

5-2006

Studying the Subway: An Interdisciplinary Study of the New York City Subway for the First Grade

Eve Robinson

Bank Street College of Education

Follow this and additional works at: <https://educate.bankstreet.edu/independent-studies>



Part of the [Curriculum and Instruction Commons](#), and the [Elementary Education Commons](#)

Recommended Citation

Robinson, E. (2006). Studying the Subway: An Interdisciplinary Study of the New York City Subway for the First Grade. *New York : Bank Street College of Education*. Retrieved from <https://educate.bankstreet.edu/independent-studies/246>

This Thesis is brought to you for free and open access by Educate. It has been accepted for inclusion in Graduate Student Independent Studies by an authorized administrator of Educate. For more information, please contact kfreda@bankstreet.edu.

Studying the Subway
An Interdisciplinary Study of the New York City
Subway for the First Grade

by
Eve Robinson

Mentor: Cathleen Wiggins

Submitted in partial fulfillment of the requirements of the degree of
Master of Science in Education
Bank Street College
2006

Abstract

This thesis gives a rationale and overall framework for a four month interdisciplinary study of the New York City subway system for a first grade classroom. The unit will be based around field trips and interviews, where the students will gain hands-on knowledge that will later help them recreate their own “school subway system.” Throughout the study, students will investigate all aspects of the subway system, from mapping to mosaics, from fares to fines. The study culminates in a student-led role play where children take on the jobs of subway workers and guide their parents through a system that they will have built themselves, with cardboard box trains and hand drawn maps. Research and interviewing skills are a major focus of the study. Students will learn to form questions and practice using them as they investigate human and literary resources to learn about the subway system. This curriculum will be a vehicle for the core ideas of cooperation, interdependence and adaptation which will help reinforce the rules and values that form the base of the classroom community.

Studying the Subway
An Interdisciplinary Study of the New York City Subway
for the First Grade

Table of Contents

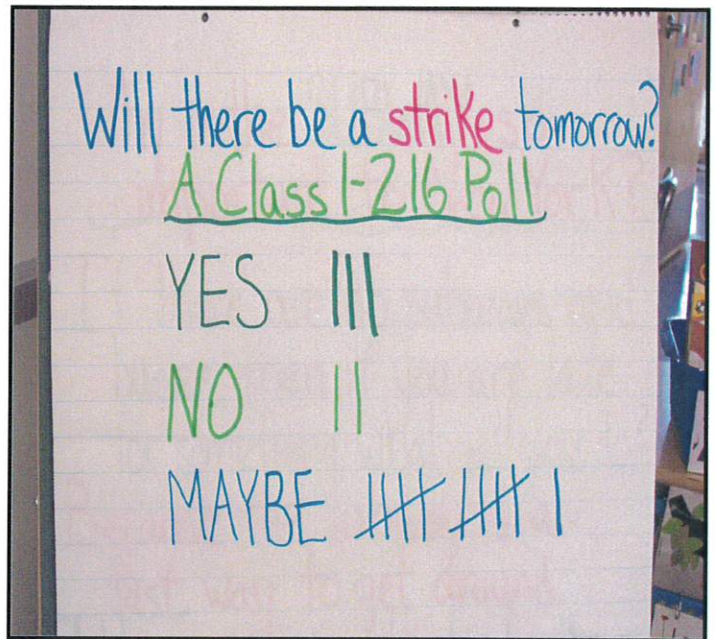
<u>Section</u>	<u>Page</u>
Subway Strike: Three Days of Questions.....	1
The Context.....	3
Rationale for Studying the Subway.....	9
Unit Overview.....	14
Getting Started: Activities to Slowly Start the Study.....	22
Lesson Plans.....	23
Revisit the “How Do You Get to School?” Graph.....	23
How Do You Get to Work?.....	25
Subway Interviews.....	27
Finding You on a Map: The School.....	29
You on a Map: Finding Your Subway Station.....	31
Field Trips and Interviews.....	33
Subway Trip #1: What Makes a Subway a Subway?.....	36
Subway Trip #2: Ride the Rails.....	38
Class Book: How to Ride the Subway.....	41
Subways Can Be Beautiful: Read Aloud.....	43
Field Trip: 1/9 Line Mosaic Exploration.....	45
Mosaics in the Classroom.....	47
Literacy Components.....	49
Partnering with Specials Classes.....	53
Choice Time.....	54
Planning and Constructing a School Subway.....	55
Subway Celebration.....	60
Applications.....	64
Conclusions.....	65
Annotated Bibliography.....	72
Bibliography.....	78
Appendix.....	79
The 2005 Subway Strike.....	80
Worksheets and Trip Sheets.....	81

Subway Strike: Three Days of Questions

The week before winter break, the unthinkable happened. A subway strike! For three days, the normal routines of school and home were disrupted by the stop of the New York City subway as workers demonstrated their power and position in our community.

My first-graders were abuzz with talk of the subway. School was delayed for two hours! Other teachers, including other first grade teachers, were unable to come to work, so our class was bigger than usual as students from other classes joined us for the day. Parents had to walk for miles and miles to get to work.

Traffic was terrible! People were walking everywhere and they had to leave very early in the morning. It was cold, too, and getting a taxi was now almost impossible. Even if they



didn't take the subway themselves, all my students could see a clear difference from normal days. New York City was very different all of a sudden, all because the trains were not running.

The absence of the subway had a visible impact on all of our daily lives. During this time, in our shortened days and crowded classes, we had many conversations about the subway. What does a strike mean? Why is the subway important to our city, even if we don't really use it ourselves? What can we do if there is no subway? How can we get around and do what we need to do? Why are the subway workers unhappy? Why do

some people think that subway workers don't have important jobs- because we can see that they do!

These were the questions that we started to talk about and we had some great ideas! It became clear to me that all of my students were very interested in the subway and they already knew quite a lot. "The fare is \$2 a ride and you can go anywhere in New York!" "It is sometimes faster to take a subway than to take a Taxi, because you don't have to worry about traffic." "The trains have names in numbers, letters and colors." My students offered up each bit of information with the blasé air of true New Yorkers. But they were stumped by other things, like how the subway got there and what all the workers actually do. My students were still very excited and curious and when the strike ended and life returned to normal; I still heard them talking about it.

It became clear to me that exploring the subway further would be fun and exciting to all of them. Even though our year already has a set curriculum, in the cracks between our studies and activities, finding time to look at the subway would be a rich and meaningful experience. In years to come, I predict that a subway study in school will be an engaging topic and that developing a framework and some activities for it in advance would be very helpful.

The Context

New Explorations in Science, Technology and Math (NEST+m) is a selective K through 12 public school in the Lower East Side of Manhattan, located on the corner of Houston Street and Columbia Street. It was formed in 2001 to create a place for students and families looking for a rigorous academic experience that continues throughout the years. The broad grade ranges are separated into three sections, the Lower School, Middle School and Upper School. The Lower School currently has grades K through 4, though next year the school will complete its roster by adding fifth grade to the school as the current fourth graders advance.

A defining feature of the Lower School is its commitment to its interdisciplinary studies. Each grade conducts two major studies each year, using the chosen topic to focus and develop skills across all content areas through first-hand experience and primary sources. As NEST+m says on its webpage:

The interdisciplinary nature of the curriculum will enable children to acquire knowledge across content areas and will encourage them to participate actively and confidently. Children's interests, experiences, and needs will shape curriculum choices that take into account where children are in their development. These integrated curriculum studies will be explored in depth and over time, allowing a thorough acquisition of concepts. (2006)

These studies form the backbone of elementary child experience at NEST+m.

Each study correlates to a grade's developmental stage and is used to advance children's academic and interpersonal skills. The studies have been well developed over the years and continue to be refined annually, to suit the year's batch of children and to make way for new information and teacher creativity.

The topics of the studies at NEST+m become vehicles for learning across subject areas. The social studies topics organically give rise to a variety of literacy and math activities that fit together. All units of social studies are

NEST+M Lower School Studies

<u>Grade</u>	<u>Study 1</u>	<u>Study 2</u>
Kindergarten	Apples	Snails
First	Bread	Shoes
Second	Central Park	New Amsterdam
Third	Native Americans	Arctic Animals
Fourth	Pilgrims	The Masai
(Fifth)	Not established	Not established

integrated throughout all subject areas. They are not disjointed and separated topics. The students see from kindergarten how all subjects are used together in real life scenarios, accruing necessary skills in a meaningful manner. This allows teachers to follow the call that Lucy Sprague Mitchell made when she advocated for:

...Less reliance on textbooks and more on trips; fewer map skills work books and more on map making; space on the floor and time in the curriculum for dramatic play, block play, cardboard-box cities, and group murals; less standardized testing and more observation of children (1971, p. xxii).

The studies, in all grades, allow children and teachers to reach beyond traditional exercises to a meaningful and active learning experience.

In addition to the academic benefits, using engaging subject-driven studies is a social and behavioral tool as well. Proactive management is the key to a smooth and productive classroom and school. One major reason students misbehave or act out is because they are bored and disengaged. When they are given work, “we need to make sure that it is real work and not ‘busy work’ meant

largely to keep children quiet. Busywork is mechanical, repetitious, and long. Real work is relevant, takes skill, provides a challenge, and is interesting or fun (Charney, 1992, p. 59).” Students need this real work, a solid curriculum that they are involved in and passionate about. “When children are involved in meaningful, hands-on, inquiry-based curriculum, discipline problems are minimized. There’s just no time for fussing, whining or other negative behavior (Rogovin, 2004, p. 94).” Not only is this critical for behavioral reasons, it is also essential for real, deep learning. Without rich curriculum, students will not only be bored and prone to misbehavior, they will disconnect from school, skating through the year without making the rich personal connections and critical thinking that is the end goal of education. With a rich curriculum, the students will be involved, engaged and eager to explore ideas and information.

NEST+m has received accolades due to its high test scores and creative curricula and has been able to be very selective in their admissions process as they draw from a wide pool of New Yorkers in all boroughs. The majority of the student population does not live in the school’s neighborhood. The student population comes from all parts of New York City and all economic levels, yet it is categorized by several things. The majority of the students in the school are gifted and talented. They are often several benchmarks above New York City reading standards, as measured by the E-Class assessment. The children are engaged in meaningful and challenging work, throughout the school day and at home at night, with homework everyday starting with daily reading activities in Kindergarten.

Parent commitment and involvement is also very high. The PTA is very involved in school affairs and class parents help with coordinating and planning class trips and events. Parents come in and help with classroom activities, parent-child reading and field trips regularly. In the lower grades, especially, as students are just getting exposed to NEST+m's homework plan, the parent commitment is very important as parents must support children every night with their assignments across all subject areas.

The School and Neighborhood: NEST+m is located in the Lower East Side of Manhattan, on the corner Houston Street and Columbia Street. It is close to the FDR highway and the East River in a very diverse neighborhood. The block the school is located on has mostly large apartment complexes, including a housing developing that borders the rear of the building. Right on Houston Street, connected to the building, is a small local library branch. Additionally, Hamilton Fish Park, a public park with a public swimming pool, playground and basketball courts, shares the block with NEST+m on the west side of the school building. Throughout the surrounding neighborhood, small corner groceries, pharmacies and gas-stations make up most of the commercial character. Further down Houston, on side streets, there are trendy restaurants, nightspots and hipster stores, which help define the overall Lower East Side, but do not directly impact the school.

All grades, K-12 are housed in the same building. The lower school is on the second floor, the upper school is on the third and a police precinct shares the first floor with the gym and dining hall. The building is in the shape of a square,

with a large courtyard in the middle that holds tables and two jungle gyms. The courtyard's walls are the building itself and large gates that guard the two entrances. This enclosed courtyard makes the community at NEST+m feel very protected and close, somewhat separated from the surrounding community because time spent outside in the school courtyard is without a large view of the streets and neighborhood community.

To enter the school, you walk up one of two very large ramps that enter into the second floor, at the lower school. The lower school is a very colorful and clean place. Large windows in the hallways let in plenty of light, which illuminates colorful bulletin boards full of student work. You can look out the windows, over the courtyard and see the other hallways and student-work on the other side. The doors to most classrooms are open and you can hear students in all grades working busily as you walk by.

