Shapes From Folded Paper

Paul Adams
Grades 9 & 12, Chemistry
Beall High
Allegany County

Following is a great hands-on activity for all age groups. I use it for the shapes of molecules, but so many other uses spring to mind. The names for the shapes are those that chemistry gives them, but you can ignore the names altogether and apply them however you see fit. I hope you have as much fun with this as my AP Chemistry class does.

1. Visit www.beallhigh.com/library/molecularshapes.gif for my graphic handout.
2. Cut the handout lengthwise along the center line.
3. Tape the two halves together (side by side) and trim the excess margins.
4. Snip off the incomplete triangles at either end—or, if you'd like to make a permanent shape, leave them attached and use as tabs on which to apply tape or glue.
5. With the lined side being the outside, fold the strip inward along the solid lines.
   a. **Triangle:** Assemble a triangle by folding inward along the creases. Fold each triangular section into the one before it (see Fig. 1). Always fold inward along the crease, so the lines are visible.
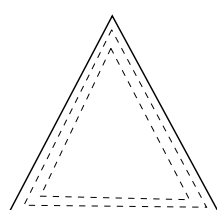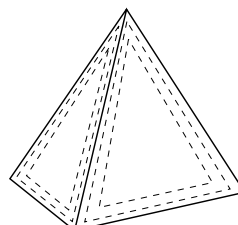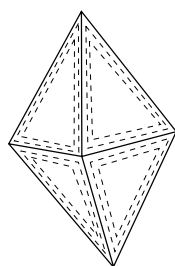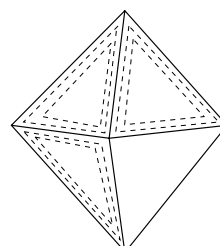

Figure 1   *Figure 2*

Figure 3   *Figure 4*

   b. **Tetrahedron:** For the four-sided tetrahedron, unfold three of the triangle sections and form the shape in Fig. 2.
   c. **Trigonal Bipyramid**: To assemble this pyramid on top of a pyramid (six sides), unfold two more triangles. With some practice, you get the shape in Fig. 3.
   d. **Octahedron**: This eight-sided shape can be made using the same sides as the trigonal bipyramid. Rearrange as shown in Fig. 4. Note: Two of the sides are open. ∎

Maryland Teacher of the Year, 2003–04

Each year, we honor Maryland's 24 Teachers of the Year by devoting an issue of *Maryland Classroom* to their favorite lessons or instructional strategies. Congratulations to all the teachers you'll meet in these pages.

Deducting Out-of-Pocket Expenses

The Internal Revenue Service is reminding teachers and other educators to claim out-of-pocket expenses for such items as textbooks, computer equipment/software, and classroom supplies on their 2003 tax returns. The deduction is available to educators in public and private elementary and secondary schools.
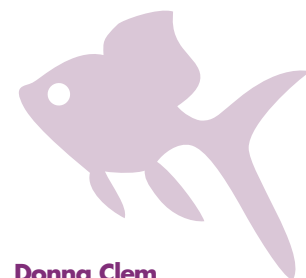
To be eligible, you must work at least 900 hours during the school year as a teacher, instructor, counselor, principal, or aide. You may subtract up to $250 of qualified expenses when figuring your adjusted gross income (AGI) for 2003. This deduction is available whether or not you itemize deductions on Schedule A.

Last year's Job Creation and Worker Assistance Act instituted the deduction for 2002 and 2003 only. For more information, call the IRS Tele-Tax system toll-free at 1-800-829-4477 and select Topic 458, or read it online at http://www.irs.gov/taxtopics/tc458.html. ∎

The Wind

Monica Carr
Kindergarten
Liberty Elementary
Baltimore City

After reading "Wind," a poem by Meish Goldish, introduce some related vocabulary words: *wind*, *breeze*, *strong wind*, and *gale*. Use the words in sentences that help define them.

- Wind is air that is moving.
- Wind that barely moves the leaves on the trees is called a breeze.
- When the wind blows hard enough to sway trees, it is called a strong wind.
- When the wind breaks twigs or branches, or blows down signs, it is called a gale.

Experiment #1: What Moves Most

Objective Students will test the wind's strength by blowing several objects to see how far they'll move.

Materials cotton balls, leaf, pencil, tissue, crayon, masking tape, prediction chart, graphs, crayons, marker

Procedures
1. Test the following objects: cotton ball, leaf, pencil, tissue, crayon.
2. Ask students to predict which object will need the most blows to move between two points marked with masking tape. Record the predictions.
3. Blow the objects.
4. Graph the results.

Experiment #2: Air Is Real

Objective Students will prove that air is real by blowing through a straw and into a balloon.

Materials straws, cups, balloons, water, paper towels

Procedures
1. With students, blow air through the straw onto your hands. Discuss what happens.
2. With students, blow through the straw into a cup of water. Discuss what happens.
3. Blow up a balloon. Ask students why the balloon gets bigger.
4. Have students squeeze the balloon to feel the air.
5. Put the top of the balloon under water and let the air out. Discuss what happens.

Experiment #3: Bubble Fun 1

Objective Students will blow bubbles and determine who blows the most in 10 seconds.

Materials bubbles, clock with a second hand, chart, illustration story

Procedures
1. Arrange students in groups of 5–7 and have each student blow bubbles for 10 seconds.
2. Ask them to record on a chart how many bubbles were blown by each group member.
3. Have them draw a picture of the person who blew the most bubbles and indicate how many bubbles he/she blew.
4. Share results.

Experiment #4: Bubble Fun 2

Objective Students will answer the following questions and illustrate their answers.

- Would you like to be a bubble?
- If you were a bubble, where would you go?

Materials writing paper, pencils, bubbles, crayons, fan, paper towels

Procedures
1. With students, blow bubbles into a fan. Watch the bubbles float away.
2. Discuss the two questions above and ask students to volunteer answers.
3. Have students illustrate their answers and share their pictures with the class.
4. List and discuss things that the wind blows. ∎

The Goldfish Experiment

Donna Clem
Grades 10 & 11, Biology & Physics
Aberdeen High
Harford County

Background

Goldfish respiration can be measured by counting the number of times the fist opens its mouth per minute.

Lab Materials

- two 600–1000 ml beakers
- two goldfish
- thermometer
- ice cubes
- two foam cups (one for ice and one for warm water)
- timing device (or a watch with a second hand)

Safety

Students should handle breakable equipment carefully and use protective eyewear and gloves. They should under-

Maryland's Regions

Maryland Teacher of the Year

Aaron Deal, Maryland Teacher of the Year
Computer Science
Salisbury Middle
Wicomico County

Enduring Understandings

- Maryland has distinct regions.
- There are differences among Maryland's regions.
- Location affects lifestyle.

Essential Questions

- How are Maryland's regions and counties arranged?
- How might location affect a population's commerce and lifestyle?

Evidence of Understanding

Your family has been exploring the possibility of moving and, after much deliberation, has agreed to move from the Eastern Shore to the Western, Capital, Central, or Southern region of Maryland. You've been asked to conduct research and present your findings to the family. They are looking for a location that will appeal to all family members based on each member's lifestyle preferences and occupational opportunities. You will create a nonlinear presentation using Power-Point that will supply the information your family has asked for.

