to sell. Of course, I agreed wholeheartedly, saying that one could not market something without trying it first.

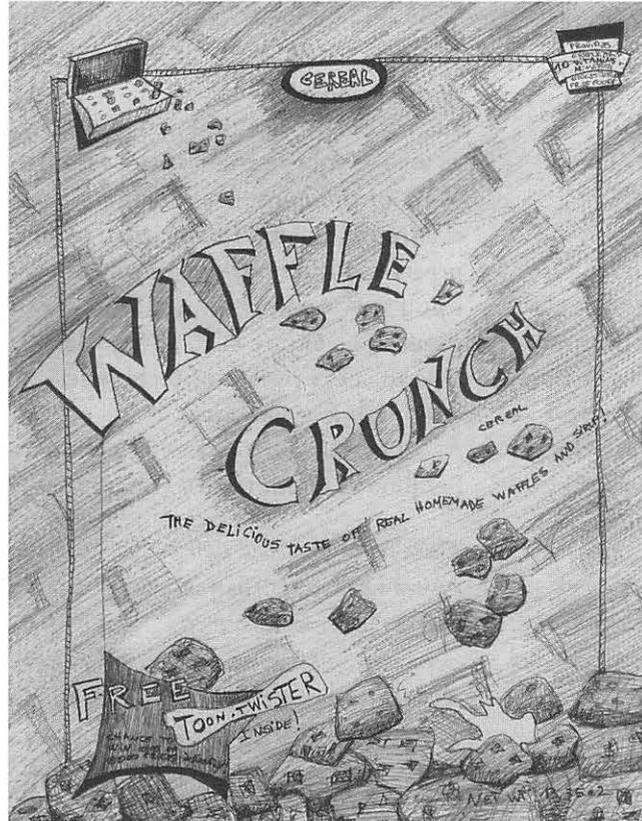
In order to create their own ads, they would first have to study how advertising gimmicks work to convince children to buy one brand of a product instead of another. I presented them with copies of the front of a cereal box (Figure 4-40) and the “Analyze an Ad” worksheet (Figure 4-41).

After our initial meeting, I showed each of the teams the original box cover so they could scrutinize it up close. After the teams wrote their individual and group analyses in their journals, the team representatives shared the following observations:

- The ad targets children.
- The basic colors were yellow, brown, red, black, white and silver. Some people found them to be attractive, while others thought they were ugly.
- Gregory noticed that all of the elements of the ad were placed against the background of a giant waffle.
- The box cover creates an illusion of motion by the use of curves in the wording, and the little waffles emerging from a waffle maker at the top. These waffles become larger and larger until they plop into the bowl at the bottom.

I told them that we would be analyzing more ads and TV commercials to give us more ideas for symbols we might use to design the various brands of snacks. I explained that about half the teams would have “cheese curls” to sell and the other half would have “animal crackers.”

4-40: Cereal box cover



4-41: “Analyze an Ad” worksheet

## Analyze An Ad

Take an ad. Study the ad. First alone and then as a team, answer the following questions:

- What is the name of the product?
- What is being sold?
- Who are they trying to get to buy the product?
- How are colors, shapes, or words used?
- What makes this ad appealing?
- How are people, places, or things used in the ad?
- Do you like the name of the product? Why or why not?
- What ideas would you use for your ad?
- How is the background used?

For homework, I asked them to look at the covers of any food packages to get ideas for marketing their own brands. The session ended with lots of interest and enthusiasm.

## September 29

I presented the class with a few videotaped TV commercials from Saturday morning cartoon programming. The ads featured dolls, action figures, toy weapons, and candy. I asked the students to analyze these commercials in the same way they had examined the cereal box cover. They pointed out the following:

- \* *The TV ads depicted happy children and exciting action to obtain the viewers' interest.*
- \* *They made fake things (such as dolls and toys) look real.*
- \* *They showed dolls doing things that only real people can do.*
- \* *The candy ads used animation to make the candy seem to come alive.*

Unfortunately, student disruptions caused an early end to this discussion.

