

Algebra/Geometry Institute Summer 2008

BATTLE SHAPES

Faculty Name: Barksdale, Calvin

School: Leland Elementary School

Grade Level: 5th



Teaching objective(s)

3. Develop mathematical arguments about geometric relationships and describe spatial relationships using coordinate geometry.

- e. Label ordered pairs in the coordinate plane.

Instructional Activities Battleships (variation of Battleship, using graph paper)

This game is played using graph paper. The students receive a total of 4 shapes which represent the ships: a triangle (destroyer), quadrilateral (submarine), pentagon (aircraft carrier) and the hexagon (battleship).

Two players will take alternating turns calling out one coordinate per turn to try and hit each others shape.

Name Your Coordinate!

Before play begins, each student arranges a number of shapes secretly on the grid/graph paper. Each shape occupies a number of squares on the grid/graph paper. The number of squares for each shape is determined by the type of shape.

Shape	Type of ship represented
1. <i>triangle</i> - A polygon with 3 sides-	destroyer
2. <i>quadrilateral</i> - A polygon with 4 sides-	submarine
3. <i>pentagon</i> - A polygon with 5 sides-	airship carrier
4. <i>hexagon</i> - A polygon with 6 sides-	battleship

On each players turn, the player will choose a coordinate on quadrant I, II, III, or IV and call out its location by stating its ordered pair such as (3,7) or (4,5). Each grid square has a number/number coordinate that corresponds with the same coordinate on your opponent's grid/graph paper. To determine each coordinate, find its corresponding number on the left or right side of the quadrant and its number on the top or bottom grid. When a shot is called, the opposing player must tell whether the coordinates stated are a hit or miss. The opponent tells which ship has been hit (destroyer, submarine, airship carrier or battleship). Record the hit by placing a red square in the corresponding square

on the target grid. The opponent places a red square in the corresponding square of the shape you have hit on his target grid.

Incorrect Coordinates

If you call out a coordinate not occupied by a shape on the opponent's grid/graph paper, this is a miss.

Hitting all the Chosen Targets

Once all the grid points in any one shape are filled with red squares, the shape has been sunk. The owner of the ship must announce which shape was sunk.

Winning the Game

The first student to sink an opponent's chosen grid target wins the game.

3 Materials and Resources

- Two sheets of graph paper (per student)
- Shapes: triangle, quadrilateral, pentagon, hexagon (used to place on graph paper)
- pencils
- red squares (used to indicate hits)

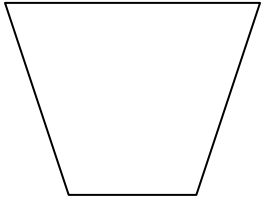
Grober, Keith *Mississippi MCT2 Coach Gold Edition Grade 4* New York: Triumph Learning 2008. pg. 142-145

Graph Paper. <http://www.paperprintout.com/paper/graph-paper/index.php> 06-24-2008

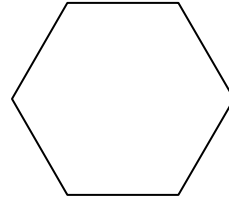
4 Assessment

- Observe students working in their teams to ensure that students can appropriately demonstrate the coordinates found on a grid point.

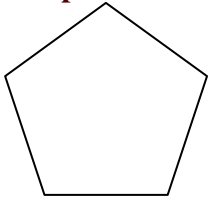
Quadrilateral submarine



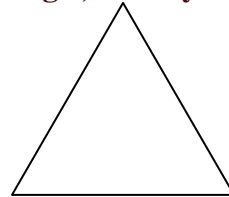
Hexagon, Battleship



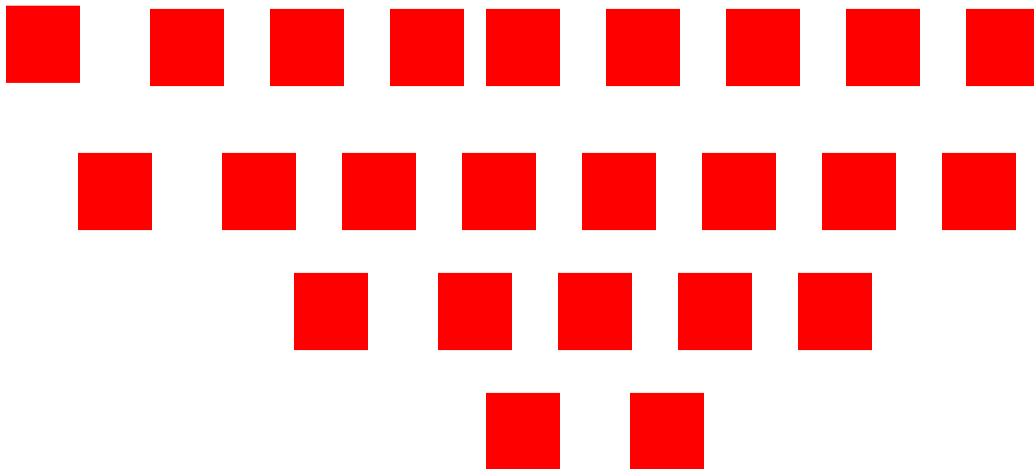
Pentagon, Airship Carrier



Triangle, destroyer



Hit Indicators



Attachment # 2