Prerequisites

Students must understand...

- Inspiration software
- PowerPoint
  - cutting and pasting graphics from the Internet
  - inserting slides from other PowerPoint slideshows
  - hyperlinking with buttons, text, and drawn objects

Cooperative Group Work

Students will determine the most suitable region for their families' possible relocation and meet with students who have chosen the same region. These groups will create a PowerPoint slideshow documenting facts about the region, especially those that influenced their decision.

Learning Experiences

- Use the Internet to research Maryland regions and counties. Be sure to visit...
  - www.mdisfun.org/destinations/default.asp
  - www.op.state.md.us/#
  - www.marylandwine.com/mgga/vineyards/climate.html
- Discuss data gathered with group members and with other groups.
- Watch a videotape on life in Maryland.
- Use Inspiration software to create a concept map that depicts the organization of Maryland's regions and counties.
- Interview family members about occupational goals and lifestyle preferences.

Project Requirements

Groups will create a slideshow that includes...

- a picture of their selected region
- data about the region
- how the climate and location of the chosen region might influence residents' lifestyle (recreation, dress, traffic/transportation, jobs)

Each student will create a nonlinear presentation that includes...

- a map of Maryland that depicts distinct regions and counties
- data about each region hyperlinked from the map
- possible adjustments residents from the chosen region might have to make if they were to move to the Eastern Shore
- an explanation of how the region meets the family's needs in terms of occupational goals and lifestyle preferences
- how someone's lifestyle might change as a result of moving from the Eastern Shore to the chosen region

Technical Requirements

The PowerPoint presentation must have...

- an introduction slide
- an interactive map of Maryland with hyperlinks to each regional slide (created by cooperative groups)
- correct spelling, grammar, and punctuation
- easy-to-read slide design (take into consideration font/background color contrast, font style, font size, layout)
- buttons and links that work correctly ■

¡Hola Mexico!

Maria DiBello
Grade 1
Calvert Elementary
Calvert County

Our first-grade team at Calvert Elementary usually completes each social studies theme with a celebration day. After studying our neighboring country Mexico, we celebrate with a Fiesta Day. Wearing handmade paper *sombreros*, students from each classroom visit the other first-grade classrooms and partake in different activities. One classroom hosts the breaking of the *piñata*, which students in each classroom have had a hand in making. In another room, the children perform The Mexican Hat Dance. One classroom offers a nachos-and-dip appetizer...*muy delicioso*! In another classroom, the students hear a wonderful tale about Mexico's traditions.

In my classroom, the students craft Mexican *chicos* (boys) and *chicas* (girls) from clothespins. The children learn that, while a Mexican's everyday clothing is comparable to an American's, traditional clothing is worn during Mexican fiestas. During our Mexican culture unit, the children are exposed to this beautiful clothing through pictures, books, and authentic clothing articles. The children learn to identify and pronounce the names of these ceremonial clothes.

Men often wear highly decorated *sombreros* during The Mexican Hat Dance and *serapes* across their shoulders. Women wear colorfully embroidered *blusas* (blouses) and *poblanas* (long skirts) during fiesta time. Also, leather sandals called *huaraches* are worn.

To create this fiesta doll, each student needs the following materials:

- Wooden clothespin, preferably with a flat head
- Short piece of pipe cleaner (for a belt)
- Small strips of muslin or linen (for the man's pants and *serape* or the woman's *blusa* and *poblana*)
- White cardboard butter pat holder (for a *sombrero*)
- Small colored tissue square (for a flower)
- Plenty of colorful markers to design the brightly colored clothing
- Newspaper (for a desk protector during the muslin/linen coloring process)
- White glue (for attaching the *sombrero* and clothing to each doll)

Using colored markers, demonstrate how to add facial features and hair to the head of the clothespin. Color brown *huaraches* onto the bottom tips of the clothespin. Design the top of the butter tray to resemble a *sombrero*. Draw colorful designs on the strips of material to resemble ceremonial Mexican clothing. Dab glue to attach the clothing strips to the clothespin. Twist the pipe cleaner around the clothespin so that it resembles a man's belt or a woman's sash. (The pipe cleaner also secures the pants or *poblana* to the clothespin.) Finally, glue the butter tray or flower tissue onto the flat head of the clothespin.

When completed, the Mexican dolls can practice speaking their learned Spanish greetings to each other or count out the number of dolls in *español*. Enjoy! ■

Geometer's Sketchpad

Bernadette France
Grades 9–12, Mathematics
Colonel Richardson High
Caroline County

Tessellation: a repeating pattern that completely covers a plane surface, leaving no gaps or overlaps (see Figure 1).
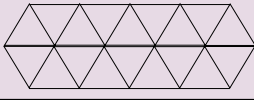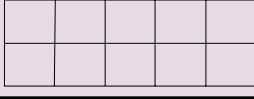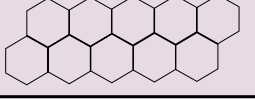
tessellation of triangles	
tessellation of squares	
tessellation of hexagons	

Figure 1

One of my favorite activities to do with my geometry students is a tessellation project using Geometer's Sketchpad software. I usually teach tessellations in conjunction with the Transformations chapter. The activity is great for all levels and any number of students, provided each has a computer on which to complete and save his or her projects.

My students complete this project in our main computer lab equipped with 30 computers. I give each student a step-by-step instructional handout and demonstrate the software tools first, so the kids understand how to navigate through the project. Then we complete the first few steps of the tessellation project together.

I demonstrate the early steps by projecting a computer image onto the wall of the lab, and the kids follow on their individual computers. While we complete the first few steps together, I can walk around and monitor their progress, helping those who have problems. Once they get the hang of how to construct the basic shape to be tessellated, students can then proceed at their own pace.

Once they have filled a page with their tessellated shapes, I show them how to color and shade them. An animation feature allows students to make their tessellation rotate around a fixed point, and I give extra credit to students who do so.

Students save their tessellations to their Student Data Lockers (password-protected folders that can be accessed from any computer in the school). I retrieve the completed projects and print them on a color printer in my classroom. I then display the finished products (with student approval) for the rest of my classes to see.

Many thanks to Tim Moore and Kathy Wood for their continued help each semester with this project. And much recognition goes to my kids, who discover cool, new things to do with this program each and every semester. I learn just as much from them as they do from me! ■

Game Day

Planning Stage

Students will:

- Explore the possible outcomes of many games of chance
- Select one or more games to combine into a new game

Gabriel DiGennaro
Grades 7 & 8, Mathematics
Dwight David Eisenhower Middle
Prince George's County

- Discuss ideas for an original game of chance
- Figure the mathematical probabilities for the selected game
- Decide what kind of pay-out would be the most profitable and enticing
- Finalize the selection of the original game
- Record and present a written summary of the planning stage

Designing Stage

Students will:

- Decide the game procedures and rules
- Determine the size of the game by designating space for each part (e.g., betting area, odds board, dice rolling, spinner)
- Discuss decorating options

- List materials needed and a plan to acquire them
- Choose a method to attract players
- Draw a plan (to scale) that models the game
- Submit a list of the game rules

Students will submit a drawing of the game, a summary of how the game is to be played, and the rules. You could ask them to make predictions on possible winnings, justify their determination of the pay-out money, and write an equation to predict winnings.

