SUMMING UP AIRCRAFT CARRIERS

Overview: When you visited the Puget Sound Navy Museum, you saw a real aircraft carrier's Ouija Board, used to plan where things will go on the deck of an aircraft carrier. Have students create their own Ouija board and put their math skills to the test!

Grade Level: 1-5

Time: 30 min.

Essential Questions: How many planes can you fit on the deck of your aircraft carrier? Don't let the planes touch and make sure you leave enough room to maneuver (take off/land, use the elevators, and move the planes around).

- <u>Grade 1</u>: Look at your aircraft carrier, what four shapes were used to make this drawing of an aircraft carrier's deck? *A. squares, rectangles, triangles, and trapezoids* How about the airplanes?

- <u>Grades 1-3</u>: Solve the following problem: Marco has been aboard the USS John C. Stennis for 7 months. He works in the Air Department, he manages the ship's Ouija Board, keeping track of where on the deck all the aircraft are at a given time. Marco parks 16 planes on the foredeck (front) of the deck, 4 planes on the aft-deck (back) of the deck, and 19 on the mid-deck. Two planes take off from the middeck. How many planes are parked on the flight deck? What information did you need to use to solve this problem? Was any of the information not needed or missing? Use your Ouija Board to see how many ways you can find to really fit the planes on the deck the way Marco did. Remember to not let the planes touch and make sure you leave enough room to maneuver (take off/land, use the elevators, and move the planes around). *A. 37 planes (16+4+19=39 39-2=37)*

- <u>Grade 3</u>: Use graph paper to help you sketch the rough shape of an aircraft carrier using three rectangles and two squares. Begin your first rectangle 11 units in and 4 units down from the top left corner, this rectangle should be 3 units wide and 5 units tall. Your next rectangle should begin 8 units in and 7 units down from the top left corner and measure 3 units across and 2 units tall. Next, measure in 9 units and down 9 units and draw a rectangle 6 units wide and 15 units tall. Now, beginning 10 units in and 24 units down, draw a 3x3 square. Finally, 13 squares in and 24 squares down draw a 1x1 square. Does your shape look kind of like that on your Ouija Board? What are the perimeters of the five quadrilaterals that make up your aircraft carrier? *A. 16, 10, 42, 12, and 4.* BONUS What is the perimeter of your aircraft carrier? *A. 60 units*

- <u>Grades 4-5</u>: Lindsay has worked aboard the USS John C. Stennis for 2 years and 8 months. Her boss has asked Lindsay to figure out what the deck area of the Stennis is. Lindsay decides that the easiest way to figure this out is to find the average length and width of the ship. After carefully measuring, Lindsay finds out that the flight deck is 1,000 feet long and the average width is 196 feet. What is the area of the flight deck?
A. 1000x196=196,000 ft^2