The First Grade: The first grade has four classes, with around 20 to 24 students a class. Each of the four classes is very similar, in terms of physical class set-up and daily structure. This striking similarity is very intentional: NEST+m offers students in all classes the same core experiences. Therefore, a first grader in my class could go to another class for a week and have an experience that is almost the same, from the daily activities, classroom tasks and curriculum. This is ensured by weekly planning meetings, where all first grade teachers plan the major tasks, from study projects to math drills to spelling words. While there is room for some variation, according to the style of the teacher, the core educational experience of each first grader at NEST+m is a purposely shared one.

As students move through the grades, this principle is consistent. My class will be split up and mixed with other students in second grade, but every one of them will have had the same curricular experience and that shared background will help bridge the distance between them as they form new social relations and make connections with their studies with the experiences of past years. As shown in the above table, the first grade studies the topics of Bread and Shoes. In the fall, we study Bread, by baking in the kitchen with our families, visiting bakeries and factories and studying wheat and flour production. In the spring, we study Shoes, looking at various Cinderella stories, visiting museums to look at shoes from different cultures, exploring many shoe stores and finally, creating a shoe store that is student-run in the classroom. As they travel through the grades in our school, our students can say, “Remember when we made a Venn diagram of those Little Red Hen stories during the Bread Study” and unite in that experience. The studies are a major vehicle that provides this continuity, as tasks in each study support similar, more complicated projects in the future studies of later grades.

Rationale for Studying the Subway

While the Bread and the Shoe Studies are firmly established and well defined, every so often, the teachers and administrators decide to change a study. This is done as teacher interest shifts, so that the studies do not become merely rote exercises that the teacher must endure. Rather, they stay fresh and when teacher involvement begins to wane, a new study is chosen. It behooves each grade to develop several studies so that materials and activities are ready so teachers can choose to rotate through the studies, as desired.

Currently, the first grade teachers are not yet ready to rotate out of the bread and shoe studies. While we are enjoying our studies now, it is good to develop other study ideas and field test them as much as possible. That way, when it comes time to switch to a new study, several options will be available and the curricular framework will already be in place.

Choosing a study topic to potentially fit into the NEST+m curriculum can be rather difficult. All studies are suited to the grade's developmental needs and each study is designed to compliment the other, as well as meet New York State and City standards. To choose an appropriate topic, I must look at my students' developmental levels, emotional needs and interests.

The children in my first grade class range in age from five to seven years old. In this range, the majority of the students are in developmental stage Jean Piaget terms as preoperational thought (ages 2-7). This stage is categorized by "unsystematic and illogical thinking (Crain, 2000, p. 113)" and a very egocentric world-view. This age demands active learning, not passive learning, as "...true

learning is not something handed down by the teacher, but something that comes from the child. It is a process of spontaneous invention and discovery (Crain, 2000, p. 136).” The children need to see and touch their topic; exploring something physical and immediate that will suit their busy, inquisitive bodies. The topic should not be abstract; it must be very grounded in their physical reality. As an educator, it is my job to help nudge my literal and somewhat self-centered students along and to expose the children to other viewpoints that will widen their perspectives and help them overcome the egocentrism that is natural at this age.

My purpose in this study is to look at the same topic from a variety of angles and viewpoints, getting depth and breadth that will allow the children to broaden their worlds beyond their immediate selves and families. However, as John Dewey stated in his oft-read treatise *Experience and Education*, “a study... must be derived from materials which at the outset fall within the scope of [the] ordinary life-experience (1938, p. 73)...” of my students. My active and imaginative first graders will be curious about and connect with something that falls within the bounds of their daily lives. The subway falls easily within that frame of reference. The subway system is one of the defining features of New York City life. Even if it is not their families’ primary mode of transportation, by the first grade, every child in our school has had several trips on the subway.

The subway is an accessible topic for my young students because it begins with the experience that the learners already have. The subway is definitely one of the “...surroundings [of New York City children that] are conducive to

having experiences that lead to growth (Dewey, 1938, p. 40).” A teacher should “...know how to utilize the surroundings, physical and social, that exist so as to extract from them all that they have to contribute to building up experiences that are worthwhile (Dewey, 1938, p. 40).” Even though all of my students have ridden on the subway and are fascinated by its underground world, they don’t really know much about it other than the practicalities of taking a ride.

“Nowdays, a country child, as well as his city and suburban brothers, is likely to grow up without understanding or even questioning many familiar things (Mitchell, 1971, p. 7).” Investigating the elements of the subway will build on children’s surface knowledge, how to take a subway ride, and then consider more involved questions about how humans modify their environment. The tunnels and turn-styles of the subway are full of workers, commuters, rules and responsibilities. It is ripe with opportunities that will enlarge a six-year-old’s vision of the world. The subway offers a good starting-point, based on my students’ daily experience of travel, and is certainly worthy of much deeper exploration.

In addition, the subway is a great topic for elementary school study because it is simply right *there*. “Each environment furnishes its own particular trips (Mitchell, 1971, p. 13)” and in New York, the subway is everywhere and goes everywhere. Subway stops are near every single one of my students’ homes. There is a stop several blocks from the school, within walking distance, and on the train, the whole city becomes accessible. This makes first-hand observation and experience as a basis for the study possible. School trips to observe local

stations and trips to different locations become source material for art projects and provide a source of inspiration for the construction of class subway systems. This first-hand observation in neighborhood trips makes the study very relevant to my young charges, who rely on the literal and concrete because of their developmental stage. Seeing something with their own eyes, touching it and riding on it will make the topic real and meaningful for my students.

The subway is a medium to explore several conceptual ideas important to this age. While it is a study in geography, it falls into Mitchell's idea of human geography, that examines human cultural and physical geography together. While examining human geography, students have the opportunity to examine the relationship between the earth and people, taking time to think about "...what people do to the earth and what the earth does to people (Mitchell, 1971, p. 4)."

New Yorkers have massively modified their environment, working together to build an underground system that runs beneath our feet that carries us where we need to go. The subway is a great example of how humans shape their environment and what kinds of maintenance, both physical and social, is required to keep it running. It transports people and goods all over New York and is a nexus of art, culture and daily routines. It naturally gives rise to discussion of jobs, history, engineering, manners and more. Since "...the relationships involved in human geography spontaneously interest children long before the relationships in locational and traditional physical geography attract them (Mitchell, 1971, p. 5)," the subway becomes the perfect vehicle for hooking the children in with the human connection and then diverting their interest into other

topics. Studying the subway will move from the child's immediate world to an examination of the larger New York City community.

Unit Overview

Unfortunately, due to the current curricular load at NEST+m, it will not be possible to field-test these activities in my first grade class, to see how the children respond to the topic and initial activities. I will suggest an overall framework for a four month subway study that will eventually be conducted by the four first grade classes at NEST+m. I will also provide lesson plans for several components of the study and provide suggestions for further lessons. This outline of lessons across the curriculum demonstrates the possibilities and directions that teachers can take their classes through in a guided investigation of the New York City subway.

Beginning: The unit on the subway will begin when the class revisits a graph they made in the first weeks of school, “How do you get to school?” A discussion of any changes made and describing how each of us get to school will move the children naturally into thoughts on the subway. From there, the students will practice interviewing techniques and then interview their families, looking at the question “How do you get to work.” As a class, they will analyze their data, making several graphs including “How Do you get to work?,” “What subway lines to you take to work?,” and “Do you like the Subway?”

Field Trips: The students will go on a series of trips to gather information on what defines a subway and how it operates. Suggested field trips include:

- The Delancy Street. Station
- Travel from the Delancy Street Station to the East Broadway Station and back
- The 1/9 line Mosaic exploration
- The Transportation Museum
- Penn Station/34th St.

- Coney Island Rapid Transit Yard
- Energy Station

Interviews: In this study, the students will learn how to use other humans as a resource for their learning. The study will train students in interviewing techniques, by having the students practice interviewing each other and then interviewing their family members. These initial steps start children working in a comfort area, with their peers and loved ones, as they learn how to ask questions and record the answers. Later in the study, the students will use these skills gained in early lessons to get information directly from the experts, the workers of the subway. The students will ask workers in the subway system about their jobs through group interviews on class trips. I recommend that they interview the following people:

- An Information Booth Worker
- A Station Manager
- A Conductor
- A Track Worker
- Various Passengers

Culmination: The study will culminate in an hour long subway celebration. Students will build a mobile card-board box subway system. They will design a series of routes with the other first grade classes and prepare maps of their subway system. They will name and create mosaics to decorate their class subway stops and other central stations, including the art room and the auditorium. They will make signs and metro cards, poetry in motion cards and safety information to post in their stations and on their cardboard subways.

The day of the celebration, they will operate their subway system, ushering their parents through the process of buying metro cards, deciding what subway line to take to get to their destination (the class), and using improved turnstiles to enter the system. Parents will visit all four classroom stations, swiping their MetroCards and “riding” the subway to get to their destinations. They will exit the celebration on the subway as well, to the tunes of street musicians, or “buskers,” singing transportation-themed songs. This process, building the cars, routes, maps and stations, will take several weeks and multiple lessons to accomplish.

New York State Standards: This curriculum is designed to comply and promote the New York State Standards for the first grade (2006, p. 23). The Grade 1 Content

Understandings that this study covers are:

- My community and local region
- Places in my community and local region
- Challenge of meeting needs and wants
- Economic decision making (2006, p. 23)

The curriculum starts its focus on the family, a major component of the New York State Standards for first grade, by looking at each family’s location on a subway map and compiling information about parents’ daily transportation habits (2006, p. 22). The varieties of mapping activities that are included in this curriculum develop basic understandings about maps, as well as cardinal directions and symbols. A focus on workers will allow students to explore the idea that people must work to earn an income and that communities work together, using each other as well as tools and technologies, to meet that needs and wants. The study of how the subway was created is a wonderful

opportunity to explore how human beings can modify their environment to suit their needs. All of these are components of the subway study directly apply to the content understandings New York State Standards for the first grade (2006, p. 23).

Concepts:

- **Cooperation:** People need to work together to achieve their goals. “Cooperation often requires compromise and postponement of immediate satisfactions (Taba, 1971, p. 25).” Children will learn by working together and listening to each other respectfully during classroom discussions. This concept will also be modeled in their research on building and running the subway, a system that demands long-term workplace and public interactions and shared values. They will demonstrate their ability to use this concept effectively as they work together to build their class subway station and design their subway route.
- **Interdependence:** People in communities depend on each other for goods, services and public well-being. “Behavior of each person and group affects other persons and groups in important ways. These effects on others are often indirect and not apparent (Taba, 1971, p. 25).” Children will see how workers and passengers rely on each other, daily, in the subway to keep it running and enjoyable.
- **Modification:** People modify their environment and their behavior to suit both their survival and their desires. “As man interacts with his physical and social environment, both he and the environment are changed (Taba, 1971, p. 25).” The subway was built to make crowded city life easier; it was decorated with art and poetry to make it more pleasant. People on the subway follow rules, both explicit and implicit, modifying their behavior so that everyone can safely and comfortably ride the subway. When people do not modify their behavior, the

subway can be very unpleasant, so it is every passengers responsibility to physically and socially do their part to keep the subway pleasant.

Objectives:

- To develop a respect and understanding for what it takes to make and maintain a subway system for the city.
- To develop the knowledge that people use math, art, writing and reading every day in many ways.
- To develop the concept of working together to achieve a common goal. By working together, people have a much easier time accomplishing their required tasks.
- To develop the idea that human beings can change the environment to suit their needs. People thought up and built the subway. They decorate it with art and writing to make it pleasant.

Organizing Questions and Ideas:

- What is a subway? Are all trains and stations alike? What do they have, where do they go, who is on them and around them? Do they have to be pleasant? Do they have to be fast? Etc.
- Where does the subway come from? People worked long and hard to build the subway, just as they work now to keep it running quickly and safely. When people work together, they can change the environment to suit their needs.
- Who works in a subway? What are the different jobs that are needed to keep the subway running? People who work in the subway, from conductors to

maintenance crews, have specific jobs and roles that are important parts of keeping the subway a safe and pleasant way to get around.

- Each job has duties and the person working must do his or her job to the best of their abilities.
- Each job is important. If it were not done, other people's lives would be more difficult. It is important that everyone do their part, to keep a community going.
- The workers in the subway need things (like tools, clothing and technology) to do their jobs.
- What can we do, as passengers, to help keep the subway a safe and pleasant place? How do people modify the subway- with their behavior and creations- to make it not just a safe method of transportation, but even a beautiful and enjoyable daily experience?