Construction Stage

Students will:

- Accumulate materials needed to construct their game
- Submit a drawing modeling their game board, making sure they have designated areas for each game part (This should be drawn to scale if students are capable—a good time for algebra and geometry.)
- Participate in a trial of their game board (Have them record any flaws and report these findings to the group for discussion.)
- Get approval of the model drawing from all group members and the teacher
- Make a poster stating the rules
- Construct the game board according to the plan

Trial Stage

Students will:

- Play their finished game to make sure the rules are clear and to adjust them, if necessary

- Check for endurance of the game board and game pieces and correct flaws in them
- Report to the teacher the amount of floor space or number of tables needed for the game

Game Day

- Assemble students into groups of six. Give each student "$100." The student and group with the most money at the end of Game Day are the winners.
- Arrange the room according to the needs of the students. (Using the perimeter of the room allows for the best traffic flow.)
- Give a limited amount of time for game set-up.
- Have students prepare a schedule that enables each group member to play each game. (When you announce the time limit for Game Day, students should divide the time equally among all members of the group.)

Evaluation

- Create a worksheet that students will use when rating each game. Determine point values for each aspect of the game you want rated—enjoyment, fairness, attractiveness, profitability, clarity of rules. (Good time for a rubric!) Distribute one worksheet per group.
- Once all group members have played each game and completed the rating worksheet, add your score to the others. Average all seven for the final score total.
- The wealth of data generated will lend itself to many graphs and analyses. ■

A Visit from the Gingerbread Boy

'Tis the week before Christmas and all my reading intervention students have visions of presents dancing in their heads. How can I keep them actively engaged in learning at such an exciting time? The gingerbread boy comes to my rescue with activities that require reading and writing but are disguised as fun.

Day 1

- I present a rubric to assess students' reading, writing, and cooperation for the week's unit of work.
- Pairs of students use a graphic organizer to summarize the literary elements (characters, setting, conflict, resolution) of a version of the gingerbread boy/man story they know. One student serves as a recorder, and the other presents the pair's version to the class.
- I read *The Gingerbread Man*, retold by Eric A. Kimmel, aloud to the class.
- Students compare orally the literary elements in the book to what they remembered and recorded on their graphic organizers.
- I introduce other versions of the story:
  - *The Cajun Gingerbread Boy,* rebaked by Berthe Amoss
  - *The Runaway Tortilla* by Eric A. Kimmel
  - *Gingerbread Baby* by Jan Brett
- I share autographs and pictures of the authors and we discuss geographic settings and their influences on each story. Students locate settings of the books on a map. We discuss cultural and language differences (French and Spanish) among the versions.

Day 2

- Students select the version of the story they wish to read.
- I group students with others interested in the same story.
- Each group reads its book and prepares to present it to the class by:
  - reading the book aloud,
  - performing it as a radio play,
  - drawing a mural of the plot of the book, and
  - presenting the group's original idea.

Charlene Fraser
Middle School, Reading
Heather Ridge School
Frederick County

Day 3

- Small groups present their book to the class.
- Students complete a chart that compares the literary elements of the three versions (see Figure 1).

Day 4

- The class reads the recipe for gingerbread man cookies and determines the ingredients and equipment needed to make them. Then I divide the class into small groups and assign jobs. (Groups are determined by the level of cooperation demonstrated in previous activities.)
- Each group follows the recipe to make the cookies.
- While the dough chills, students read the directions for decorating their cookies and diagram their designs on paper cookie cutouts.
- Groups roll out the dough, cut out the cookies, and bake them.
- While the cookies are baking, students may play the Gingerbread Man match game at www.quia.com/custom/20919gate.html. Small groups then create their own match games on index cards for the book they read and presented.
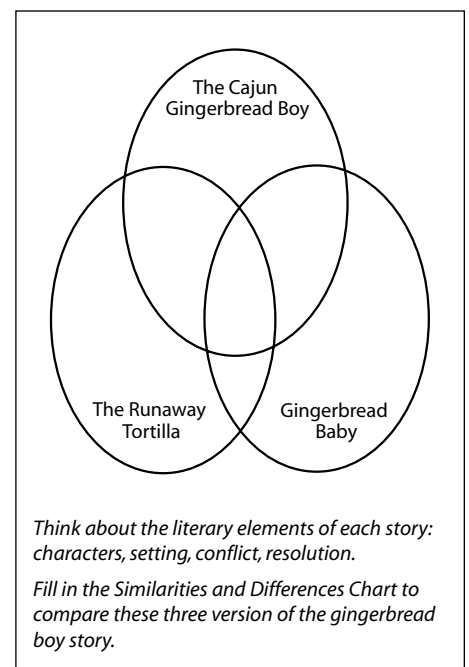
Day 5

- Students respond to the following: *Decide which version of the gingerbread boy story you like best. Now write a paragraph to tell me which was your favorite. Be sure to give several reasons for your choice and details to support each reason.* If time permits, students may share their responses.
- Students decorate their cookies, and I allow them to sample one.
- Groups exchange and play the Gingerbread Man match games.
- Students and I assess their performance during the week using the rubric.
- Students take home decorated cookies for their families, as well as fond memories of reading intervention class this week. ■

Think about the literary elements of each story: characters, setting, conflict, resolution.

Fill in the Similarities and Differences Chart to compare these three version of the gingerbread boy story.

Figure 1

A Barrel of Monkeys

As a fourth-grade teacher, I've found that writing is one of the most difficult concepts for students in the elementary grades to understand. But I've discovered a writing strategy that's motivating and appealing to my students. The strategy involves three bananas, three monkeys, and a barrel of monkeys—metaphorically speaking.

Introduce the three main topics of your writing as your three bananas, for example: "My three favorite toys are my Nintendo (banana #1), my remote-controlled car (banana #2), and my bicycle (banana #3)."

Karen Linamen, Finalist
Grade 4
Westover Elementary
Somerset County

Then introduce your first paragraph below the topic paragraph as the first monkey, Bing. In the Bing paragraph, provide two details supporting why Nintendo is one of your favorite toys. Repeat the process with Bang—the second monkey and the second supporting paragraph—providing two details on why the remote-controlled car is one of your favorite toys. Repeat the process with Bongo—the third monkey and third supporting paragraph—providing two details on why the bicycle is one of your favorite toys. Conclude your composition with the Barrel of Monkeys—the last paragraph summarizing the previous three.

Using Bing, Bang, and Bongo, students can easily see if they've included all the steps in the writing process. Peer review and revision are relatively painless because students have a visual picture of what should appear in the writing.

Then give students a disk to take to the computer lab, along with the rough drafts of their compositions, and have them type up their revised copies. My students love the fact that they have their own disk, and revising their rough drafts becomes a pleasure, as they can use Spell Check and Grammatik for help.

You can monitor students' progress and work with some individually while others work independently. You might also have students add computer-generated illustrations, graphs, or charts, and print out their final copies.

Ask students to read their compositions aloud in the classroom. It makes them feel successful and allows them to share writing strategies—giving struggling writers ideas for enhancing their skills and giving advanced writers different techniques to try out.