## October 5

Today the class behaved a lot better. We were able to analyze magazine ads for clothing, cosmetics, and cars, as well as more cereal boxes. I used some of these items to decorate a classroom bulletin board. Each group presented their analysis of one ad using the "Analyze an Ad" worksheet. (See Figure 4-41.) They were able to see a variety of techniques and intended audiences.

Charmaine wrote the following in her journal about the TV commercials:

*They're trying to sell a doll called Amazing Amy. They want us to buy it 'cause it talks. They show oatmeal with dinosaurs and eggs so you would buy (the oatmeal). ...They show Betty Spaghetti come apart and stuff but sometimes it doesn't really do that.*

Angel felt that the time had come for them to create their own ads. By looking at TV and magazine ads and cereal boxes, they had gathered many ideas, which they could now incorporate into their own designs. Creating their own marketing campaigns would make them even more aware of how advertisers use hidden symbols for persuasion.

## October 6

I explained that each team would have about 20 zip-lock bags of snacks to sell. They will use their ads as labels for these packages. They can also make larger versions to post around the school. I limited the colors of these ads to black, white, and gray, which are the only colors that could be photocopied. It would have been too time-consuming to color each of 20 or more copies by hand.

To start with, I asked the class to make a list of items that would be essential to include in their ads. They came up with the following ideas:

1. *Graphics, which could include cartoons, pictures, etc.*
2. *Brand name*
3. *Company name*
4. *Talk about the product, possibly including jingles, in clear-cut language*
5. *Action*
6. *Logo*
7. *Offering "freebies"*

I assigned three groups to promote "animal crackers" and the other three groups to design campaigns for "cheese curls." The groups worked well and became excited about the task, especially after receiving samples of their products for tasting. The three "animal crackers" teams made up the following brand names:

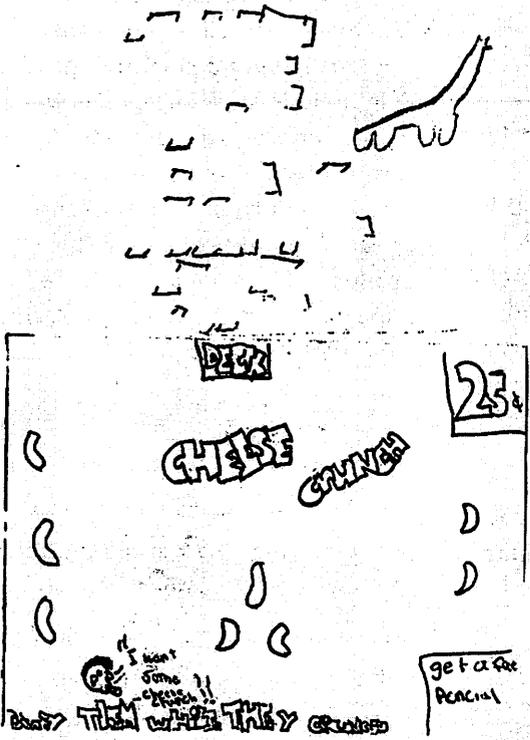
- 1. NTZD Chocolate Factory
- 2. KGLD Harlem World Crackers
- 3. McCoy's Bakery

The teams selling "cheese curls" selected these names:

- 1. DECK Cheese Crunch  
(see Figure 4-42)
- 2. Pirate Girls Cheese Logs  
(see Figure 4-43)
- 3. Wolf Pack

As I rotated among the teams, I suggested that they darken their sketches and lettering so they would stand out better when photocopied. At the end of the class, I collected their drafts and agreed to photocopy them, so they could see what the copies would look like, before making them final. At lunchtime, a committee helped to copy the ads, finalize the brand labels, cut them out, and organize them for packaging.