The students will:

- Collect information through direct observation of subway stations and interviews.
- Experience data gathering and processing by doing surveys on family and friends subway use and enjoyment.
- Participate in class discussions about the subway to develop listening and language skills.
- Share their ideas about the subway with others through group discussions, writing, artwork, role-playing and construction (blocks, boxes).
- Listen to, read and react to fiction and non-fiction books about the subway.
- Develop reading strategies through shared and independent reading.

- Write and edit a small-moment “subway story” modeled on the subway stories they see posted in the subways.
- Choose a theme and decorate their own subway station with mosaics.
- Use math in real life scenarios: by buying Metro Cards and working on skip counting by 2s (the Metro fare), as a way of helping with addition and subtraction.
- Use subway maps to identify locations and find routes to other places.
- Design a subway route and map for their own subway system that connects the four first grade classes with each other and shared spaces.
- Design signs in a variety of genres, including informational, safety, and advertisement, to adorn the subway celebration.
- Construct a mock-subway out of cardboard boxes that mimic the appearance of modern subway cars.
- Take a job and perform its required duties in a one-day subway system celebration, in half-hour shifts.

Getting Started!

Several Activities to Slowly Start the Subway Study

The students can get ready and gently begin the study with a few group exercises and activities that will help the teacher assess what they already know about the subway and what they are most interested in learning about. This information will be very helpful as the teacher plans activities, trips and research projects.

Group discussions and brainstorming in response to the question “What POPS into your head when you hear the word SUBWAY?” is a good way to get started. After that, doing a group and individual charts about what students know about the subway, what they want to know about the subway and what they learned about the subway, known as a KWL chart. Individual student KWL charts are a good tool for assessment. Students can fill out the first two columns of their individual charts and the teacher can keep them until the end of the study, when students can use them as part of their reflection process. This KWL chart will be very useful in gauging overall learning at the end of the study. Another initial assessment is to ask them to draw a subway and/or a subway station, just using their memories. Comparing these initial drawings to works based on observation and experience will help show you how the children’s conceptions and understandings of the subway is increasing.

Revisit the “How Do You Get To School Graph”

Goal: Connect students daily transportation to school with the subway.

Objective: Students will review the graph they made in September and move their post-its if necessary.

Materials:

Old “How Do You Get to School Graph” saved from September

Post-Its

Sharpie Marker

Dry Erase Board and Markers

Activity: In September, one of our very first class graphing activities was making a bar graph in response to the book This Is the Way We Go to School by Edith Baer. Students placed post-its with their names on the graph to indicate how they arrive each day.

Options on the bar graph include walking, car, subway, bus, and other. The students will look at their graph and decide if they need to change their post-its. If they are traveling to school a different way, they will make a new Post-It and put it on the graph and take their old Post-It down. They will have the chance to share why they are going to school a different way, if they would like.

The teacher should guide the students through graph math problems, using terms such as *most, least, less than, more than* and solving together how many more students take one form of transportation than another.

If most students take the subway, the reason for a subway study becomes clear very quickly. However, if most students rely on other forms of transportation, such as in my class, ask why they don't use the subway as much.

Assessment: Students can be assessed on their understanding of the graph and math exercises. Did they participate in the discussion and with math problems?

How Do You Get to Work Graph

Goal: Children will realize that adults get to work a variety of ways.

Objective: Children will make a graph of their parents work-day transit patterns.

Materials:

How Do You Get to Work homework Sheet (See Appendix)

Graph Paper

Post Its

Sharpie Markers

“How Do You Get to School” Graph from pervious lesson

Activity:

Children will complete the “How Do You Get to Work” homework sheet at home with their parents. In class they will write their parents names on post-its and post them on the prepared graph during morning unpacking. At morning meeting, any last minute additions will be made. Together, the class will look at and discuss the similarities and differences between the two graphs, using descriptive and mathematical language. One thing to call attention to is that there will be more post-its on the adult chart than on the children’s chart because children will be asked to ask all adults in their household the question.

Students will find the mode of transportation that is most common and least common.

The class can look at both graphs and make math comparisons together. How many more adults drive to work than children? How many less adults walk to work than children walk to school? These questions will compliment similar math problems being done in the math curriculum at the same time of the year.

Assessment: Do children participate in making the graph? Do they add their post-its to the correct columns? Do children talk about the two graphs and demonstrate their understandings of the similarities and differences in their comments?

Extension: Make up a math sheet with graphing questions using the two graphs' data as the basis for the sheet. Read non-fiction picture books about different forms of transportation (see Annotated Bibliography for suggestions) and make a class book about many ways to get around in the city: walking, car, bus, taxi, bicycle or subway.

Subway Interviews

Goal: Students will practice interviewing and learn that you can get very valuable information from people just by asking. This will be the first part of the interviews that will be an essential part of the subway study.

Objective: Students will interview one adult that uses the subway regularly.

Materials:

Subway interview sheet (See Appendix)

Practice sheets

Paper

Pencils

Activity:

Part I: Ask students what an interview is and why people conduct them. Have a group discussion about how people get information from other people and how that information is used. Tell the class that they will be using interviews to get lots of information during this study. Announce to the class that they will start by interviewing an adult that uses the subway regularly- a parent, neighbor or family friend. Ask the students what kinds of things they think that the class would want to find out about their subway use and take down notes of their brainstorming.

Show students the interview forms and model an interview with another teacher or adult.

Show students how to use the form. Then, split students into pairs and have them practice their interviews. Give them a card with subway information on it and have children take turns asking the questions, listening to responses and taking down information.

Part II: Give students the sheet as homework over the weekend. Each student does the interview at home. The next school day, conduct a meeting to see what the children learned about adult subway use. Opening questions should include: What did you find out about how adults use the subway? How long do people spend traveling on the subway each day? Do adults like or dislike the subway? Why? Why do you think they do?

Assessment: Did the students participate in the role-play interviews? Did they do the homework? How does their participation reflect their attitudes about the subway?

Extension: Another graphing exercise could be done here. It would be a good opportunity to do a tally graph exploring either of the following interview topics: “What train to you take the most?” (A, C, E, F, V B, D, 1, 2, 3, 4, 5, 6, 7, L, etc) or “Do you enjoy the subway?” (Yes/No).

You on a Map: Finding The School

Goal: Introduce children to the basics of map reading.

Objective: Students will identify the basic features of the map and, using identifiable places, will locate the subway station closest to the school.

Materials:

Subway Map
Red Push Pins
Thread
Labels
Pens
Dry Erase Board
Magnets
Markers

Activity:

Show the students a subway map hung upside down with magnets on a dry erase board and ask them what they notice about the map. When someone says that it is upside down, ask them, “How do you know it is upside down? How should I change how I put the map?” Have the children show you the right way to hang the subway map.

Once the map is directed correctly, ask them what they notice about the map. Talk about the different features that they see: including subway lines, rivers, street names/numbers, subway stations, labels, etc. Then, place a small school house in the location of your school and ask them to help you find the subway stations closest to the school.

Have the children place red pushpins on the stations closest to the school. Have the children help you write on a label the school name, the station name and the subways that travel to the station. Place the label to the side of the map and then connect the pushpin to label with a piece of colored string.

Give each child a smaller copy of the map and have them work in pairs to place the school in the right spot on their individual maps and to circle the stations nearest the school in bright red.

Literature Connection: Books to Read with this Lesson:

Me On the Map (1998) by Joan Sweeny, Where Do I Live? (1995) by Neil Chesnow, My Map Book (1995) by Sarah Finelli, Mapping Penny's World (2003) by Lauren Leedy

Assessment: How do the children talk about the map? Do they recognize it and have a sense of how to orient it? What features do they notice and what ones do they miss? Look for their overall understanding and usage of maps to see where they need more direct instruction and experience. Watch the pairs look for the same location that the class found together. Can they do it on their own together or do they refer to the class map multiple times?

You on a Map: Finding Your Subway Station

Goal: Students will increase their knowledge and familiarity of map reading, specifically reading the subway map.

Objectives: Students will find the station stops closest to their homes on the map and bring that information back to the classroom, adding their stops to the class map.

Materials:

Individual Maps from the previous lesson with the school and subway station closest to school clearly marked

Pencils

Homework Sheet: "Find Your Stop on the Map"

Large Subway Map

Pens

Pencils

Activity:

Give student the homework sheet "Find Your Stop on the Map," instructing them to work with their parents to find the subway stop closest to their home on the map. They will circle their stop in blue and either draw a picture of themselves by their stop or attach a photograph of themselves in front of their stop to the page. Model the homework beforehand by finding and adding your subway stop to the class map and filling out a homework sheet with the class.

In class, over the course of a few days, children will use their sheet to add their subway stop to the class map. With teacher help, using a push-pin and thread and label, they will label their stop with their name, the stop name and the subway lines that run by it. They will also add their picture/photo to the label.

Once all the student's stops and labels are on the class map, the entire class will have a discussion about what they notice about the map. This is an ideal time to talk about map reading directions, subway lines, and location. Discuss: Which boroughs do most of the

students live in? Who lives close to each other? Who lives far away from school? How many different subway lines are closest to children's homes?

Assessment: After the shared finding of the school and the subway stop and the modeling, all children should be able to, with parent support, find their stop. Can they find it on the bigger class map, with their personal map as a guide? How do the children talk about the map? What map elements do they notice and highlight? Does anyone talk about visiting someone else or using the subway to travel somewhere?

Extensions: This exercise is the starting point for plenty of map work. Laminate the maps or put them in sheet protectors and you can use them over and over again in mapping exercises. Plot out the routes of all of your field trips. Do exercises of how one child could visit another, taking the subway. Try some together as a class and then have children way-find on their own.

Field Trips and Interviews

Direct learning from trips and interviews is a major feature of the study. Students will understand and remember concepts that they see on trips and hear directly from the “experts.” Often times, while setting up a trip, you will be able to incorporate an interview into the plan. Be sure to take many photos during each trip and interview and use them in later in the class, to jog your students’ memories and serve as a visual record of your experiences. Also, be sure to add each location that you visit to the class map and incorporate mapping activities and way finding into your pre-visit and post-visit group discussions.

I have found this year, that while going on trips with younger children, taking a trip sheet on a field trip is not always necessary. Sometimes it is advisable, but other times, it is an unnecessary hassle that will distract the students from their primary mission on a trip: to look, listen and question actively. It is important for the teacher to visit each trip location beforehand and determine for him or herself the logistics of the trip. This way, you can prepare your students for what they will see, guide them to interesting features or thought-provoking elements and determine the basics of how to get around will staying together.

Before each trip, we have class discussions the day of or the day before, and write down our questions and predictions. Then, following the trip, we take a look at what we wondered and see what we are now able to answer. If it is a trip that is not suited for a trip sheet while on-location, I recommend making one up based on the class’ experience and then having the children work on it in school the next day. That way, the trip is still

fresh in their minds and they have already had a post-trip discussion, so they will be able to answer their questions.

While I will not go into detail on every trip, clearly it is important to ride the subway several times. It is also important to keep in mind your guiding questions and the culminating event while planning trips and making trip-sheets. At the end of the study, the goal is for the students to recreate a subway so it is important that they know what the trains and stations look like, what kinds of signs are hanging and the information that they convey, and of course, all about the jobs and roles of the subway workers.

It is recommended that you visit the following locations, adding and cutting trips to suit the class' needs:

- Delancy St. Station (or closest station to your school)
- Delancy St. Station to the East Broadway Station and back (or two stations, one that is decorated with art and one that is not)
- Transportation Museum
- 1/9 line Mosaic exploration
- Penn Station/34th St.
- Coney Island Rapid Transit Yard
- Energy Depot

Interviews: The study will rely heavily on student-conducted interviews. By practicing interviewing techniques on each other and family members, the children should grow comfortable asking questions and recording responses. They should view people as important resources. The students get much of their information in the study directly from the experts, the workers of the subway. The students will learn about the workers in the subway system through direct interviews on class trips. When scouting for trips, make contacts with subway workers, who may help you find other interview candidates.