I love teaching writing because it's now a pleasurable experience for all. As the students advance in their writing, they add more details to their paragraphs and develop their own distinct style. What thrills me more than anything is when students have advanced enough that they ask me if they have to use the Bing, Bang, Bongo method anymore. It's this ownership of their writing and their writing style that tells me I've been effective. ∎

Class in a Bubble

Have you ever wished you had something that could really spark your students' imaginations and whisk them away to Never, Never Land? Have you ever wished you could tie your lesson up into a neat little package? Well, let me help. How about a classroom in a bubble?

I came across this idea years ago at a science/math camp, where we made black, heavy-gauged plastic classroom bubbles—our own planetariums—to help teach the night sky. However, Garrett County is fortunate to have its own real planetarium for students to visit. So I changed this dark classroom into a light one—using a heavy-gauged clear plastic bubble—and now it's part of our Under the Sea/Ocean unit.

Richard Stevens
Kindergarten
Kitzmiller Elementary
Garrett County

The children's reaction to the bubble is always the same—they're amazed, their eyes light up, and they're bursting with all sorts of questions. Once the children help me set it up and blow in the air, we go inside where I introduce the unit by reading *Swimmy* by Leo Lionni. I ask the children if they'd like to create an undersea world of their own, complete with plants and fish.

We spend a lot of time in our undersea bubble, reading and talking about the little world we've made. Following are the materials and resources I use to make it come alive.
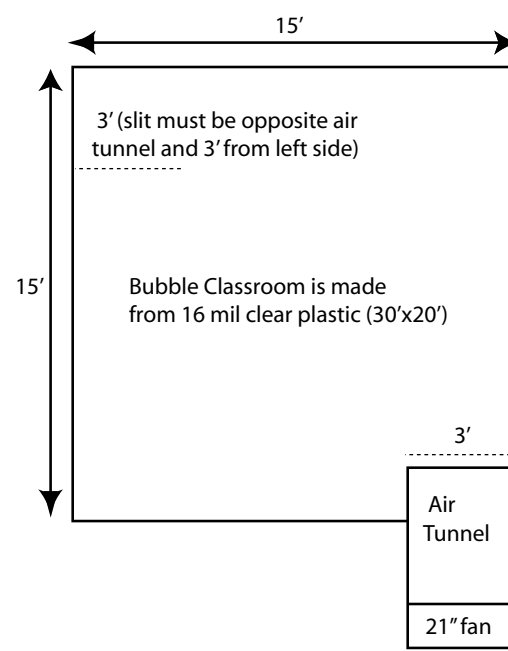
Books

- *The Magic School Bus on the Ocean Floor* by Joanna Cole
- *A House for Hermit Crab* by Eric Carle
- *Ocean Animals* by Michael Chinery
- *How to Hide an Octopus & Other Sea Creatures* by Ruth Heller
- *The Rainbow Fish* by Marcus Pfister

Other Resources

- The Preschool/Kindergarten Mailbox, 1991 (Sea Life)
- The Preschool/Kindergarten Mailbox, June/July 1994 (Fish)
- The Primary Mailbox, June/July 1994 (Ocean)
- Project Wild Aquatics
- National Geographic films and magazines
- Students' imaginations!

Materials

- 16 mil gauged clear plastic sheeting—30'x20'. (You should be able to get a piece cut from the bigger roll—usually 100'x20'—at any hardware store.)
- duct tape (lots of it and don't buy the cheap kind)
- fishing line
- 21" box fan and extension cord
- any materials you'd like to put in your own world

15'

3' (slit must be opposite air tunnel and 3' from left side)

15'

Bubble Classroom is made from 16 mil clear plastic (30'x20')

3'

Air Tunnel

21" fan

Directions

1. Lay the 30'x20' plastic sheet out completely and fold lengthwise (so that its dimensions are 15'x20'). Cut from the width and save a 10'x5' section. Now dimensions are 15'x15'.

2. Double-fold the sides together all the way around (taping as you fold with heavy-duty duct tape, but leave open seam for an air tunnel opposite your doorway).

3. Fold over the 10'x5' section (saved from the sheeting) lengthwise, so it's 5'x5'. Double-fold where the sheeting joins up and seal with duct tape (leave the remaining two sides open.) Attach this air tunnel (diameter) around the open seam. Tape a box fan to tunnel blowing inward. You can adjust air flow as needed to keep the bubble inflated.

4. Make a 2'–3' slit in the plastic in the opposite corner from your air tunnel. This is where students will enter and exit. (As students get in, the air will rush out. Pinch the slit shut and the bubble will fill again.)

5. Hang the sea creatures you've created from fishing line. Poke a pin hole in the plastic and knot your line through the top of the bubble. (Tape won't stick to its inside.)

It's best to hang everything inside the bubble. This helps keep things in order as you inflate and deflate. Remember, it can also be used by older students; they love to help put it together. When you're finished using the bubble, just take everything from inside and fold up into a neat package to store away. Enjoy and have FUN! ∎

"Bee" a Reader

Research shows that the more a child reads books for pleasure at home the better he or she performs on reading assessments such as CTBS. Much as children become better athletes by practicing their sport of choice, children become better readers by reading. To that end, staff and parents at Winter Street Elementary have embraced the "Bee" a Reader Take Home Reading Program instituted schoolwide five years ago after being piloted in one third-grade classroom.

Teachers receive money each year to put toward developing a classroom library with a variety of books—of many genres and levels—from which students may choose. Each day boys and girls may "shop" for a book that they'll take home to read to or with a family member. Students bring the books home in a bag, along with a form on which to record the book title and a parent's signature. When a student reads 10 books and the form is full, he or she turns it into the teacher, who records the information on a classroom chart.

As the reading teacher, I reward students for reaching specific goals. Students who have read 100 books attend a Literary Luncheon, where they share favorite books and authors, and each receives a free book with a nameplate de-

Pamela Michael, Finalist
Reading
Winter Street Elementary
Washington County

claring him or her a 100-book reader. When students reach 200 books, they attend an Ice Cream Sundae Party, where they make their own sundaes while listening to stories told by a local storyteller. All rewards tie back to reading. For instance, top readers enjoy local plays or author readings.

The media specialist and I plan two schoolwide events each year to celebrate student reading. Midyear we invite a published author to the school, and at the year's end we host a play, puppet show, mime, or storyteller.

Yes, test results have improved, but the real reward is the students' improved reading ability and the smiles on their faces as they share with others the books they're currently reading. ∎

Books and Beyond: A Schoolwide Reading Challenge
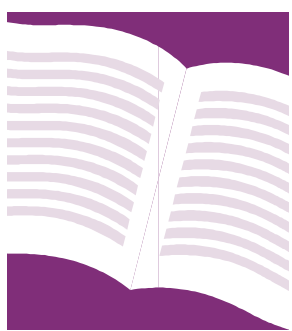
Nancy Phillips
Grade 3
Sandy Hill Elementary
Dorchester County

Because I'm always looking for ways to encourage reading, I help promote a schoolwide reading challenge. Books and Beyond is a reading challenge involving students and staff in grades 1–5. Its goal is to increase the recreational reading habits of both students and adults.

Each student's and staff member's name is posted on a central wall in the school. The program requires participants to obtain eight stickers in order to receive the gold medal award, which is a large gold sticker on the wall and a medal attached to a ribbon that students and staff may wear.