4-42: DECK Cheese Crunch



4-43: The Pirate Girls Brand



## October 15

Another committee volunteered to pack snacks of equal amounts, plus the proper labels, in the zip-lock bags. It was a tedious assembly-line process, but the children really enjoyed it, especially since they got to keep broken or leftover snack pieces. The idea of having lunchtime committees has worked very well, because these tasks are difficult to manage with the whole class.

## October 19

We now have about 20 bags of each brand of cheese curls and the same amount of each brand of animal crackers. All the bags have equal amounts of snack food. Each bag has a 4 1/4" by 5 1/2" photocopied brand label in it. This size allowed four labels to be copied on one sheet of standard-sized paper. The bags will be sold for 25 cents each.

The class brainstormed and defined the tasks that needed to be done to prepare for the sale. Many students were preoccupied with their brand labels and wanted to continue working on them. As Didi said, "What can you do to make people buy your brand? How can we change people's minds?" Some students wanted to improve on their ads by putting in prizes, fixing up their graphics, or adding coupons.

I expressed sympathy with their concerns, but stressed that our goal was to see what influences kids towards buying a particular product. Our analysis and conclusions would help us improve our advertising campaigns in the future. I was pleased that they were thinking critically about how to sell their products. These ideas would be important in our evaluation of what worked well and what did not.

Some students saw the activity as a competition whose purpose was to see who could sell the most snack packages. Angel had to remind them that the goal of the project was to learn about how symbols work in selling a product. A competitive atmosphere can easily obscure the educational goals of an activity.

We developed some questions to guide us in developing a plan for the sale and for collecting data:

- \* How can we find out why someone bought one brand instead of another?
- \* How will we be fair to all brands?
- \* How will the snacks be displayed on the table for sale?
- \* What records will we keep?
- \* What information do we need from the buyer? What should we ask them?
- \* Who will do the selling?
- \* Who will question the buyers?

Each of the teams discussed these questions among themselves, and then shared their ideas with the class.

We made the following decisions:

1. Only 3 or 4 of Ms. Harris's students will be selling at any one time.
2. Only one package of each brand will be displayed at any one time.
3. The brand names will be placed in alphabetical order.
4. Only one type of snack (animal crackers or cheese curls) will be sold at any one time, to make it easier to collect data.
5. Only one student will be allowed to go shopping at any one time.
6. After each sale, the buyer will be asked, "Why did you choose that brand over the others?" All data will be recorded.
7. One person will collect money and keep a record of the amount collected.
8. We will keep a tally of the number of packages sold of each brand.
9. Buyers will not know the purpose of the study. They will be told only that the proceeds will go to victims of Hurricane Georges.

On October 21, the snack sales took place. All of the students who bought the snacks came from the fourth-grade classes. As one of Ms. Harris's fifth-graders was making the sale, another was taking data. On the data form, the recorder wrote down the name and grade of the buyer, the brand they selected, and the reason they gave for their choice. (See Figure 4-44.) The recorder also kept a tally sheet showing the number of bags sold of each brand. (See Figure 4-45.)

4-44: Data form

### Science Study Snack Sale

Interviewer's Name \_\_\_\_\_  
Date Oct 21<sup>st</sup>

Teacher Ms. Fox

Name of Buyer/ grade	Brand Bought	Why Picked This Brand?
Garry Barr 4 <sup>th</sup>	DECK 1	He don't know.
ERIC 4 <sup>th</sup>	Wolf Pack 1	Wanted to try it out.
Steven 4 <sup>th</sup>	Wolf Pack 2	He likes the Wrestling team.
Janet 4 <sup>th</sup>	Wolf Pack 3	just Picked it
Keisha 4 <sup>th</sup>	DECK 2	Because it's Crunchie!
Davon 4 <sup>th</sup>	Wolf Pack 4	Dikes Advertisement
Richelle 4 <sup>th</sup>	Wolf Pack 5	Because she likes the name
Roger 4 <sup>th</sup>	Deck 3	He likes it.
Justina 4 <sup>th</sup>	Deck 4	Because it her favorite.
Octavia 4 <sup>th</sup>	Wolf Pack 6	she can eat it for lunch.