The students should interview several kinds of subway workers. Look at the list, with suggestions for trips where interviews may work out in parentheses. They could interview:

- Information Booth Worker (at home station)
- Station Manager (at home station)
- Conductor (at Train Depot)
- Track Worker (at Train Depot)
- Various Passengers (on any trip)

It may be difficult to find and confirm that people with these occupations will be available during class trips, but it is well worth the hassle to arrange class interviews. These interviews should be the source for a project on subway workers and jobs. After each interview, students should write about the job using a worksheet that will guide them to respond about where each worker actually works in the subway, what their daily tasks are and what tools they use to do their jobs. See the sample sheet in the Appendix for formatting ideas for sheets for each job. These interviews of subway workers will be very useful when it comes to the job application process of the subway celebration preparations.

Subway Trip #1

What Makes a Subway a Subway?

Objective: Visit the closest subway station and look for the things that are necessary in most stations.

Materials

Trip Sheet: Scavenger Hunt (see Appendix)
Clip Boards
Pencils

Activity:

Before the trip, talk as a class about what you predict or expect to see at the subway station, from before you enter to what's inside. Look over the trip sheet together, and read the names of the things that you are searching for: signs, maps, turnstile, vending machine, information booth, benches, art, stairs, train, Subway Line info, passengers, yellow line, rails, advertisements, MetroCards, etc. Talk about subway safety by asking: How can we stay safe in the subway stations?

Walk to the subway station and break up into small groups with parents. Look for every element on the checklist together. During the trip, be sure to direct students to observe the subway. Can they identify what a subway is? If they are having a hard time, ask them about what other forms of transportation does a subway bring to mind. Guide the students to the observation that a subway is a train that travels underground.

During the post-trip discussion, ask the class what stood out in their minds from their trip. Did the class see what they predicted before the trip? Did they notice something about the subway stations that they may not have noticed before? What things caught their interest?

Assessment: How do the children demonstrate engagement with the trip activity at the subway station? Do they share their observations with their group and then with the class in the post-trip discussion? How do the children work together to find the items on the subway scavenger hunt? What areas do they choose to draw and what does this tell you about their individual subway interests?

Extension: Talk about different kinds of transportation. Read non-fiction books about trains and subways to clarify with children that the subway is a train that travels underground. This is a great area where you could make class books or art about all different kinds of methods of transportation.

Subway Trip #2: Ride the Rails

Goal: Students will experience and discuss the elements of subway travel.

Objective: Students will take the subway to another station, notice the differences and similarities and differences and ride back to the home station.

Materials:

Trip Sheet

Pre-Activity: Individual Laminated Maps and Dry Erase Markers (from previous lesson)

Pre-Activity: Fare Request Form (See Appendix)

Clip Boards

Post-Activity: Venn Diagram Sheet

Pre-Activity: Mapping Our Route

In preparation for the trip, the students will separate into groups with their individual (now laminated or cased in plastic) subway maps that have the school, the school subway station and their personal home subway station clearly marked on the map. Tell the children that we will be riding the F train (or other) to the East Broadway. Ask them to work together to find the class destination (one station stop away). Ask the children to circle the station and then trace our train route there and back with their dry erase marker. As a class, talk about the subway trip. Have a student find it on the class map and have another student help you trace the route. Ask them, "Which direction are we heading? Uptown or Downtown? North, South, East or West?"

Pre-Activity: How Much does it Cost?

Though public schools can get a free subway ride, on this ride all of the students will have the experience of handling money and buying their own Metro Card. In the NEST+m math program, the class has been doing skip counting by 2s, 3s, 4s, 5s, 6s, and 10s by this point in the year. Now, the students will apply their counting knowledge to a real life problem. Give the class a problem: We all are going on a subway trip this week

and we will each need to buy a MetroCard. How much money will you each need to bring in? How much money will we need as a class? Discuss new vocabulary terms like: fare, one-way, round-trip, MetroCard, turnstile and add these words to the class word wall. Together, discuss ways to solve the problem. Together, use skip counting by 2s (one way) and counting by 4s (round trip) to solve both problems. Solve how much each individual needs and how much the whole class needs. When each student knows how much money they need to bring in themselves (\$4), have the students make a request to their parents using the attached form.

Trip: Walk to the Delancy Street subway station. Have adults help every child buy their MetroCards at a vending machine with round-trip fare. Have adults watch closely as children swipe their cards. Once everyone is through, ask the children which way the class should go. Have them look at the signs and decide which platform to take. Wait for the subway. Board the train and take time noticing everything about the train that they can. Get off in one stop at East Broadway. Look around the station. Exit the station and see where the class has ended up (In Chinatown). Re-enter the station and swipe cards and wait for the return train. While in the station, have children look around closely to see what is the same and what is different about the two stations. Take the train back to Delancy St. and walk home.

Post-Trip: Venn Diagram

Use a Venn diagram to help compare and contrast the Delancy Street station with the East Broadway station. Model the activity on a dry erase board. Ask the child to list words they need for their writing and make a word bank on the board. Have children

work on their Venn Diagrams. When they are done with their writing, have them illustrate on the sides with pictures from the two stations and the train.

Assessment: How do the children talk about the map, money and trip? What kinds of details do they notice? What do they pay close attention to during the ride? What do they think of each station?

Class Book: How to Ride the Subway

Goal: Students will realize that the subway has many specific features and will identify the steps necessary to take a ride.

Objective: The class will write and illustrate a book describing how to ride the subway to East Broadway and back.

Materials:

Dry Erase Board and Dry Erase Markers

Paper

Computer

Pencils

Colored Pencils

Activity:

Tell the students that the class will write a book together describing how to ride a subway using our time on the field trip to help explain things. Ask them to describe the steps you have to take to ride a subway somewhere. Include the following items: buy a metro card, swipe your ticket and go through the turnstile, look at the map to decide how to get to your destination, read the signs to see what platform to stand on, get on the train, etc. Let each student brainstorm and write up as many things as you can. Then, ask any clarifying questions needed to help them come up with any big ideas of the trip that they may be missing. Finally, read over each step together and have the class help you put them in order (with 1, 2, 3, 4....).

Type up the steps onto pages with a large box for illustrations on each page and give one page to each child to illustrate with lots of details. Bind the book together and read aloud to the class. Put the book in a section of the library dedicated to subways, where they can read it over and over.

Assessment: How does each child contribute to the book? Do they come up with ideas, revise ideas, etc? How do they engage during the process? Are they listening to each other and adding on to each other's ideas? Do they take their time with their page and match the illustrations to the words?

Subways Can Be Beautiful: Read Aloud

Goal: Students will talk about why some subway stations are more pleasant to be in than others.

Materials:

Venn Diagrams comparing a more decorated station with a plain station from the previous lesson

Dry Erase Board and Makers

Book: Jamaica Louise James by Amy Hest (1996)

Activity:

Open with a discussion about the differences and similarities between the two stations visited in the last field trip. Ask students which station they liked the most and why. As students talk, write their ideas up on the board.

Show students the book and ask for predictions on what it will be about. This is a great book about subways, jobs and families and also about art. Jamaica is an artist who loves subways "because the seats are hot pink and because they go very fast." However, she does not like subway stations. There are "too many grownups who all look mad. The walls are old tile walls without any color." She uses her artwork to cheer up the subway station where her grandmother works, to her Grammy's and the passengers delight.

Through the read-aloud, take students observations about the story and illustrations and character. After the book, ask the class, "Why did Jamaica decide to take her drawings to the subway station?" Let the class discuss and talk about why people add art to subway stations. This can be used as only a question or as a writing activity, where the students can respond to the idea "What happened when Jamaica decorated the subway station?"

Assessment: Did students actively engage in the story and discussion? How did they show their involvement? How did their questions add to the story experience and discussion? Were they listening to each other and adding on ideas?

Field Trip: 1/9 Line Mosaic Exploration

Goal: Students will form an understanding of why art is an important part of the subway system, specifically how artwork can transform a space.

Objective: Students will observe and record several examples of artwork in various subway stations.

Materials:

Trip Sheet
Clip Boards
Pencils
Color Pencils

Activity:

While the 1/9 line has many mosaic subway stops, every line has multiple stations with artwork. I would recommend using any subway line that works best for your class logistically. You don't have to do all of them, but looking at two or more stations will allow children to see that there is a variety of artwork in the subway system. This trip is also a good time to observe other things on the walls and posted in the train cars, because it involves a lot of time on the train throughout the trip.

Travel up to the farthest stop and start there. Use the ride up to look at signs inside the subway and on the walls of the stations. You can choose from the following murals:

- Lincoln Center -66th Street: Nancy Spero's *Artemis, Acrobats, Divas and Dancers* (2001) glass mosaics
- 50th Street: Liliana Porter's *Alice the Way Out* (1994) Ceramic mosaic murals
- 42nd Street: Jack Beal's *Return of the Spring* (2001) Glass mosaic mural
- Christopher Street Station: Lee Brozgold & P.S. 41 Students' *Greenwich Village Murals* (1994) Ceramic mosaic tile mural
- Houston Street Station: Deborah Brown's *Platform Diving* (1994) Glass mosaic mural

At one station, I would advise not writing at all, just sitting and talking about what the children see and how it makes them feel in a guided fashion. In other stations, it would be good for the children to describe in words what they see in the murals, for example: animals, people and designs. Then, give them a chance to draw what they see, with pencils and a few basic colored pencils. Make sure they have a space to explain why they think that someone decided that the station needed artwork in it. Finally, be sure to take photographs of some of the mosaics to use as examples in further lessons.

When you return to school, give the students a chance to add to their drawings, especially with more access to color. Once they have had time to add to their trip sheets, have a discussion about the different artworks they saw. Use the guiding questions: What were their favorite murals? How did the art make them feel? Why do people add art to subways?

Assessment:

How do the children talk about the artwork with each other? Do they anticipate the next stops selections? How do they show their interest in the way they record the mosaic drawings? What do their comments indicate about their understanding of the subway?

Mosaics in the Classroom

Goal: Students will understand the time and effort required to make mosaic work that beautifies the classroom.

Objective: Students will create paper mosaic designs, learning the basic technique of creating mosaic forms.

Materials:

Photos from your mosaic exploration

Black construction paper

White chalk

Tiny pieces of colored and decorated paper, construction paper and specialty paper, cut in circles, squares and triangles, in boxes arranged by color

(As the students get more comfortable with the technique, add other materials such as foil squares, ribbon bits and pieces of fabric to the materials kit)

Glue pots

Glue brushes

Activity:

While regular mosaics are made of glass or ceramics and grout, we will only use paper to demonstrate the technique. Take a look at several photos of mosaics that the class saw on the subway, either from your personal photos or photos from one of the subway art websites found in the appendix. Talk with the children about what materials are used and how the mosaic is put together. Talk about artistic elements such as pattern, design, color and texture.

Model making a paper mosaic. First, use chalk to draw a simple geometric design on your black paper. Once satisfied, talk with the children about what colors to use. Take a tiny piece of paper and glue it on to one part of the paper. Glue the next piece of colored paper down to show the students the importance of leaving space between each piece of

paper. Continue for a few minutes with the modeling and then show them one or two pre-prepared versions of the projects.

Let every child select their black paper and let them explore. Work on the project for as many days as necessary to complete. Keep the mosaics materials in the classroom, as a choice time activity so that students who would like to do more have the option.

Assessment:

How did students demonstrate their understanding of the mosaic technique? Do they handle materials appropriately? What kinds of images or designs do they create? How do they talk about their work?

Extension: Have everyone make a paper mosaic name placard, with their names and a design filling the entire long rectangular black paper. Hang these in your room.

Extension: If you have the time and resources, make a class project using real mosaic materials. With parent volunteer help, make a class sign or symbol in glass, ceramic tile mosaics and grout. After modeling the real technique, have a parent take small groups so that each child has a chance to contribute to the project. Use the sign in the classroom celebration.

Literacy Components

Subway Books Area in the Class Library

In the library of each first grade classroom, there should be a special display area for all the subway books, both fiction and non-fiction. As you read them, they should be added to the library, so that students can re-read during free times, closely examine the pictures and look up favorite parts of the books. It is also the place to add books that aren't suited to read-alouds but that are related to the study. Nearby, there should also be a basket where class books and individual books are shared and displayed. Books that were written as a result of trips and research should be shared and looked over together, to reinforce the reading and writing of the class.