To earn each sticker, students in grade 1 must read 15 books, and students in grades 2–5 must read 300 pages. Thus, gold medal readers have read books or 2,400 pages. Upon reaching the gold-medal level, students are encouraged to begin on another round of eight stickers. For those who achieve this, a reading pin is added to the gold-medal ribbons.

The staff is also challenged to earn the eight stickers, and their progress is shown on the reading wall as well.

The first year of the challenge was a success—with 130 students meeting the gold-medal requirement and earning 109 medals behind the originals. Both students and staff have become more enthusiastic about reading and sharing books. This year's goal is to read at least 1 million pages.

Birding Through the Year

George Radcliffe, Finalist
Grade 7, Science
Centreville Middle
Queen Anne's County

Introduction

In my life science classes, birds are used as a theme for labs and activities throughout the year. Students are trained as researchers for the Maryland Bird Breeding Atlas Project, a 5–year study of the birds breeding in every area of the state. Students learn to use ArcView, a Geographic Information Systems (GIS) mapping program, so that data can be spatially portrayed. They learn basic bird auditory and visual identification skills and organize into committees covering areas such as specific species, mapping, and data-quality control. Queen Anne's County is undergoing a rapid increase in growth, and the data collected allows students to examine first-hand the effect of this growth on organism biodiversity.

The birding theme helps integrate the curriculum and serves as the justification for the content and many of the skills students must learn. In addition the project:

- involves the students in authentic science, where they work side-by-side with the scientific community;
- involves their families, since the data collection predominantly occurs at home;
- integrates science with the other disciplines, as it involves journaling, mapping, and geometric analysis of land use;
- integrates nature observation with the latest technology;
- generates data and suggests problems for student research projects; and
- provides valuable supplementary data to the Maryland Bird Breeding Atlas Project.

September: Introduction to Birds and Scientific Journaling

Students begin their quest into the world of birds through some basic feeder observations. All begin a Nature Journal, which they maintain throughout the year.

October/November: Introduction to GPS and GIS

Students learn the basics of Global Positioning System (GPS) and ArcView GIS mapping. Each student finds the coordinates to his/her house and plots the house in a GIS map. Students then identify the birding block in which their property is located and examine historical data for bird species found within that block.

January/February: County Owl Hunt

Students learn the calls of four possible resident owls and begin logging observations. Data is plotted in Arc-View, and range maps for each owl are generated. Students then compare current ranges to historical data.

March: County Feederwatch

Students and families make bird observations from their properties and around the county during the 3rd week in March. They calculate diversity, compare to previous years' data, and look for patterns and trends.

April–June: Breeding Bird Survey

Students record, document, and provide evidence of birds breeding in their areas. All confirmed breedings are mapped and subjected to quality control. Confirmed data is submitted to the Maryland Bird Breeding Atlas Project. Students also investigate ranges for orioles and woodpeckers, our target groups. Teams of students use ArcView to examine relationships between species and land use. This year, we're specifically examining the relationship between forest size and species.

Web Site

Students maintain a comprehensive Web site of their activities and data. This information and several other activities can be found at: www.qacps.k12.md.us/cms/sci/radcliff.htm. ∎

Think, Show, Tell

A Framework for Solving Application Problems

Math students often have difficulty working through real-world applications. My pre-calculus and AP statistics students have been using the following framework for solving application problems. We call it the Think, Show, Tell method.

Think

- Read the problem and determine your objective. "What do I need to find?"
- Reread the problem and determine what information is pertinent to it.
- Determine the appropriate process for solving the problem.

Show

- Display the work you did to solve the problem or explain how you solved it.

Tell

- Explain what your answer means within the context of the problem. (I usually have students write a sentence or a short paragraph.)

Many students have no idea where to begin when solving applied or word problems. Think, Show, Tell provides them with a starting point; it also helps them make sense of the true meaning of their answers.

As an extension of this process, I often have students present their work and answers to the class. Most students use Think, Show, Tell as an outline for these presentations. ∎

John Rose
Mathematics
Kent County High
Kent County

Think, Show, Tell.

Goldfish

Continued from page 1

Experimental fish		Control fish	
temperature in degrees C	respirations/breaths per minute	temperature in degrees C	respirations/breaths per minute
9			
12			
15			
18			
21			
24			

Table 1

stand the purpose and procedure of any activity involving live animals.

Experiment

Place two beakers on your desk. Mark one **E** for the experimental fish. Mark the other **C** for the control fish. Place aquarium water and a goldfish in each beaker.

Measure the temperature of the water in each beaker with your thermometer and record it.

Control fish: Starting temperature: ___ °C

Experimental fish: Starting temperature: ___ °C

Don't do anything to the control fish! You'll let its temperature remain the same throughout the experiment.

Practice counting the fish's respirations. Work as a team.

Add ice to the experimental fish beaker. Use your thermometer to measure the water temperature. When the temperature reaches 9° C, remove the ice. Now it's time to take data on the fish's respiration. Have one student keep time for one minute while another student counts the respirations. Record the data in Table 1.

Next, measure the temperature of the control fish's water. Count its respirations for one full minute. Record this data in Table 1.

Very carefully add a small amount of warm water to the experimental fish so that its water temperature rises to 12° C. Again, time and count the fish's respirations for one full minute. Record the information in Table 1.

Record the control fish's water temperature. Time and count its respirations. Record in Table 1.

Repeat these steps until you have increased the temperature of the water around the experimental fish to 24° C. Each time you measure the breathing of the experimental fish, be sure to measure the control fish's water temperature and respirations also.

Conclusions

1. What is the purpose of the control fish in this experiment?

2. Compare your experimental fish data with other groups. Is there a pattern evident among the collected data? Explain.

3. What was the independent variable in this experiment?

4. Do you think there are any other variables involved? If so, state them and justify your statement.

5. Was your prediction correct?

6. Graph the experimental fish data collected as an xy scatter plot. What other type of graphs might be appropriate for this data? This graph may be produced on a TI 83 calculator, Logger Pro and computer display, or an Excel spreadsheet. Review the graphing rubric provided by MSDE.

7. Determine the slope for the line of best fit.

8. Write an equation for this line.

9. Provide an analysis of your graph in a single sentence.

10. How would the control fish data look if graphed?

11. Calculate the average number of respirations for the control fish. ∎

Forming Partnerships

Patricia Teague
Grades 11 & 12, Biology
Leonardtown High
St. Mary's County

Do you ever feel that your students get tired of hearing you day in and day out? Have you ever wanted to make their learning experiences more meaningful and applicable to everyday life? Then consider forming partnerships with other teachers in your school.

Leonardtown High's technology teacher and I combined our Biology II and Technology I classes to team-teach a unit on biotechnology. It worked well because the Biology II students were experienced with the required laboratory procedures, and the Technology I students were experienced with computer-based data documentation and presentation. The two groups of students worked together, collected data, and created PowerPoint presentations for data display.

Another partnership has been formed between our science department and the Dr. James A. Forrest Career and Technology Center. Leonardtown's AP chemistry students and the Center's criminal-justice students learn all about crime-scene investigations from a course team-taught by our chemistry teacher and a deputy from the sheriff's department.