4-45: Tally sheet

### Ms. Harris' Class Snack Sale & Study

#### Tally of Cheese Curls Bags Sold

Pirate Girls Logs	Wolf Pack	Deck Cheese Crunch
IIII IIII (Total 8)	IIII IIII IIII IIII IIII IIII II (Total 27)	IIII III (Total 7)
Total 8	Total 27	Total 7

## October 26

I guided them through the analysis of the data. They produced a lot of work and then shared their findings. To assist them in interpreting the information gathered from the sale, I distributed a worksheet. (See Figure 4-46.)

Questions #1 through #5 on the worksheet asked students to summarize the data from the survey forms and tally sheets, which they were generally able to do correctly. Questions #6 and #7, and #9 through #11 were not well understood by the students. Evidently, considerably more discussion would have been needed to clarify the meaning and intent of these questions. With this particular class, Angel felt that he had gone about as far as he could, because the work was already “too abstract for many.”

Question #8 was the most interesting. This question separated potential audiences according to their age groups. Kendra explained how she thought each group would respond to the brands her class had created:

4-46: Data analysis worksheet

### Different Brands Snack Sale

#### Data Analysis Guide

- a. Study the tally and interview sheets.
- b. Answer these questions as best as you can.
- c. Graph your data. Can you graph tallies for each gender?
- d. What questions do you have and what are your answers, if any?

#### Questions:

1. What were the total sales for each brand?
2. Which brand sold the most? ... the least?
3. How many children in total bought that type of snack (e.g., cheese curls)?
4. Did the boys prefer one brand over the others?
5. Did the girls prefer one brand over the others?
6. What other information would be helpful in analyzing your data?
7. Do you think we needed to sell to more students to get a better picture of what influences them to buy a brand?
8. Do you think grown-ups would buy the same pattern as the fourth-graders did? How about teenagers? How about first-graders?
9. What conclusions can you make about your data?
10. What would you do differently in the future?
11. If you were trying to sell more snacks to fourth-graders, how would you advertise to them in the future? What about the other age groups? Gender groups?

*Grown-ups: Yes, because they like the name brands.*

*Teenagers: Definitely they will buy it, because it's between the Wolf Pack (a popular wrestling team) and the Pirate Girls.*

*First-graders: (They) may not know because they don't pay attention to see what brand they'll pick.*

Angel's students saw how characters from popular culture can be used to sell products. By selling exactly the same product under different brand names, they became aware of how advertisers manipulate consumers. Ads and commercials use symbols and personalities that are familiar to the public to trick them into thinking that one brand is better than another, when in fact they are identical. Angel's students also saw that these symbols are more effective with some audiences than with others. "Wolf Pack," for example, would not have the same appeal to adults or first-graders as it did for fourth-graders and teenagers. This is an example of how the context affects the usefulness of a symbol.

Angel's students did their own summary and evaluation of the project:

## October 28

The class shared the following ideas regarding their work on creating and marketing snack brands:

1. One has to put oneself in the minds of the people you are selling to.
2. One needs to use lots of color and animation in advertising.
3. One needs to create a feeling of action in an ad.
4. The designing of ads and labels was a brain-stretcher which forced us to think of sayings.

Kendra wrote the following summary of the project:

*The class analyzed the products that we are going to sell. My team made the name of the product by thinking what name will fit. It was fun, because we could make pictures of the name that we had picked. It was hard, because you had to analyze the graphing of how many people picked which ones they like. Also you can use tally marks to help you. The total sales are forty-three in all. The boys preferred the Wrestling over the Pirate Girls or the DECK cheese curls. The girls preferred the Pirate Girls. In the future, I will keep the name brand of my product, so when I grow up, the people will know my product is famous.*