Subway Word Wall

On a prominent bulletin board in the classroom, a word wall should be constructed with words and terms that are used frequently in the study. The words should be clearly typed in a legible font and have both a student-made picture and another image, from a photograph or clip art, to help define unfamiliar terms. This should be a living resource for the class, constantly added to and used in writing throughout the study.

Several words to add include: train, subway, tunnel, platform, turnstile, token, MetroCard, swipe, stairs, sign, rail, track, transfer, stop, station, conductor, engineer, track worker, mosaic, mural, electricity, third rail, wheels, cars, friction, and more.

Literary Responses

An important component of the study should be literary responses to some of the read-alouds in the study. Not all of the read-alouds should have writing attached to them, but

some should. This provides a way to continue real reading work while doing the study, using the books to improve on story retelling, story elements and story maps, character traits, settings, favorite characters, favorite parts, text-to-self connections, text-to-world connections and text-to-text connections. Some responses could be written on plain writing paper, but others, particularly story elements or story maps, should use a more structured worksheet. In NEST, we often bind them as a book and share them during our celebrations. Below are some suggestions for books and the literacy elements that they are suited for.

- **Cohen, Miriam. (2003) Down in the Subway.**
What is your favorite part of the story? Why is it your favorite part?
- **Hest, Amy. (1996) Jamaica Louise James.**
Character Trait: How would you describe Jamaica Louise? Use examples from the story to prove that she is imaginative/creative/caring.
- **Carrick, Carol and Donald. (1988) Left Behind.**
Retell the story with lots of details. What happened in the beginning? In the middle? In the end?
- **Liao, Jimmy. (2006) The Sound of Colors: A Journey of Imagination.**
Use your imagination to fill the subway with passengers and places. Who rides on your imaginative train and where are the stations?
- **Rush, Ken. (1994) Friday's Journey**
If a train could go anywhere in the world and you were the conductor, where would you drive the subway? Why would you drive it there?
- **Reid, Barbara. (2005) Subway Mouse**
Use a sheet to identify the story elements in this story: title, author, setting, characters, problem and solution.
- **Torres, Leyla. (1997) The Subway Sparrow**
Make a work sheet to help the children make a story map that charts the most important events that happen in the story.

Subway Poetry: Poetry in Motion

In other studies at NEST+m, poetry is a major component of the study. Topical poems that focus on the subject of study are used for shared reading and poetry response. The poems are hung from the wall and read over often, with students leading the shared

chorus. MTA New York City Transit and the Poetry Society of America teamed up to create the campaign *Poetry in Motion*. Adding poetry to subways and buses was aimed to make daily transit more pleasurable. Each year, several poems are selected and printed on posters. However, while the posters and poems are great, not all are age-appropriate for the first grade. Instead, I recommend searching children's and adult poetry for subway-themed poems. Some can come from the actual *Poetry in Motion* campaign, most notably the poems written by children of various ages that were posted in the subways.

The children can respond in writing and drawing to each poem, with guiding questions from the teacher. For example, the poem "Things to Do If You Are a Subway" by Bobbi Katz is a great poem to talk about visualization. After reading the poem, the teacher can talk about how good readers use their imaginations to see what the author describes. Asking the children, "Tell me about what picture you see in your head when you see this poem." Having the children write about the picture will allow them to not only work on their writing in a guided fashion, it will also require them to use adjectives or "describing words" as they are known by the children. Gathering several poems like this, about the subway or elements of the subway, will give you a great collection of age-appropriate *Poetry in Motion* options for your classroom.

Later in the study, the children can decorate the larger versions of the poems that are used for shared reading, making their own *Poetry in Motion* posters to hang from their subway during the celebration.

Class Books

The class book on “How to Ride a Subway” is only one of a myriad of books you could write with your class. This shared writing is an import source of modeling, discussions and processing information, so it is important to do several together. They can be based on trips and on information. I would advise after reading several fiction and non-fiction books and then conducting class discussions to address the questions “How was the subway made?” and “What would New Yorkers do if there was no subway?” These ideas are rich topics of conversation and, once students have already been introduced to the history of the subway and other forms of transportation, they will have plenty to write about.

Subway from A-Z

At the end of the study, one closing activity could be for students to find a subway word, either a worker, job, tool, or term, for every letter of the alphabet. They will have the chance to use all of the class bulletin boards and word wall and will decorate their words.

Partnering with Specials Classes

The subway is a wide-ranging topic with many possible avenues to explore. One way to increase the material that you are able to cover is by partnering with your fellow special topics teachers, particularly the science teacher, art teacher and music teacher.

It would be useful for the science teacher to do a unit on electricity so that the students could explore the idea of energy, conduction and more. A series of experiments on what materials conduct electricity (wood, metal, plastic, etc.) would establish important background knowledge and understanding for when you decide to discuss how the subway moves and the third rail in class.

The art teacher could easily do lessons and extensions with mosaic work as well as explore murals, sculptures and stained glass with the children. All of these subway arts might be difficult to do in the classroom or may require specialized art materials. The music teacher could talk about the idea of buskers, or subway musicians, and the music that they play in the subways and platforms. Students could also learn songs about the subway, such as "You Can Take the A Train" or even "I've Been Working on the Railroad" that would add a musical element to their overall experience of the subway.

All of these elements would enrich the study and extend the study into other classrooms, which would help children see that their work in other classes is still connected and that topics can bridge subjects. Furthermore, having other teachers extend the study would allow you to concentrate on other aspects of the topic and could help distribute some of the work.

Choice Time

In first grade, the students have choice time, or free play time, three times a week for forty-five minutes. This is a very important time for the children, who need time to just be children and to relax. It is a time of joyful experimentation, expression and fun. Children have the option of working in the blocks area, working with play dough or Legos, playing board games, doing arts and crafts or drawing.

During playtime, the children also process what they've been learning or experiencing socially. As Lucy Sprague Mitchell says, "Kindergarteners and first graders express themselves through play. Not play that is merely a pastime, but play which is constructive and leads through progressive stages of relationship-thinking (1971, p. 16)." After going on trips and exploring a topic, it is likely that, mixed in with the other games, some of the study ideas will begin to show up in the blocks section, in play dough sculptures and in colorful drawings. This is something that the teacher can not force. It is completely child directed which makes whatever happens during choice time a genuine reflection of children's interests and ideas.

While this time is totally free and children have control in choosing their activities and playmates, it would be useful to get some subway-themed accessories that would be available to the children during their choice times. For example, model trains, subway worker hats or costumes, and other such toys and accessories would give the children a chance to play out what they are learning and experiment with their new knowledge.

Planning and Constructing a School Subway Preparing for the Study Culmination

The following lesson is actually several lessons that will take place over several weeks, as the children design and make their subway system. All children will participate in all activities, though some of the projects could be done with the assistance of another specials teacher.

Goal: Students will apply their knowledge of subways, subway components and subway travel to make their own version of a subway for the end-of-study celebration.

Objective: Students will identify and make the essential components of a subway.

Materials:

Chart Paper and Markers
Tempera paint
Cardboard boxes
Ribbon or cord
Construction paper
Pencils
Paper
Various Worksheets (as indicated)
Overhead projector

Activity:

Opening Discussion: *One-Day Lesson*

Tell the children that they will be making a subway in the classroom and in the school halls for the celebration. Ask them what are the important things that our subway will need? Write the children's ideas on chart paper and at the end of the discussion, highlight the major components that they will need to be make for the final project. These components include a cardboard box train, several subway lines, maps, signs, art, MetroCards and tokens, money and more.

Making a Map: *Multi-Day Lesson*

Since there are four classes at NEST+m, when envisioning the final subway celebration, I will assume that each class has its own subway line and goes to a unique destination. The four lines will cross at transfer stations, not locations but “platforms” where parents will have to switch lines if they would like to visit all the possible locations.

Tell the class that you are going to be the “green line” (any color will do. All classes will have their own color line). Your destination will be the art room. Possible destinations for the other classes include the science room, the auditorium and the lobby, all of which could include some display of subway related work.

Show the students a map of the school, with the home station (classroom) and the destination clearly marked. Have children take turns showing a few possible routes, not necessarily the most direct routes. Take notes and discuss with the children the reasons for each possible route. For example, “Well, if we go this way, it will be the fastest” or “If our route goes this way, we will pass by the murals by the 4th grade classes and they are beautiful.” As a class, vote on the subway route and use a green marker to mark the route.

Give each child a paper copy of the school map and have them add the green line’s route carefully, using the class map as an example.

Another day, confer with the other classes and get all of their routes. Put each route on a transparency version of the school map. Using an overhead projector, show the children the transparency the class’ subway line, the green line. Then, layer the other transparencies, with each class’ line on top, to show the complete map of the subway

routes. Have the children add the other routes to their map, one at a time, unlayering the transparencies so that they are not confused.

Once the children have a complete map of all four subway lines, use the next day to discuss possible transfer stations. Each line only goes between two locations, the class station and the destination, so transfers will be necessary to go other places. Look at the map together and have the children suggest possible points where one or more lines intersect. Decide with the other teachers where the transfer points logistically make sense and then add them to the map.

Make a key on the map to demark transfer stations from regular stations. Have students make their key and have the children add the transfer points to the map.

Naming the stations: *One Day Lesson*

Have children suggest names and themes for their class station. Vote on the name/theme.

Add a name label to the map. As the other classes name their stations, add that information to the map.

Making the Train: *Week Long Project*

This painting and craft project is one of the central elements of the study. Throughout the study, children will have ridden and observed the subway. Designing trip sheets to include observation and recording of the outside and inside of the trains will assist in this part of the study. Also, any pictures taken of the trains and photos found online will help the children recreate the outside of the subway.

The subway trains that the children will use will be constructed out of cardboard boxes that should be large enough for a child to stand in. The boxes will have the lids and bottoms removed. They will have shoulder straps so that the children can “wear”

each box around their waist. Three or more boxes will be connected together with long cords or ropes that will extend from the back of one box to the front of another. These long ropes will leave a space where five or six passengers can stand. The subway will let passengers “board” into these rope containers and then will move as the front subway box moves forward, passengers and the other subway conductors and cabooses will have to follow. This will take lots of practice and coordination on the part of the student conductors.

When making the trains, the children will take their own observation-based subway drawings and photos and decide together how to decorate the fronts and sides. I suggest using the first day to paint each entire box gray and waiting for that to dry before adding lights, windows, doors, signs, line symbols and more. Use parent volunteers to help children with the painting and have the children work in shifts, so that the workspace is not too crowded and so that everyone has a chance to contribute.

Subway Signs: *Several Days*

Have a discussion with the class using the guiding question: “What signs do we need for our subway?” Discuss signs about safety, signs about subway courtesy and signs for information. Talk about what words the children would need for their signs and write them up on the dry erase board so that children can reference them as needed. Split children into groups and have them work together to make signs for one of the categories.

Jobs for the Subway: *Two-Day Lesson*

Brainstorm as a class with the following question: “What jobs will we need to have to make our subway run?” Follow the same procedure, brainstorming and at the end of the discussion, highlight the jobs that will be used during the celebration’s role play. These

jobs should include: conductor, station manager/information agent, ticket teller, and ticket collector. The following day, discuss what each worker will have to do in their jobs. Have the children fill out a simple job application, a sheet that can be made up where they indicate what job they want the most and why they think that they could do it.

Assessment:

How do children contribute to the planning, design and construction? What do their comments indicate about their understanding of the function and features of the subway system? How do they apply what they've learned on the trips to the in-school activity?

Subway Celebration

Goal: The subway celebration will be an hour long experience where students share what they have learned over the unit of study. It will mark the culmination of their study and demonstrate their knowledge of how a subway works, who works in the subway and how everyone must cooperate to keep the subway a safe, effective and even pleasant space. Students will have spent weeks preparing, designing routes, signs, building, and rehearsing. During the celebration, all of this will be put into action as the students operate their own subway, shuttling their parents to different areas of the school.

Objective: Children will create their own subway system and take their family and friends for a ride, from buying tickets to map reading to riding.

Materials:

Prepared cardboard subway trains
Prepared Maps
Prepared Signs
Prepared Art (Subway Poems from Literacy Activities and Mosaic Signs and Artwork)
Fake money sheets – Monopoly style
Student-made MetroCards or Tokens- depending on student preference
Name Tags with Job Titles for Each Student
Uniforms for Each Student- similar color shirt
Invitations

Activity:

Part I: Set Up

There are several set up activities that are included in previous lessons. This section shows the set up for the celebration itself, once all other elements are prepared.

