Math-Ese Workshop

November 1, 2008

5th Grade – Math

Lines, Angles, and Triangles

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Objectives (P.A.S.S.)

Standard A: Geometry

1. A. Identify and describe the basic properties of Lines, Angles, and triangles.

Objectives: Ability to recognize and define each Line, Angle and Triangle, and know the similarities and differences of each.

A. Lines

1. Segment
2. Ray
3. Line

B. Intersecting Lines

1. Parallel Lines
2. Perpendicular Lines
3. Oblique Lines

C. Angles

1. Right Angles
2. Acute Angles
3. Obtuse Angles

D. Triangles

1. Equilateral Triangles
2. Isosceles Triangles
3. Scalene Triangles

Materials:


Introduction:

With any lesson that is given to students it is important to have as many exposures to the material as you can. We will begin this lesson on Lines, Angles and Triangles with a pre-test to identify what the students knows concerning this material. Then we will have a lecture, board games, field work, review, and post test. The purpose of this lesson at this time is to introduce Geometry to the students early in the school year. Saxon Math typically covers Geometry towards
the end of the year. This subject usually does not get the attention it deserves due to state testing.

Instruction Process:

Before we begin this lesson on Geometry, I think it is important to allocate enough time that we cover all aspects of the material. I have dedicated 5 class periods for this lesson on lines, angles, and triangles.

A. We will begin with a pre-test designed to see what the students know about lines, angles and triangles. Knowing how the students are leveled on this material will help in constructing the rest of this lesson. This pre-test will not take the whole hour, so we will begin our lecture after the pre-test has been completed. I am fortunate that my class does not have huge gaps between students in math. They are leveled close together.

B. The second day of this lesson we will complete the lecture portion of the lesson. We will concentrate on definitions, characteristics, similarities and differences of the above geometric figures. During this part of the lecture the students are encouraged to take notes and place them in their math folders. We have addressed visual and auditory activities. Also we have incorporated journal entries for vocabulary words.

C. The third day the students will begin the math lesson by playing board games. All the material on lines, angles, and triangles will be covered in this activity. The class will be divided into two teams. Each team will take turns answering the questions. If a team cannot answer a question the other team has the opportunity to answer. The team with the most points wins. During this activity we will use compasses and geo-boards to answer questions. This activity will address visual, auditory and tactile learning.

D. The fourth day of the lesson will include visual, auditory, and tactile learning. The class will be divided into groups of two. We will begin the lesson by learning how to build a Foldable. A Foldable is a 3-D, student made, interactive graphic organizer that gives students a fast, hands on activity that helps them organize and retain information. Foldables are designed to be used as study guides, for main ideas, key points, and record definitions. As the class is working on their Foldable, one of the groups will be asked to take the Canon-power shot digital camera outside to the school grounds and find real world angles, lines and intersecting lines and take pictures of these to satisfy their assignment. We will continue this routine until each group has had the chance to take two pictures and complete their Foldable.
Closure:  
To end our lesson we will review all of the material that will cover our lesson. There are many different ways to do this, but the most important thing to remember is to include all students. The review will be the last exposure to this material and it will drive home the lesson so the students can apply this material when asked. We will take post-test and record results on this last day of our lesson as well.

Assessment:  
Each student will take a pre-test and a post-test covering the material for this lesson. These tests will not be identical, but will be the same format and cover the same material. The two test will consist of, fill in the blank, T/F, and multiple-choice type questions.

Modification/Accommodations:  
I am fortunate this year the differentiation from top student to bottom student is not a wide margin. I did not make any modifications or special accommodations to this lesson plan. For future reference I can see this lesson might not meet the needs of some more advanced students as well as be too complicated for some special needs students. In the future if modification or special accommodations are needed I would deal with it as follows.

Advanced Students- I could require the advanced students to use Venn Diagrams to compare the similarities and differences between different lines, angles, and triangles. I could also modify the lesson for my advanced students by having them produce Foldables that just don’t record information but actually work problems. There are many other options a teacher could modify their lesson, it’s just an issue of how creative you can be.

Special Needs Students- These students could have trouble constructing Foldables, Venn diagrams, and charts with information about lines, angles, and triangles. To accommodate these students a teacher could construct flash cards with big bold print, questions and answers and have the student match the cards. Of course this might include the help of an aid at a resource table. With special Flash cards you could have your special needs students sort and match these cards. Again this is just a couple of ways to change up your lessons to accommodate special students.

Reflection:  
Overall I think the lesson was a success. Every student improved on their post test. We had an average increase of nearly 20% from pre-test to post-test. I was very pleased the way the students responded to the material. In fact they
seemed to enjoy making the Foldables very much. The hands on activities always seem to be a big hit with the kids. The students also mentioned the board games and use of the camera as highlights.

I feel like this Geometry Lesson was a success and our objectives were met. After completing the lesson I felt it might have been a little long. In the future I would break the one long lesson up into two lessons. I feel good about introducing this lesson early on in the year to give the students a leg up on the Geometry they will get more involved in later on in the year. I would defiantly give this lesson again.