

Guidelines and Philosophy Behind Problem-Solving Activities and Games

(Also covered in the Lesson Plans given)

Goals:

1. To interest students in math and its many applications.
2. To increase computational skills as these basics have been deficient over the years
3. To increase problem solving techniques and understanding of math concepts and vocabulary
4. To let students know that I wasn't an A student in math, but had to work at it over the years, and love certain application as my aptitude will allow.

Methodology:

1. To start every topic to be studied with a game or activity which will increase interest for an upcoming lesson or just to provide a welcome break from the routine of lessons.
2. To provide meaningful activities which will cover a multitude of topics such as geography, sociology, or science where scale models are figured to visualize the solar system, planets, and distances
3. To allow each student to have his or her "aha moment," where the answer isn't immediately given by a teacher or student(s). In life, problems are not solved immediately. One method I use when running a class game is to let individuals who see a solution, once privately vetted, to take over my role as leader, until others "get it" and take over from that leader.
4. Eventually, students will paired up with a partner, and try the game or puzzle on each other. Extra credit might be to try the game or problem on someone at home.
5. Math, especially, at the upper elementary grades, has its own vocabulary which often comes from Latin or Greek roots. This root is often applicable to other vocabulary words. Example, the principle used in $3 \times 5 = 5 \times 3$ the *commutative principle* which comes from the Latin root, mutare, to change (position). Other related words would be mutate, mutilate, mutation. And, yes, spelling matters.
6. Students are encouraged to seek their own way of solving a problem, and in many cases have taught me much. It's OK for the teacher to be stumped or bested at a game.
7. Neatness and note taking, participation, and cooperation as a team of learners are encouraged and part of a student's overall assessment. Many errors are due to sloppy writing.
8. Students keep their records as well as the teacher to know what they need to work on, and what their grade is to date. There should be no surprises. EXAMPLE OF MY GRADING PLAN: At 7-8th level, 50% is on note taking, home work (started in class), attached worksheets, neatness, correctness; and 50% on Tests and Quizzes. (Missing or late assignments can come in for 1/2 credit before the test is given. Such does not bog me down, and keeps us all in the know. (I do phone home for so many zeroes not made up.) I also use use a weekly report system if needed. This worked for me, but may not for you. Tailor it to your comfort and style. (Most earned B's.)
9. For class management see See also [Student/Teacher Contract I developed](#) dealing with Rights and Responsibilities of Students, Teacher* (see note below)
10. Anything else you can think of which will insert your values and strong points. _____

*[Student/Teacher Contract I developed](#) dealing with Rights and Responsibilities of Students, Teacher I developed and used with my students, parents, and administration at Ralston Middle School where I taught from 1974-2004, and developed at Central Elementary School grades 5-6, from 1970-1974, in the Belmont Redwood-Shores School District, Belmont, CA.