Students help set up their class subway station and transfer points, voting on which poetry pieces and mosaics should feature prominently.

Students will also make invitations for their parents, inviting them to their subway celebration. This can be done as a writing workshop lesson. The parents and family members will arrive to school on the day indicated on the invitation.

Part II: Rehearsal

Beforehand, every student will be assigned a job, after they have applied to the job. Jobs will include ticket agents, station managers, conductors, and ticket collectors. To ensure that each child has a chance to enact their jobs, it is recommended that the celebration be done in two half-hour shifts, depending on class size. This will allow all students a chance to participate and families to experience the subway in a less crowded environment.

Students will have 3 to 4 days to rehearse the subway execution, with each shift taking turns being passengers and being subway workers. The purpose of the rehearsal is that each student understands where they are supposed to be during the celebration and gives them a chance to act out their role, so that they are comfortable doing their jobs the day of the celebrations.

Part III: Celebration!

The day of the celebration, the entire classroom will have been transformed into a creative, artistic subway station. Parents will start in the classroom, where they will view the school subway system map created by the class and will choose a destination.

Station managers will work on telling parents about possible destinations and will help parents choose the route to get there, including telling them about any transfer points. Destinations can include the art room, where more subway related art can be viewed, the science room where parents can learn how the subway runs and how electricity works, and other locations that your school can set up with specials teachers. The information agents will also direct the parent-passengers to the ticket booths where they will have to buy their MetroCard/token.

Ticket Tellers will be in charge of selling parent-passengers their MetroCards, making change as their parents use the fake money provided. They will note on each card how much money there is available.

Ticket collectors will take the tickets of every passenger before they enter the platform. They will subtract the fare and note the new balance on the card.

Subway Conductors will be in charge of operating each subway. They will follow the class routes, calling out station information and transfer information at appropriate locations. One student will be the “conductor” and lead the subway while the other will be the “caboose” and announcer. They will switch roles once they reach the end of their line and go through the route making a return trip.

Parents will have a chance to ride on the subway and then will have to return to the home station, the classroom, where they can join in the celebration and talk to their children as

they come off their shift and enjoy goodies that they may have brought in. The next shift will begin as the first shift has all gone through and the parents are all in the celebration.

Assessment:

How does each child work during the rehearsals and celebration? Are they cooperative and patient or do they get easily frustrated and bored? Can they articulate what their job is and why it is important? How do they perform their role during the celebration? How do they talk about their work and their project with their parents?

Applications

This thematic subway study can be used by several elementary grades throughout New York City. As the subway is a major feature in New York and extends throughout the entire city, there is a stop or station by every school. Any class in the city could conceivably use this curriculum. With some adaptations, schools in other major metropolitan areas with underground train lines such as Washington D.C., Los Angeles, Chicago, Philadelphia, Boston and more, could use this study as well. While the curriculum would have to be adapted to suit the city's transit system, the overall themes and structure could easily be used.

While this curriculum is designed with the first grade in mind, it could very easily be used in higher grades. Any grade, from second to fifth, would find this topic a rich and fulfilling one to explore in depth. As the children would have more experience with the subway, their base level of familiarity would be the same but they might have more questions and be prepared for more complex answers. It would be easy to make the activities and the information more complex and nuanced to suit the academic needs of any grade. More writing projects, actual use of the real poetry in *Poetry in Motion*, more attention to history and science would make this study very suited to the needs of older children.

Conclusions

The curriculum started as a project that I did with two friends for a social studies class at Bank Street. We worked on an interdisciplinary unit about the subway for a second grade class, with the major trip being at Grand Central Station and the culmination being a student-run subway for the entire school. Since then, I have changed the curriculum in many ways. Though I kept the themes and only slightly modified the final project, the rest of the study has been tailored so that it would be possible to use it today with my own first grade class in the school where I am teaching now.

Many of the changes that I made came about as a result of my experience enacting similar topic-driven curricula in my first year of teaching. I've lived through the launch, duration and conclusion of our Bread Study and am now well underway with our Shoe Study, both of which have influenced me greatly. Seeing these two studies, the techniques, activities and trips involved, have formed the basis of my understanding of what interdisciplinary curricula looks like in action. My students are so engaged in the studies that they don't even realize that they are working as hard as they are. Our days and weeks are jam-packed with activities, trips, writing, reading, interviews, guest speakers and more. I never have to worry about what to do, instead, my worries revolve around fitting it all in. Each of our studies has formed the backbone of our school day. While there is always math and writing, most of the time, the activities are combined and somehow relate to our unit of study. The children are becoming experts in our topics and delight in finding things outside of class and then bringing them back to share. Their energy is always high and their interest is genuine.

In my school, social studies are the driving force of all subjects. Having experienced this system, I think that I will always make interdisciplinary social studies units the center of my own curricula. Not only have I experienced the studies in my grade, but I've visited the celebrations of all the other grades, from kindergarten through fourth grade. The increasing complexity and depth of the students work as the years progress is astounding and impressive. By fourth grade, the students are making huge models of Pilgrim villages and writing first-person narratives of an immigrant's journey, stained with tea to make the papers look old and authentic. Their involvement and detail is clearly shown in the high quality of their work. My students, while they are not permitted to come to the celebrations themselves, see the older grades work in the hallways as they walk to snack and to their specials courses. They ooh and ahh over the second graders personal photo time-lines that documents their lives from birth to second grade. They look on with envy at the third graders dream-catches, lacrosse mitts and baskets that the Native American study brings. They carefully trace the routes of the three Pilgrim ships from England to the New World, marked in string on brightly painted maps of the world. My students look at all of these things with anticipation. They know that they will study all of these things and can't wait for their turn.

My curriculum was definitely influenced by not only my own teaching experiences this year but also by my observations of all of the curricula that fills the halls and classrooms of my school. My school was a great environment to write in and explore all sorts of different aspects of curricula through the activities and lessons in other grades. I was both inspired by all of the different studies that surround me and supported by them. I saw the school's overarching framework, what my students' experiences were

before coming to me and what experiences that they would have after leaving my care. This kind of knowledge is very helpful, because it helps me know some of the skills and information they have when they arrive at my door and what they need to learn so that they are in a good place to work on their forthcoming projects. This kind of shared information among colleagues and across the grades is most helpful.

In creating this curriculum, the writings of John Dewey formed much of my theoretical framework. Dewey believed that education should be based on and conducted through a series of thoughtful and continuous experiences that build upon one another in progressively more complex and sophisticated ways, as stated in his seminal work *Experience and Education* (1938). This core idea separates “progressive education” from “traditional education,” forswearing text-oriented learning in favor of an active, experiential process. However, Dewey strongly cautioned that “the belief that all genuine education comes about through experience does not mean that all experiences are genuinely or equally educative (Dewey, 1938, p. 13).” The experiences must be carefully chosen so that they are meaningful and prompt inquiry while leading into successive collaborating experiences. They should be connected with daily life and a child’s real interests so that they spark both sincere curiosity and exploration, using scientific techniques of hypotheses and experiment to guide learning (Dewey, 1938). Having taught for almost a year using this kind of theory in my current curriculum has, as I’ve stated previously, convinced me that this is the only way to teach, especially with young children. This experience-driven curriculum has been carefully selected and crafted to guide children from their initial daily subway experiences to a more sophisticated and complete understanding of how the subway reflects and supports our city community.

While Dewey's ideas formed the core of my curricular approach, while making the activities in this curriculum, I found myself turning to Howard Gardner's idea of multiple intelligence. Gardner's redefined intelligence, shifting the focus away from the previous fixation on IQ testing, as "...the ability to solve problems or mak[e] something (1988, p. 5)..." This new definition allowed him to expand the definition of "the intelligent" beyond those who could merely do well academically to encompass athletes, sailors, artists, hunters, statesmen and other types of professions. My own strengths fall within the traditionally valued linguistic intelligence and logical mathematical intelligence that often dominates the academic world. However, as a teacher, I have become well aware that some of my students are not as strong in those areas. My most creative and bright students are still struggling with writing and reading, however they excel and express themselves with their bodies, their voices and their art. I have seen them get discouraged at activities in my current curricula because, though they understand the topic, they have difficulty expressing themselves in the dominant academic ways.

These observations influenced me while writing this curriculum to include more activities that favor musical, bodily-kinesthetic, interpersonal, intrapersonal and several other types of intelligence. Gardner said that "...just as we don't all look the same or have the same personality, we don't all think the same way..." therefore "...schools, museums and other institutions should take those intellectual differences into account (1988, p. 5)." I have tried to make activities that are not all based in reading and writing. Given my own personal comfort in doing and assessing these activities, as well as the educational system's traditional valuing of these things, it was sometimes difficult to

think outside the box. In younger grades, where students are still learning how to read and write, it is very easy to just focus solely on literacy building activities. I have certainly included these, as they are very important to emerging readers, but I have also tried to create activities with multiple entry points in multiple modalities so that all of my students have the opportunity to work with the subway from a point of strength. But by making myself more conscious to multiple needs and using Gardner's multiple intelligences approach to providing a variety of entry-points, I find that I am more attuned different individual experiences. This consideration has made me ore conscious of different learning styles and intelligences while crafting this curriculum. The culminating activity, a role-play that requires the students to design and run a mock subway, was carefully conceived as project that would allow all of my students to physically and artistically demonstrate their understanding of the subway.

I am very glad that this project started as collaboration with my peers in our Social Studies class. While it has changed in form and in function, the initial shared brainstorming and work together was a very good experience. My teammates brought up ideas, found sources and built on my thoughts, as I built upon theirs. Given that the curriculum has changed from its initial form due to my experiences teaching this year, I also have the knowledge that once it is enacted, there will be many more changes. I am very eager to try it out. I am very enthused by the topic and can't wait for the second phase of collaboration. My curriculum on paper is very satisfying, but I truly can't wait to make it come alive and watch how it moves in different directions independent of my plans. I've found that working on curriculum planning in a team is a great way to get innovative and diverse ideas. Using Lev Vygotsky's idea of the zone of proximal

development, it is clear that just as children benefit from interacting with each other to accomplish and understand tasks that would be far too difficult to do alone (1978, p. 87), adults also benefit from this social element in tasks. This year, I've seen how a team shares responsibilities and tasks, as well as ideas and inspiration, allowing each member to contribute and not bear the brunt of all of the planning. The projects and activities that are produced together, vetted and edited by the team, are much stronger than they would be if they had been developed alone. I would very much like to take my curriculum and start to enact it in such a team setting, so that the additions and comments of my colleagues can strengthen and enrich the study.

Another, very important, collaboration will also change the scope of my curriculum. Collaboration with students, children, who are involved in the study, will certainly change my plans for the better. I am eager to see what my students like, where they take my initial idea and where they deviate. Much comes up during a study that you can not anticipate. Students question things that you've never considered. People are met in trips and through parental connections that can shed new light on the topic or show it from another angle. For all I know, my students will become fascinated in electricity and the study will end up with more experiments and science than I had initially planned. Maybe they will really like the idea of digging the tunnels to build a subway and we will spend time researching the diggers, tools and process. But then, until I do it, I can't even guess what will happen. A good curriculum takes off, away from the planners' initial ideas. It takes on a life of its own and builds, according to the curiosity and enthusiasm and experiences of the children who are involved. The children shape their world, in school and out, and they will have a major role in transforming this initial framework of a

subway study into a richer, lively experience. Once launched, the real development of the curriculum will finally happen. Without the contributions of the children and other teachers, it is just an idea, a theory, a beginning.

My experience writing this curriculum has been a thought provoking and fun experience. Now, I can not wait to launch it, as it seems to hold such potential for adventure, exploration and learning. The subways are a defining feature of New York City and as a New York City teacher, using them as a way of educating both myself and my students is a great opportunity.

Annotated Bibliography

Fiction:

Carrick, Carol and Donald. (1988) Left Behind.
Boston: Clarion Books.

Christopher gets lost in the subway during a class trip to the aquarium. He is separated from his partner and left alone at a strange stop. A security guard and a policeman make sure he is reunited with his class and teacher. The book is a great way to talk about a very real fear for children, being lost in a confusing and dangerous place. It is a good spring board for a discussion on what to do if you are lost and how you can keep safe in the subway.