This type of partnership allows teachers of different disciplines to brainstorm, learn new things, and develop innovative ideas for the classroom. Students benefit by forming collaborative and cooperative learning groups with other students of varying backgrounds.

Partnerships can also be formed with resource personnel from your school community. Most school systems participate in the Maryland Envirothon, sponsored by local soil-conservation districts. Envirothon's co-chairs (www.mascd.net/envirothon/who.htm) can give you the names of forestry, aquatics, soil, wildlife, and urban-management professionals who can provide training in these fields. Most of them have educational departments and would be more than happy to work with you and your students. Visit www.mascd.net/envirothon. ∎

Tone Lessons

Anne Gellrich
Grades 9–12,
English
Bohemia Manor High
Cecil County

The English I High School Assessment and English/Language Arts content standards call for students to read literature and "identify features of language that create voice and tone and explain and give evidence to support perceptions." The following lesson makes learning to identify tone easier—even for ninth-graders.

First, students need the vocabulary of tone. Begin by providing your students a list of words that may be used to describe tone. You can find some on the Internet or create your own. A list of 35–50 words gives students a broad range of words with which to work. Classify the words as positive or negative and discuss their meanings, especially their connotations.

Next, project onto the wall or board a paragraph from a text you've been reading. A descriptive paragraph often works best. Avoid dialogue at this point because students will get confused between the tone of the speakers and the tone of the narrator. Have the students point out single words that show the narrator's emotion. Then ask them to point out images that do the same. Work your way through the text, also pointing out figures of speech and allusions that add emotion if your students seem confident.

Finally, have the students choose 2–3 words that may describe the tone of the passage. This is a good time to reinforce the tone words' meanings and connotations.

Give students practice with more passages from different texts until they're confident with the process. Then move on to writing a paragraph about tone. ■

Tone: The tone of a literary work is the author's attitude toward his or her audience and subject.

Sample Tone Words (Grades 9 and 10)

Accepting
Admiring
Amused
Angry
Apologetic
Bitter
Bored
Commanding
Confident
Confused
Contemptuous
Daring
Desperate
Detached
Diplomatic
Dreamy
Fanciful
Fearful
Grateful
Happy
Hopeful
Horrific
Humorous
Impatient
Inspired
Ironic
Joyful
Judgmental
Melancholy
Mocking
Neutral
Nostalgic
Objective
Peaceful
Playful
Poignant
Proud
Resentful
Rude
Sarcastic
Satisfied
Sentimental
Serious
Shocking
Solemn
Somber
Surprised
Sympathetic
Uncaring
Urgent

Prime-Time Programming

Background

Who determines what television programs we see on the air? Corporate media owners, station managers, producers, and advertisers all have a say, but the ones who make the real decision are the viewers. Data on audience viewing is compiled by services such as Nielsen Media Research, and this research determines a program's rating. High ratings favorably influence program decisions because advertisers want to buy time on these programs. To be financially successful, networks and stations need programs that are a big hit with viewers.

This learning activity gives students an opportunity to see how the process of program selection works and how ratings influence what programs stay or go.

Materials

Periodically, local newspapers print the Prime-Time Nielsen Ratings for a television viewing area (see Figure 1, © Nielsen Media Research, Inc.). These ratings indicate the top-rated programs and break down the data by day, date, and time across major channels. Distribute a copy of this data to the class.

Procedures

Introduce this scenario to the class: You are a producer at a major television network that has just completed a season of big-budget flops. If you don't come up with a hit prime-time program, the network will lose advertising revenue—and you may lose your job! You must devise a pilot (introductory episode) for a program that you feel will be a sure-fire ratings hit.

The rest of the class will act as the network executives whom you must convince to produce and air your show. Students may work on this activity individually or in groups.

Barbara Jeweler, Finalist
Grades 9–12, Television
Production/Internship Coordinator
James Hubert Blake High
Montgomery County

1. Study the ratings sheet provided to determine which types of programs and which time slots get the highest ratings. Use these ratings as the basis for your program plans and decisions.

2. Write a proposal for the pilot program you create, including the following:

Program Information

- Title of your new program
- Type of program (genre)
- Basic plot
- Running time ($\frac{1}{2}$ hour, 1 hour, etc.)
- Demographic appeal (Whom do you want to watch your show?)
- Potential actors to play the central characters

Figure 1

Scheduling Information

- Day and time the program will air
- Shows that will run before and after the program (How will you keep your audience from changing stations?)
- Shows that are broadcast opposite your program on other channels (Why will your program have the greater appeal and win this competition for viewers?)

3. Prepare a 3–5 minute verbal pitch of your proposed program to present to the "network executives." Remember, the future of your network is at stake… and so is your job! ■

Teaching With TLC

They're labeled *oppositional*, *hyperactive*, *moody*, *depressed*, and *explosive*. Despite these hurdles and various learning and emotional disabilities, all of my students qualify to pursue their high school diplomas. Their resilience, courage, and character inspire my quest to ensure their success.

Each day begins with an enthusiastic greeting and some TLC. I ask for their highs and lows from the day or night before, and I write them on the board. They write them, too—in complete sentences in their journals. This is how we relate and connect to each other's interests, problems, and joys.

During Integrated Language Arts, each student receives instruction in a very small group. Our routine enables students to rotate through five instructional "stations."

In *writing workshop,* they work through the writing process according to the curriculum and always publish their work. Bound, illustrated, and displayed on our bookshelf, their books are shared with anyone searching for quality literature.

During *phonics*, they complete hands-on activities—playing file-folder games, using magnets to spell words, taking part in an ongoing class Scrabble game, and writing definitions in self-made dictionaries (also published).

During *computer,* they're free to explore educational Web sites like www.kids domain.com and use software to practice reading skills.

Jaime Jezovnik
Grades 3 & 4, Special Education
Robert Moton Elementary
Carroll County

Independent reading is time dedicated to reading a book of their choice for enjoyment.

Finally, for *guided reading,* students choose their books from www.readingatoz.com. After reading their selected books, students establish ownership by binding them and adding them to their personal libraries.

At the end of Reading Rotations, each child receives at least one positive statement about what he or she accomplished for the day. The public, specific encouragement motivates my kids to continue the good work.

Then the class enjoys read aloud, primarily because they can actively participate in the process. During read aloud, I assign each student a different colored Post-it note. When they connect with the text, I stick their colored note in the book. They love to see their Post-its poking out! We also play catch, tossing a Koosh ball to each other and identifying the type of connection we make.

At every turn, my students participate in decisions about how they'll receive their instruction and evaluate the learning process. Facilitating all these activities requires constant collaboration with other teachers, so the exceptional staff at Robert Moton Elementary remains flexible, knowing that the plans can change according to the students' interests. The close, respectful relationship we develop with our children inspires their achievement and, of course, our own.

Tips: While I always follow the recommended lesson plan (which helps a lot when planning five different reading groups), I routinely add something multi-sensory. Anything warm and fuzzy helps my students connect to text in a memorable way.

During lunch and recess, my students prefer to play chess. It's helped them remain calm in a chaotic atmosphere, demonstrate good sportsmanship, and apply learning to leisure. ■

A+ Resources for the Geography Classroom

**Weldon Jones
Grade 7, Social Studies
Severna Park Middle
Anne Arundel County**

It seems everyone has a Top 10 list of something. So here's my Top 10 list of great resources for teaching geography.

