It was apparent after my third graders took their math benchmark in the spring, prior to the Math TAKS test that number lines were a struggle for my students. Although we’d practiced skip counting, clap counting in both guided and independent practice, several of my students got questions about number lines incorrect. After analyzing the data further, what really confused my students were number lines with fractions, particularly counting by fourths. We had already made a large class number line with fourths and several other activities, but I realized that perhaps the students were still struggling because counting by fractions is so abstract. Taking the results from the benchmark to drive my re-teaching, I started to think that maybe drill, drill, drill would help my students understand the pattern of the fourths. I thought of several ways to practice drilling including math work-outs (jumping jacks, push-ups, crunches) practicing patterns and skip counting. I also wanted to incorporate patterns by fourths throughout our day and thought that the best way to include this extra practice was during transitions. So, I began having the students count to line up in before specials, lunch, when moving from the carpet back to their desks, when waiting for Materials Managers to pass out papers (etc). For example, if we were on the carpet doing a read-aloud during reading time and I was ready for the students to back to their desks for an independent assignment, I would say to the students, “Okay, while you’re walking to your desks we’re going to count by fourths starting with the number 3. By the time we get to the number 7, I’d like everyone to be sitting quietly with your pencil ready.” Students then stand up and count out loud, with the directions in mind and say with me “3, 3 1/4 , 3 2/4, 3 3/4,  4…”. It’s great when I stop counting out loud and listen to the
students lead themselves in the pattern counting. I observe students rocking their body to the right and left, getting a sense of the rhythm and feeling the pattern. By the time we get to the final number, the students are ready for the next thing… this is what I call a productive mathematical transition!

Commentary:

This strategy has proven to be very effective. We’ve done it for several weeks and the individual progress of students was easily observed. For example, I knew who my struggling math students were based on classroom participation and previous assessments, so I really made it a point to watch those students during the pattern counting transitions. In the beginning, these lower students would hesitate saying the next number in the pattern, appearing insecure with their knowledge of the fourths; however, with more and more practice, these students were no longer followers (waiting for their peers to say the number and echo it). No, instead these particular students would walk proudly to their desks or walking to get into line, with a sway and a smile because they finally understood the pattern. After incorporating pattern counting transitions into our classroom, majority of students got pattern and number line questions correct on subsequent assessments, displaying great progress from the initial benchmark scores. Aside from the proven academic benefits of this strategy, pattern counting transitions also became the perfect antidote to a 3rd grader’s need to have some focused purpose during movement about the room. I’d struggled with transitions and trying making sure students were quietly returning to their desks, ready for the next activity. It was great to taking even the simple transition of walking to do something new as a learning opportunity. The fact that 3rd graders are always moving and doing something new meant for lots of learning opportunities. A success!

Name of Strategy_____ Mathematical Charades

Submitted by_ Karen Morrison __________________________________________________________________________________ MAT Year 2008

Into which category/categories does your strategy best fit?
(We will try to organize these for ease of use)

Reading  Cooperative Learning  Inductive Learning
English  Assessment  Classroom Management
Social Studies  Technology  Communication
Mathematics  Differentiation  Professional Development
Science  Questioning  Parent Involvement
Foreign Language  Presentations  Early Childhood
Theatre  Discussion Techniques  Young Adolescence
Art  Curriculum  Adolescence
Games  Kinesthetic/Movement  Music
Description of Strategy/Activity/Assignment

Mathematical Charades is a great way for mathematics to come alive in the classroom. I have a large ESL population in my classroom, and sometimes it’s sometimes it’s difficult for those students to understand and visualize all the important components of a math problem. For long Objective 6 word problems, I try to read them with the class, but then act out what’s happening. However, I thought instead of the teacher always being the actor, the students should have an opportunity to act out the math problems and experience the steps of how to create, plan and perform the math. I modeled first my expectation and then split the students into 5 groups. Their first task was to create a word problem on a sheet of paper I provided. They could choose between addition, subtraction, multiplication or division. The students worked together to think about what might be fun to act out in front of the class. For example, one group wrote the following SWA (Some Went Away) Subtraction problem: There were 80 cookies on the shelf at Miss Piggy’s store. While Miss Piggy was busy cleaning her store, some thieves came and stole some of the cookies! When Miss Piggy looked again she only had 60 cookies left. How many cookies did the thieves steal? After the students wrote their problem (either one-step or multi-step), I approved it and had them show me their plan and equation used to solve it. Their next task was to write a script and figure out their props and blocking. Once the group had created a list of props, I allowed the group to use my materials to make what they needed. I provided them with various strips of cloth, felt pieces, buttons, construction paper, Manila paper, staplers, tape, markers, crayons, plastic baggies, paper plates, pipe cleaners and colored pencils. The groups then had about 25 minutes to get their costumes and props ready. We turned our classroom into a theater and turned off the lights, with only the back lamp in our reading area on. The whole class sat as the audience and I explained that while they were watching the mini plays, their job was to guess what kind of math problem was being acted out, what the equation would be and how to solve and find the answer. The students did great acting jobs, and when they were done, they called on the audience to write the equation (etc.) on the board. Mathematical Charades was a great way to combine theater and math.

Commentary: One success of Mathematical Charades was the ability for the students to use their imaginations. In order to get ready for the math TAKS test, my students had to do several paper-and-pencil assignments. We did several Objective 6 word problems in our math notebooks and for homework, but Mathematical Charades allowed my students to still meet math objectives, but in a creative fashion. The cooperative effort was also a positive effect of this strategy. Students with 4 or 5 of their own ideas really had to listen to one another and combine their thoughts to make a quality performance. Some groups had trouble with this cooperative effort, wanting only their ideas on paper and that provided great dialogue for us to discuss how to be a productive group member. Students really had to examine their own behavior and come up with more pro-active approaches to finishing the assignment. From an academic stand-point, students were really engaged with solving the math problems. In particular, many students had struggled with understanding what’s really happening in a division problem, separating into groups and with identifying division problems. To actually see 21
cookies being separated into 7 plastic baggies, my students started raising their hand saying, “It’s division! The cookies are being separated into groups! There will be 3 cookies in each bag!” Majority of students were able to visualize their math word problems when they worked them at their desk. I will use the mathematical charades strategy in the future.