Cohen, Miriam. (2003) Down in the Subway.
New York: DK Publishing, Inc.

Oscar takes a trip on the subway on a hot summer day but his routine ride is transformed into an incredible vacation by a cool rider, the Island Lady. In her shopping bag, she carries the Caribbean with her, including a cool Island breeze, palm trees and a steel drum!

Hest, Amy. (1996) Jamaica Louise James.
Cambridge: Candlewick Press.

Eight-year-old Jamaica loves to paint. When she gets new paints for her birthday from her family, she decides to brighten up the 86th street subway station where her grandmother works as a token collector. This book is a great way to get children to think about why we decorate subway stations and about the role of the token collector/subway worker.

High, Linda Oatman. (2001) Under New York.
New York: Holiday House.

Underneath the skyscrapers and bustling crowds of the city, you will find a whole underground world. In addition to a busy subway station, there are also pipes and tunnels, jazz clubs, a shopping mall and an urban legend about an alligator.

Jacobs, Paul DuBois. (2004) My Subway Ride.
Salt Lake City, Utah: Gibbs Smith.

Enjoy this rhythmic, poetry-infused celebration of subway life in an underground tour of the Big Apple. The bright illustrations and diverse portrayal of the "world underground" allow readers a glimpse of the subway's role in NYC: "The city is the body,/ the subway is the blood,/ running through/tunnel veins."

Kalman, Maira. (2001) Next Stop, Grand Central.
New York: Penguin Putnam Books.

This whimsical and poetic book, complete with fun and imaginative illustrations, captures the excitement of Grand Central Station. The book introduces some of the jobs and travelers that ride the trains and subways. It is not well suited for a read-aloud because there is a lot of text and very intricate pictures.

Leonni, Leo. (1973) Swimmy.
New York: Knopf Books.

A small fish uses teamwork to unite a school of tiny fish and shows them how they can save themselves from a hungry tuna. This book is a great way to talk about the benefits of teamwork and cooperation.

Liao, Jimmy. (2006) The Sound of Colors: A Journey of Imagination.
Boston: Little, Brown.

A blind Taiwanese girl goes from one subway station to the next. "Waiting for the train, I start to wonder if all the subway tracks in the world join together. Then where would I go?" Using memories of sight, imagination and her senses, she creates a whimsical world, where elephants wait on platforms and a station is surrounded by the sea. This is a great book to talk about blindness and also, to reach out to your students imagination and senses for creative writing. The watercolor images offer opportunities for close looking.

Loomis, Christine. (1996) Rush Hour.
Boston: Houghton Mifflin Company.

This book shows the busy morning commute in the city, including subways, taxis, buses, cars and more. It is a good selection for the beginning of the study or the end, with the question, "If there wasn't a subway, what would New York be like?"

Moore, E. (1995) Good Morning, City.
New York: Bridgewater Books.

This picture book walks the reader through an urban morning, full of the hustle and bustle of adults going to work and children heading to school. It opens with two pages of a subway train on an elevated track and later portrays track workers busy on the job. This is a lovely introduction to the subway's position in the city and the classroom community.

Munsch, Robert. (1981) Jonathan Cleaned-Up: Then He Heard a Sound or Blackberry Subway Jam. Toronto: Annick Press.

A boy tries to keep his house clean, but it is difficult because it is magically connected to a subway station. Crowds of subway passengers make it difficult to keep his room clean while his mom is out buying a can of noodles.

Reid, Barbara. (2005) Subway Mouse.
New York: Scholastic, Inc.

Nib the mouse lives beneath a busy subway station. He collects treasures and listens to stories of a place called Tunnel's End. Nib journeys in the dark to get to Tunnel's End, a clean place out of the subway full of grass and light, but has many adventures on his way.

Rush, Ken. (1994) Friday's Journey.
New York: Orchard Books.

This book combines subway travel with the topic of a divorced family and weekends with Dad. Chris is picked up on Friday by his dad for their weekend together. Chris used to be afraid of the subway, but now it is an exciting adventure for him. On their ride on the subway to his dad's apartment, Chris and his dad pretend to be subway engineers and drive the train through their memories.

Suen, Anastasia. (2004) Subway.
New York: Viking.

Within rhymes, you get a child's perspective on a subway ride with her mother, from the spinning turnstiles, hustling and bustling passengers and musicians that make the underground world come alive in bright colors. The book not only shows a transfer before reaching the destination, part of their route is on the F train, the one closest to our school. In addition, the book shows the multicultural, eclectic world that one can find underground in New York City.

Torres, Leyla. (1997) The Subway Sparrow.
New York: Farrar, Straus, and Giroux.

When a sparrow flies into a subway car, his rescue is multilingual, four people of different ages, cultures and languages must work together to save it. This book not only features the D train with many detailed illustrations, it also highlights both teamwork and kindness.

Non-Fiction

Baer, E. (1995) This Is the Way We Go to School.
New York: Scholastic, Inc.

This story explores how children all over the world go to school. It is a good way to start thinking about how children travel and the different modes of transportation that there are in the world.

Brimner, Larry Dane. (2004) Subway: The Story of Tunnels, Tubes and Tracks.
Honesdale: Boyds Mills Press.

This book is for older children, grades 3-5, but looking at images and reading sections will help explain the process of creating the New York Subway, as well as subways being constructed in Europe at the time. The depictions of daily life in the time of its building is also a very interesting feature. Stronger readers will enjoy exploring the book and sharing what they discover.

Chesanow, Neil. (1995) Where Do I Live?
Hauppauge, NY: Barron's Educational Series.

This book takes a child out from their home to their neighborhood to their town out all the way out to the planet Earth and the Milky Way galaxy and then goes back all the way home again.

Finelli, Sarah. (1995) My Map Book.
New York: HarperCollins Publishers.

In this map-making book, maps of places aren't the only types of maps. Along with the "Map of My Neighborhood" there is also a "Map of My Heart" and "Map of My Tummy" along with other equally quirky "maps."

Hewett, Joan. (1995) Tunnels, Tracks and Trains: Building a Subway.
New York: Lodestar Books.

Another book for slightly older children that looks into the Los Angeles subway system, specifically discussing the construction of the subway. This book looks into all the different jobs that go into making a subway, from architects to miners to train operators, a muralist and even an archeologist.

Lassier, Allison. (1999) Subways.
Mankato: Bridgestone Books.

This transportation series book discusses all about subways, from their invention to what it is like to ride on a subway. Discusses the history of the subway and how they work.

Leedy, Lauren. (2003) Mapping Penny's World.
New York: Scholastic Inc.

Lisa is learning about maps for school so in addition to her own map, she makes some for her dog Penny. One map shows where Penny has hidden toys and treats. Lisa introduces language like key, scale and symbol.

Morris, Ann. (1994) On the Go.
New York: HarperTrophy

Explore different ways of getting from one place to another with examples from all around the world, from rickshaws to double-decker buses. This is a way of extending the transportation theme at the end or the beginning of the study.

Morris, Ann. (1999) Teamwork.
New York: HarperCollins.

While not directly related to transportation, this book about how people work together and the joys and the benefits of working as a team. It exposes children to this important concept with examples from around the world and conveys the message that the "best team of all is the family" and "the biggest and most important team is the world's family."

New York City Transit Museum Staff (2003) New York City Subway Trains: 12 Classic Punch-and-Build Trains! Salt Lake City: Gibbs Smith.

Explore and assemble historic subway train cars, with subway and history facts snuck in. This is a great way to explore the idea that the train car styles have changed over time.

Priddy, Roger. (2003) My Big Train Book.
New York: Priddy Books.

A board book for young children that has large photos of all kinds of trains, including the subway. Ideal for showing that the subway is a train, not another separate form of transportation.

Sweeny, Joan. (1998) Me on the Map.
New York: Crown.

A girl talks her audience through maps, taking us from a crayon floor plan of her room progressively outward, from her room to her house to her street to her town to her state to her country to the world. As she says, "...everybody has their own special place on the map."

Walker, Pam. (2000) Subway Rides.
Chicago: Children's Press.

One of the Welcome Books series about transportation, this simple chapter book has photographs of a boy on the subway and clear text. It walks a student through the step-by-step process of taking a subway to go to school with his dad, from walking down the stairs into the station, going through a turnstile, waiting on the platform, riding in a crowded car and exiting the station.

Weitzman, David. (2005) A Subway for New York.
New York: Farrar, Straus, and Giroux.

In October 1904, the first subway took passengers from one end of Manhattan to the other. This book uses photographs, diagrams, maps and text to describe the construction of the New York City subway system.

Will, Sandra. (2006) Transportation Inventions: From Subways to Submarines.
New York: Bearport Publishing

This new book is in a question and answer format that pairs two inventions together and asks, "Which came first?" The book focuses on how transportation technological innovations satisfy society's changing needs.

Teacher Resources:

Cudahy, Brian. (Ed). (2004) The New York City Subway: Its Construction and Equipment. New York: Fordham University Press.

This book was originally published in 1904 by the Interborough Rapid Transit Corporation, who built the first New York subway. It was written by the IRT's engineers to explain how the subway was made and how it works.

Garn, Andrew. (2004) Subway Style: 100 Years of Art and Style in the New York City Subway. New York: Stewart, Tabori & Chang.

The New York City Transit Museum produced this book to celebrate the subway centennial and filled it with illustrations and photographs. The text and images trace the

development of the subway cars, stations, signs, maps, ceramics and more. The book focuses on the aesthetics, but also includes historical and cultural information.

Heller, Vivian with the New York City Transit Museum. (2004) The City Beneath Us: Building the New York Subway. New York: W.W. Norton & Company.

Made to celebrate the centennial of the subway, this book shows historical photos from the New York City Transit Museum along with an illustrated guide to the history of the subway. It will be particularly useful to show first graders that people built, constructed, dug and worked long and hard to create the subway system.

Websites:

<http://www.nycsubway.org/>

Packed with history, maps, photos and links to other resources, this website is a NYC subway source. You can also find charts of subway statistics here. For example: there are 31,180 turnstiles and 468 stations in New York City.

<http://www.nycsubway.org/perl/artwork>

This comprehensive Subway Art Guide is part of nycsubway.org's website and has tons of information on art in the New York City subway system. It currently lists 169 works of art in the subway, with titles and artists names included, along with the station where each of the works is found. Almost all artworks have photos, which is excellent for previewing and printing images for the classroom.

http://www.mta.nyc.ny.us/mta/aft/pa/pa_nyct.htm

This link is entitled "Arts for Transit" and it includes a link to much of the artwork found throughout the subway system. Users can click on a train line to discover what kind of art lies along each route and what station stops each work is at. The site misses several locations (notably the Delancy St. station, including others) and should be used in conjunction with another art site, included in this list. This site serves as a great introduction for a discussion of the subway as a public space.

<http://www.mta.nyc.ny.us/mta/network.htm>

MTA Facts at a Glance explains the magnitude of the mass transit system in New York City and gives lots of interesting statistical facts, such as the number of MTA employees, passengers on the average weekday, miles of rails, and number of subway stations.

<http://www.npr.org/templates/story/story.php?storyId=4105942>

NPR's NYC Subway Turns 100

This collection of radio reports that can be downloaded mark NPR's celebration of the New York City subway's centennial. Particularly of interest is the feature on Manhattan's deepest subway station and the people who built it, Subway Art: New York's Underground Treasures and Celebrating New York's Subway in Songs and Film.

Bibliography

Crain, William. (2000) Theories of Development: Concepts and Applications. New Jersey: Prentice Hall. Pp 110-139.

Charney, Ruth. (1992) Teaching Children to Care: Management in the Responsive Classroom. Massachusetts: Northeast Foundation for Children.

Dewey, John. (1938) Experience & Education. New York, NY: Collier Books.

Gardner, Howard. (1988) "Challenge for Museums: Howard Gardner's Theory of Multiple Intelligences." in Hand to Hand. 2/4, Fall.

Mitchell, Lucy Sprague. (1971) Young Geographers: How They Explore the World and How They Map the World. New York: Bank Street College of Education.

