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TOPIC: BLOCK IT – Using Manipulatives to Solve Math Problems

GRADE LEVEL/SUBJECT: Grades 1-3/Mathematics

OBJECTIVES (P.A.S.S.): Process Standard 1.1; 1.3
Process Standard 3.1; 3.2; 3.3

OVERVIEW: Students in primary grades need varied activities to help them learn basic facts and operations.

INTRODUCTION: This problem solving game uses pattern blocks to reinforce computational skills in a challenging format rather than the drudgery of drill.

INSTRUCTIONAL PROCESS: Students will

1. Use problem solving strategies such as guess and check and visualization to play the game.
2. Use mental mathematics to decide on the placement of pattern blocks.
3. Look for patterns.

RESOURCES/MATERIALS:

Pattern blocks
Paper on which to keep score
Calculator

ACTIVITIES:

1. Two players are needed to play BLOCK IT. Each receives three each of the following pattern blocks: green triangle, blue rhombus, red trapezoid, yellow hexagon.
2. Players agree on assigned points for each color (e.g. green=1, blue=2, red=3, yellow=6).
3. The game begins with one yellow hexagon starting block placed on the playing surface. This piece does not belong to either player.
4. The first player must place one of her/his blocks such that one side of the block is completely touching on one side of the block(s) on the playing surface. The scoring for each play is the sum of the values of the block placed and those that it touches on a side. Play continues until both players use all of their pieces.

For example, Player A selects a green triangle to play, therefore the green triangle (1 point) touches the

yellow hexagon (6 points) so 7 points (1+6) are scored. Player B then places a red trapezoid (3 points) such that it touches one full side of the green triangle (1 point) and one full side of the yellow hexagon (6 points); Player B scores 10 points (3+1+6). Player A places a blue rhombus (2 points) that touches one full side of the green triangle (1 point) and one full side of the yellow hexagon (6 points) which scores another 9 points (2+1+6) giving Player A a total now of 16 points. Player B continues play in this manner.

5. Students may use a calculator to help them keep score.
6. The player with the most total points after all pieces have been used is the winner.

CLOSURE: TYING IT ALL TOGETHER

1. Have students share their scores and strategies used.
2. What were the most points a player scored in one play in your game? the least?
3. Did students use the blocks with higher point values first or last?
4. Does Player A have an advantage by going first?
5. Is there a maximum score a player can earn?
6. If the pieces were assigned different values, how would that affect their play?

ASSESSMENT: The students should be able to explain to the class how they decided to place their pattern blocks. Were they concerned with making the highest score or just using up the pieces?

MODIFICATIONS/ACCOMMODATIONS: Students on an IEP can work with a student that is patient and willing to help them decide which pattern block to use and how many points they would make.

REFLECTION: This game is wonderful for a quiet activity to fill in when one group has completed a project. I keep pattern blocks packaged up and the students can help themselves to them, go to a corner or desk, and work together. They enjoy the competition and the computation skills are being learned with no hassle. The use of the calculator to total their columns also helps get them used to this technology.