1. The National Geographic Society Geography Bee is an exceptional way to get students involved in geography. The bee experience really piques students' interest in and excitement about geography. Students may progress from school-level bees to the Maryland Geography Bee and National Bee. (Large scholarships are available for National Bee winners.) This is a great activity to start or support at your elementary or middle school. To learn more, check out www.nationalgeographic.com/geographybee.

2. National Geographic maps are a great classroom resource. Go to the site's Educators' Home Page—www.nationalgeographic.com/education—to find black line maps with customizable features as well as a stunning variety of teacher resources.

3. The Ring of Truth video series includes "Mapping," a fascinating look at how geographers and cartographers mapped the earth. This remarkable film, created by Philip Morrison of MIT, is a bit dated but worthwhile, particularly for teachers or advanced students. It can be difficult to find, but is available through the main branch of Baltimore's Enoch Pratt Free Library and through Penn State University's lending library.

4. The *New York Times* Web site has hundreds of really well-designed lessons for all grade levels and abilities. Go to www.nytimes.com and click the Learning Network button. There are lessons galore for geography and nearly every other topic you might imagine.

5. The Maryland Geographie Alliance offers excellent summer workshops for teachers. It also has published a collection of lessons entitled *Geography in the Middle School: A Compendium of Lesson Plans for Social Studies and Other Subject Areas*. Visit www.mdcss.org/html/mga.html.

6. I haven't seen it on Oprah's Book Club list yet, but I highly recommend (for teachers and older students) *Longitude: The True Story of a Lone Genius Who Solved the Greatest Scientific Problem of His Time* by Dava Sobel.

7. The NASA Web site has maps and photographs taken from space. These can be used to explore the world in ways that geographers on the ground can only dream about. The site changes frequently and provides great material for lessons involving a technology component. See these amazing images at www.nasa.gov.

8. The National Oceanic and Atmospheric Administration Web site—www.noaa.com—can provide good source material for lessons. NOAA did a nice job of tracking Hurricane Isabel.

9. The U.S. Geological Survey Web site boasts some of the best build-your-own maps available. This site can be used to create lessons on many different types of mapping. Go to www.usgs.gov.

10. Finally, there's nothing like a well-planned field learning experience to make geography more meaningful. The Chesapeake Bay Foundation, in cooperation with the National Geographic Society, offers bay-oriented field trips as a part of the Chesapeake Classrooms program. A variety of truly excellent programs is available. Visit www.cbf.org and click the Bay Education button. ∎

Goal Getters: Building a Community of Learners

**Nancy Koza, Finalist
Grade 1
Phelps Luck Elementary
Howard County**

Witness 500 students and 70 staff members with voices raised in affirmation and celebration and you've arrived at Phelps Luck Elementary at 8:45 a.m.

I stand tall! I stand tall!

I take pride in my work, pride in my school, pride in my family, pride in myself.

I will achieve! I will achieve!

I stand tall! I stand tall!

This daily ritual is one of several important elements in building a community of learners, increasing motivation, enhancing learning, and providing students the tools they need to be effective learners—now and in the future.

One of our most exciting initiatives is Goal Getters. Through this schoolwide program, established by Phelps Luck Guidance Counselor (and Howard County Guidance Counselor of the Year) Tricia McCarthy, students identify individual and/or group goals, determine the steps needed to achieve them, devise a plan for doing so, and monitor and reflect on their progress.

Staff members spend about 5–10 minutes each day reviewing the goal-setting process and meeting with students to discuss their progress. And they spend a considerable amount of time building learning-to-learn skills that will help students plan for success. They also model the program for students by choosing professional goals and using "goal buddies" to motivate and monitor them.

Our first graders are engaged in behavioral, social, and academic goal setting. Goal-setting experiences, phased in throughout the year, include opportunities to establish what constitutes progress and to monitor it. Each experience allows students to develop real-world connections, so they can see the purpose and importance of learning specific skills and content.

Following are some of our Goal Getter initiatives and the steps students might follow to succeed in them.

Goal Getter: Record each student's performance on weekly math tests by creating goal and progress graphs. Send these graphs and a performance summary home to parents to show their child's success on the current math strategy and to let them know the next one to be studied.

Plan: 1. Practice strategy fact cards each night. 2. Pull out the "tricky" cards, solve the problems using manipulatives, write the facts, and review only those cards for 1–2 nights. 3. Review all cards the night before the test.

Goal Getter: Record each student's writing goals on cards and display them in the classroom. During student–teacher writing conferences, place a sticker on the card if the child's goal has been met. Once six stickers have been collected, send the cards home with the students so they can celebrate with their families. Choose a new goal.

Plan: 1. Reread your work carefully. 2. Use a yellow crayon to underline each place where you think you've met your goal (for example, you used capital letters, you used periods, or you used good describing words).

Goal Getter: Paint sticks—available at building supply stores—make great sight-word meters. As students reach established milestones, have them add a foam shape (e.g., butterfly, snowflake, star) to their meters.

Plan: 1. Practice your new sight words every day. 2. Make connections between words you know and new words. 3. Read the word wall. 4. Search for your words in books. 5. Use the Language Master to practice your words.

Goal Getter: Support independent reading by stenciling the number of books students read at home each month onto a piece of foam. Glue the foam numbers to colorful plastic visors. Students will wear them with pride!

Plan: 1. Set up a time to read with or to a member of your family. 2. Have your book ready. 3. Ask a family member to sign your reading log each day.

Goal Getter: Returning completed homework on time is an important goal for first graders. Record the class goal on a goal sheet and display it on the front chalkboard. As students return homework, have them place their paper handprints around the goal sheet to show pride in meeting the goal.

Plan: 1. Place your homework envelope directly in your backpack as soon as you receive it. 2. Set up a special place at home for keeping your homework envelope. 3. Try to work on your homework at the same time each evening. 4. Make sure your envelope is in your backpack before going to bed each night.

As a team and as a staff, we feel the Goal Getter program helps our students develop a positive academic identity, creates a learning environment that enables students to set and reach high expectations, and accelerates student achievement.

Each day we want our students to raise their voices in affirmation and celebration. Each day we want them to stand a little taller, take pride in their efforts, and acknowledge their achievements. ∎

Career Exploration via Mathematical Investigations

Letting students apply in a real-world setting their interactive mathematical and computer-programming investigations is often difficult. However, while teaching at Pocomoke High School, I've been able to nurture partnerships with several applied mathematicians and computer scientists at a nearby NASA Goddard Space Flight Center facility. From time to time, when feasible with their workloads and schedules, these NASA professionals help me show my students how the mathematical concepts they're learning are applied every day.

My students and I take a field trip to the flight center, where the employees and I have designed a project requiring students to develop and apply curve-fitting techniques. During the lecture phase of this presentation, the mathematicians and I develop statistical and calculus concepts encompassing linear least squares line theory and related equation derivation, measurement calibration, curve-fitting techniques, and refraction-correction estimation.

Following the lecture, the students are assigned to groups working with a NASA mathematician or computer scientist at some of the Center's computer facilities. Each student gathers experimental data from NASA instrumentation and then applies the curve-fitting concepts discussed in the lecture to a problem being investigated by NASA professionals.