New Explorations into Science, Technology and Math. "About NEST+M: The Lower School." Retrieved March 15, 2006 from the World Wide Web:
<http://www.newexplorations.org/NESTWEB/HTML/NAVIORG2.HTML>

Rogovin, Paula. (2004) Why Can't You Behave? The Teacher's Guide to Creative Classroom Management. New York: Heinemann.

Taba, Dr. Hilda. (1971) A Teacher's Handbook to Elementary Social Studies. United States: Addison-Wesley Publishing Company.

University of the State of New York and the State Education Department. "Social Studies Resources Guide with Core Curriculum." Retrieved April 13, 2006 from the World Wide Web: <http://www.emsc.nysed.gov/ciai/socst/pub/sscore1.pdf>

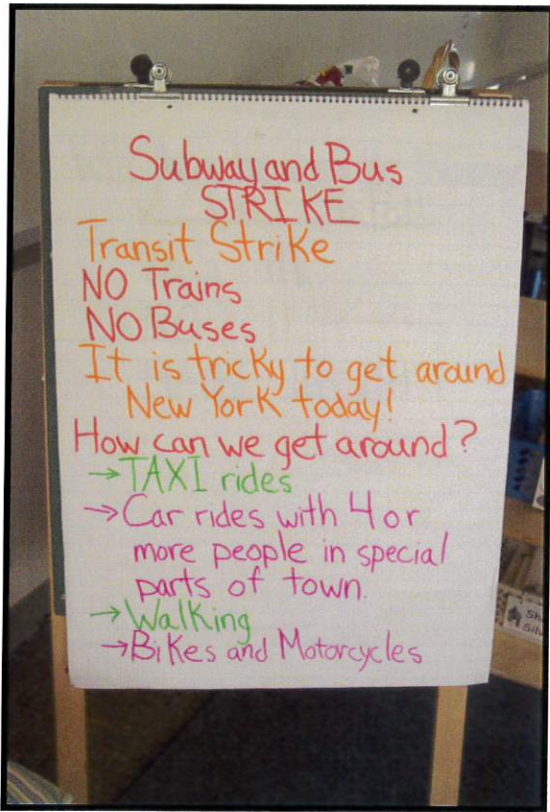
Vygotsky, Lev. (1978) Mind in Society: The Development of Higher Psychological Processes. Edited by Michael Cole, Vera John-Steiner, Sylvia Scribner and Ellen Souberman. Cambridge: Harvard University Press. Chapter 6: "Interaction between Learning and Development," pp. 79-91.

Wadsworth, Barry J. (1978) Piaget for the Classroom Teacher. New York: Longman. Chapter 5: "Knowledge—A Construction of Reality."

Appendix

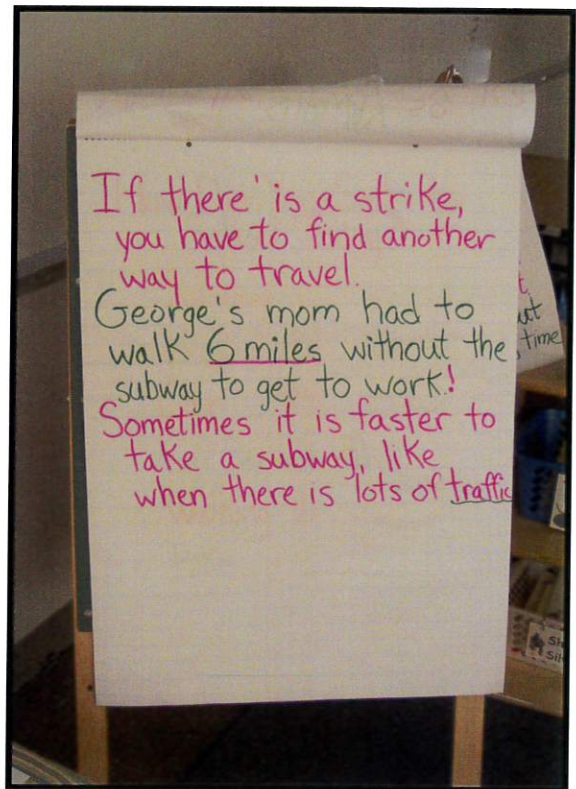
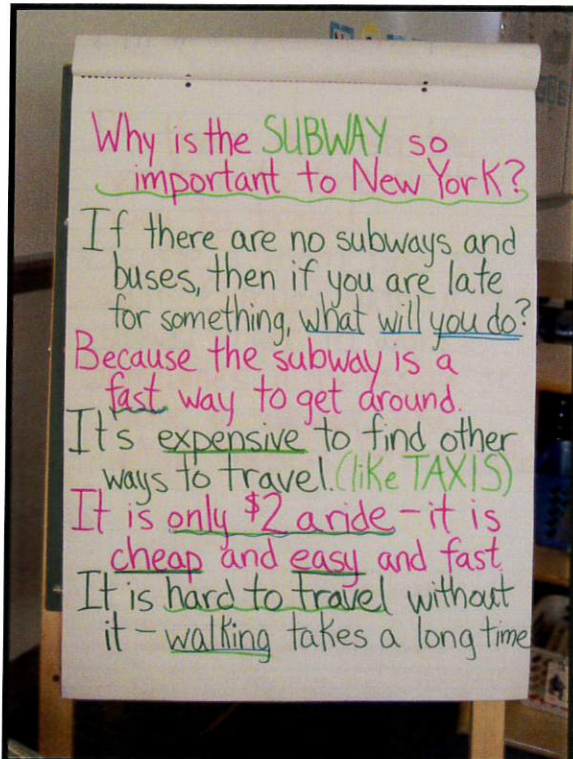
2005 Subway Strike.....	80
Worksheets and Trip Sheets.....	81

The 2005 Subway Strike



During the Subway Strike in December 2005, the lives of my first graders changed visibly! All of my students were talking about the strike and how it affected their families. We had many conversations about what a strike means. Here are some of my children's ideas from our discussion.

My students brainstormed about why the subway is so important to New York City.



Subway Interview

What is your name? _____

Do you ride the subway? _____

Where do you usually travel on the subway? _____

What lines do you use the most? (circle the answer)

1 9 2 3 A C E N R Q W

F V B D L S 4 5 6 J M Z

How much time do you spend on the subway each day?

Do you enjoy your time on the subway? yes no

Why or why not? _____

What do you do when you are riding on the subway?

Sit Read Other: _____

Listen to Music Talk to a Friend _____

How Do You Get to Work?

My _____ gets to work by:

Subway Car Bus Walking

Bike Other: _____

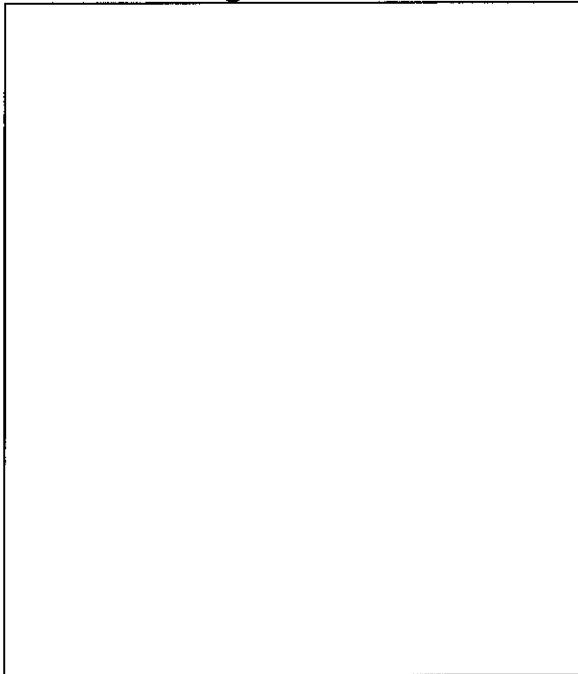
My _____ gets to work by:

Subway Car Bus Walking

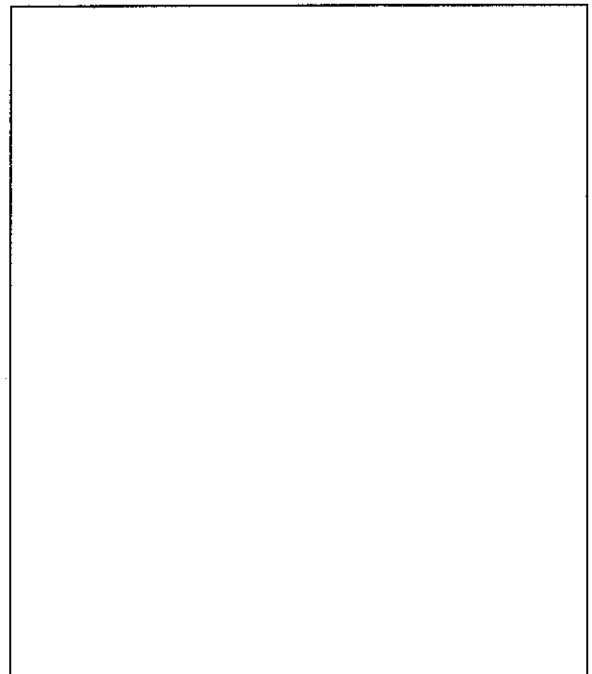
Bike Other: _____

Draw a picture of how your family travels:

Going to Work



Going to School



What Makes a Subway a Subway?

Search the Delancy Street Station for all of the things that subway stations need! Stick together and keep safe.

Stairs

Benches

Green Ball

Mosaic Art

Information Booth

Advertisements

Vending Machine

Passengers

Turnstile

Rails/Tracks

Uptown Sign

Train

Subway Map

Downtown Sign

Street Map

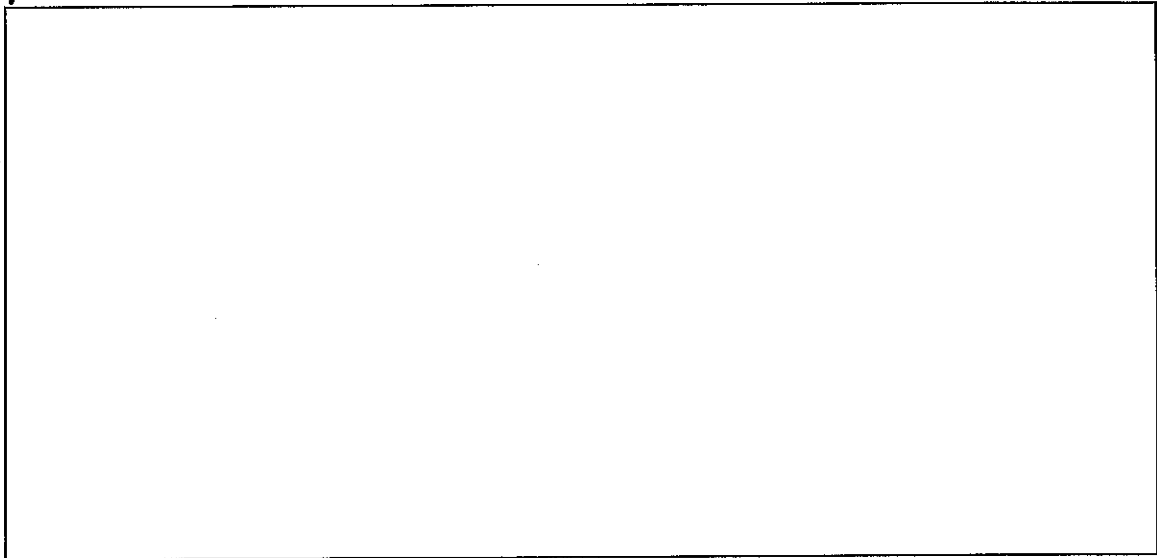
Train Label

Circle the trains that come through this station.

A C E 1 9 2 3 F J M V D B 4 5
6 L 7

How do you know which trains stop in this station? _____

Draw a picture of one interesting thing that you see.



Why did you choose to draw this?

Name _____

Date _____

Subway Fare: How Much Do We Need?

I will need _____ dollars to travel to East Broadway.

I will need _____ dollars to travel back to Delancy Street.

Write a **number sentence** that helps you know how much money to bring for our trip:

I need _____ dollars for our trip!

How much money does the whole class need?

There are _____ students in class. Each student needs _____ dollars.

Show me how you can find out how many dollars does the entire class need altogether:

The class needs _____ dollars for our trip.