This has proven to be a valuable lesson format and instructional strategy, allowing students to:

- learn mathematics through a unique applied approach;
- analyze real-world problems that require math for their solution; and
- observe the diverse make-up of the facility's professional staff and recognize that career opportunities in math and computer science are available to every student—regardless of sex, race, or national origin.

**Carvel LaCurts, Finalist
Grades 10–12, Mathematics
Pocomoke High
Worcester County**

You might also want to develop similar experiences with area businesses or local college/university personnel. ∎

National History Day

Elaine Tubb, Finalist
Grade 8, Social Studies
Milton Somers Middle
Charles County

As a social studies teacher, I'm an active supporter of the National History Day program since it aligns with national and state social studies standards. Students are required to conduct historical research, develop historical interpretations, and collect and evaluate information from primary and secondary sources.

The program's flexibility allows teachers to meet the learning needs of all their students. For instance, students are given a choice of topic and presentation format. They may work in small groups or individually. And they decide whether to present their findings as a research paper, media documentary, exhibit, or live performance.

To better prepare students for the rigors of high school, all eighth-graders at Milton Somers Middle are required to participate in the program. And in order to implement this program in all my classes, I need to provide structure, models, and scaffolding for my students.

To accomplish this, I developed status reports, which break the project down into 11 steps. By breaking the project into small chunks, all students are able to conduct their historical research and report their findings in their chosen formats. Having a highly structured format in place allows me to more easily monitor student performance and promotes greater student achievement.

I invite social studies teachers to visit my Web site (http://ccboe.com/teachers/etubb) to view the program I developed for my classes. Teachers are welcome to use any of the materials I've provided online, including a History Day schedule, parent letter, status reports, help-links for writing thesis statements and bibliographies, model process paper, and checklists for grading students' products.

I recognize teachers' need to modify materials to fit their own classrooms, so I've designed my site so that teachers using Microsoft Word can download, save, and amend these materials to suit their—and their students'—specific needs.

Teachers will also find links to Maryland History Day (www.maryland historyday.org), the state affiliate of the national program, which is sponsored by the Maryland Humanities Council, and to National History Day (www.national historyday.org), whose annual contest is held at the University of Maryland, College Park. These sites offer a wealth of additional resources to enrich social studies classes and your students' journey into historical research.

More social studies resources—from creating your own Web page to professional development activities—can be found on my site by clicking the Link to Teacher Resources button. I hope that other social studies teachers find this information useful, and I welcome your feedback at etubb@ccboe.com. ■

Becky Tubman
Grade 1
Chapel District Elementary
Talbot County

Doing the John Travolta

Learning how to read and write is very exciting and yet challenging for first-graders. Each day in our language arts class, we use a method of instruction called the Four-Block Model. The four blocks—that is, the four basic ways students have always learned to read—are Working With Words, Guided Reading, Writing, and Self-Selected Reading. A school or teacher usually chooses one of those methods in hopes of reaching most of the students. But with the Four-Block Model, we're able to reach all students by teaching all four methods every single day.

During the Guided Reading block, students focus on reading-comprehension skills. During the Self-Selected Reading block, students get to see themselves as readers and build fluency. In the Writing block, students learn to use their knowledge of phonics to write compositions. Along with applying phonics, they have an opportunity to practice penmanship and to learn about the writing process, grammar, and the mechanics of good writing. The Working With Words block allows students to explore words, word families, spelling, and phonics, and to see how they can use what they learn about words in their reading and writing.

Our class enjoys Working With Words more than any other block! Here's one of our favorite Working with Words activities.

A new word is introduced to the class using a game called "Guess the Covered Word." The game begins with the word spelled out in letter cards. However, each letter card is covered with a sticky note. Students ask me "yes/no" questions about the word as they try to guess it.

Questions may include: Is it a noun? Does the word have a short *e* sound in it? Does it begin with a digraph? As questions are asked, students begin to guess at the letters. When a letter in the word is guessed, I uncover the letter. Eventually, the students are able to guess the whole word. I then introduce the spelling of the word. We discuss its letters and the sound that each makes.

Next comes the really fun part! I model how to clap, stomp, and "John Travolta" the spelling of the word, and the class repeats the process with me. Everyone claps out the spelling of the word three times as they shout each letter. Next, everyone stomps out the spelling of the word three times as they shout each letter. Finally, everyone "John Travoltas" the spelling of the word three times!

John Travolta? Yes, this is the student's favorite part. Students swing their hips from side to side for each letter as they shout the letter's name. At the same time, they raise and lower their pointing hand—up and down and up and down—just like John Travolta in the movie "Saturday Night Fever." After the class does this, I cover the word back up, and we try to spell the word aloud again using the clap, stomp, and John Travolta method—but without actually seeing the word. This is definitely my students' favorite way of learning new words.

I close this Working With Words activity by asking for volunteers to spell the word aloud on their own from memory. (Students stand on their chairs to do this.) At last, we put the word on our Word Wall.

The Working With Words block is a favorite time for my first-graders. I encourage teachers to explore not only other activities to use during this block but to explore the Four-Block Model as a whole. ■

Paul Winfield
Grade 6, Mathematics
Southwest Academy
Baltimore County

The Simple Triangle

Whenever I put together a math lesson, I try to keep in mind the many ways students learn and retain information. I try to build interest in a topic (or skill) by making an idea fun and memorable. Not every lesson connects with each of the different learner types (tactile, visual, auditory, etc.), but I always get the most mileage out of activities that students can take home and share with their parents and friends. One activity that gets a pretty big bang for its buck is called The Simple Triangle.

In The Simple Triangle, students discover why the length of line segments matter when forming a triangle. In short, they learn that the sum of a triangle's two short sides must be greater than its longest side.

Materials

- three dice for every group of students
- plastic straws cut in lengths of 1, 2, 3, 4, 5, and 6 inches (Cut three straws in each size, so you have 18 straws total.)
- string for threading through the straws to form a triangle

Procedures (for teacher)

- Arrange students in groups of 2–5.
- Demonstrate how the straws must meet to form a triangle by threading the straws and placing an example on the chalkboard.

Procedures (for students)

- Toss three dice. Determine if a triangle can be formed by using the straw lengths that match each number rolled.
- Record the numbers and result ("Yes, it makes a triangle." or "No, it doesn't make a triangle.") on the data sheet.
- Make a record of all possible outcomes that will result in a triangle.

Record Sheet

Side A + Side B > Side C = $\triangle$

Example:
$$1 + 1 < 6 \neq \triangle$$
$$1 + 2 < 6 \neq \triangle$$
$$1 + 3 < 6 \neq \triangle$$
$$1 + 4 < 6 \neq \triangle$$
$$1 + 5 = 6 \neq \triangle$$
$$1 + 6 > 6 = \triangle$$

Questions

- Which combination of numbers will form a triangle?
- What pattern of numbers results in a triangle?
- How many triangles can be formed from the numbers rolled?
- Use letters and math symbols to express what you've discovered—e.g., (a + b) > c.

The greatest thing about this lesson is that it lends itself to teaching the properties of triangles, the classification of triangles, problem solving, predicting, measuring, and a whole lot more. ■

If you have any questions or comments about this publication, please contact Nan Mulqueen, editor, at 410.767.0475.