Washington EALRs: <u>Mathematics 1.3.B</u> *Identify and name two-dimensional figures, including those in real-world contexts, regardless of size or orientation*
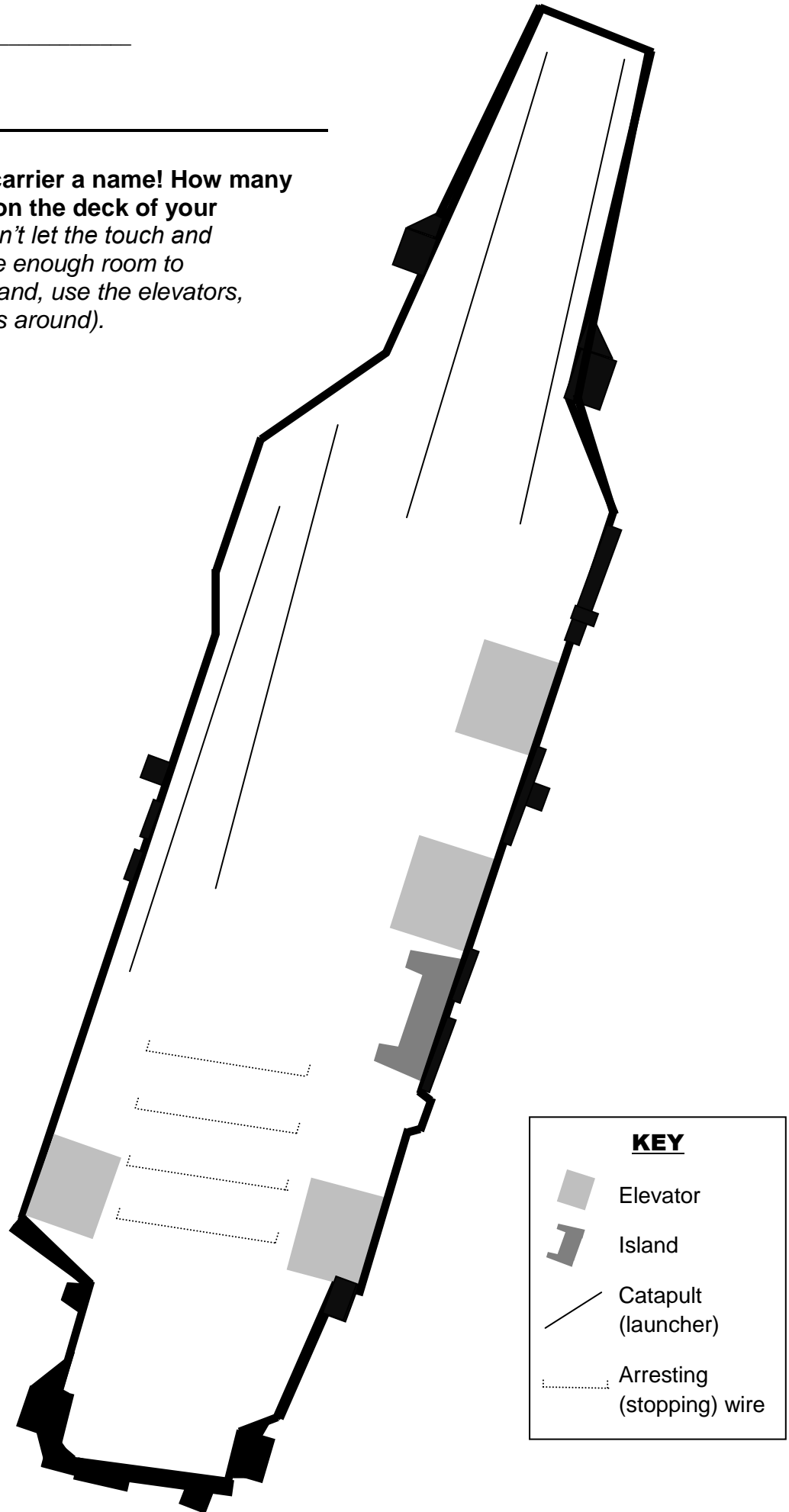<u>Mathematics 1.6, 2.5, 3.6, 4.5, 5.6</u> *Reasoning, problem solving, and communication*
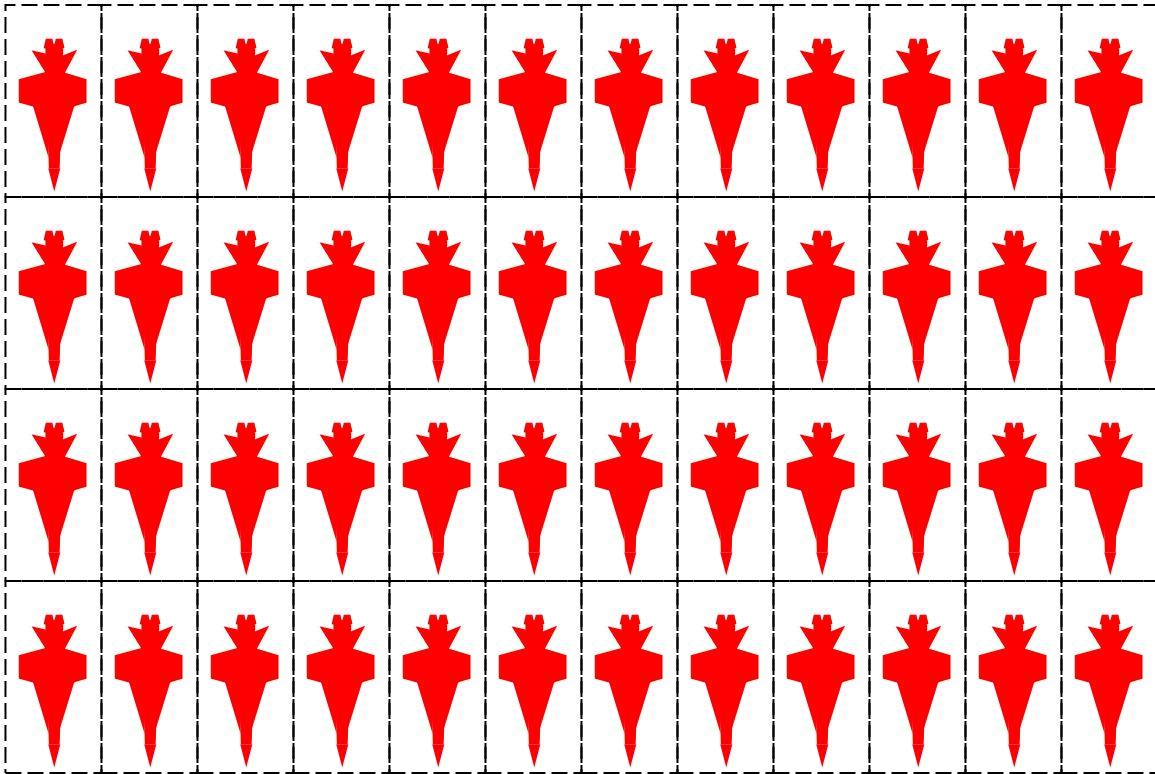<u>Mathematics 3.4</u> *Geometry*

Name: _____

USS _____

Give your aircraft carrier a name! How many planes can you fit on the deck of your aircraft carrier? *Don't let the touch and make sure you leave enough room to maneuver (take off/land, use the elevators, and move the planes around).*

KEY

Elevator

Island

Catapult (launcher)

Arresting (stopping) wire

Cut along the dotted lines then try to arrange these planes on your aircraft carrier!

Name: _____

US Naval aircraft are seen parked on the flight deck of the Nimitz-class nuclear-powered supercarrier USS John C. Stennis. Friday, May 11, 2007.
Photo by: David Bohrer (for The White House)

How many planes do you see on deck in this photograph? _____

Do you notice anything about the planes that might allow more to fit? _____

_____

The Nimitz-class nuclear-powered supercarrier USS John C. Stennis is seen with aircraft parked on deck Friday, May 11, 2007.
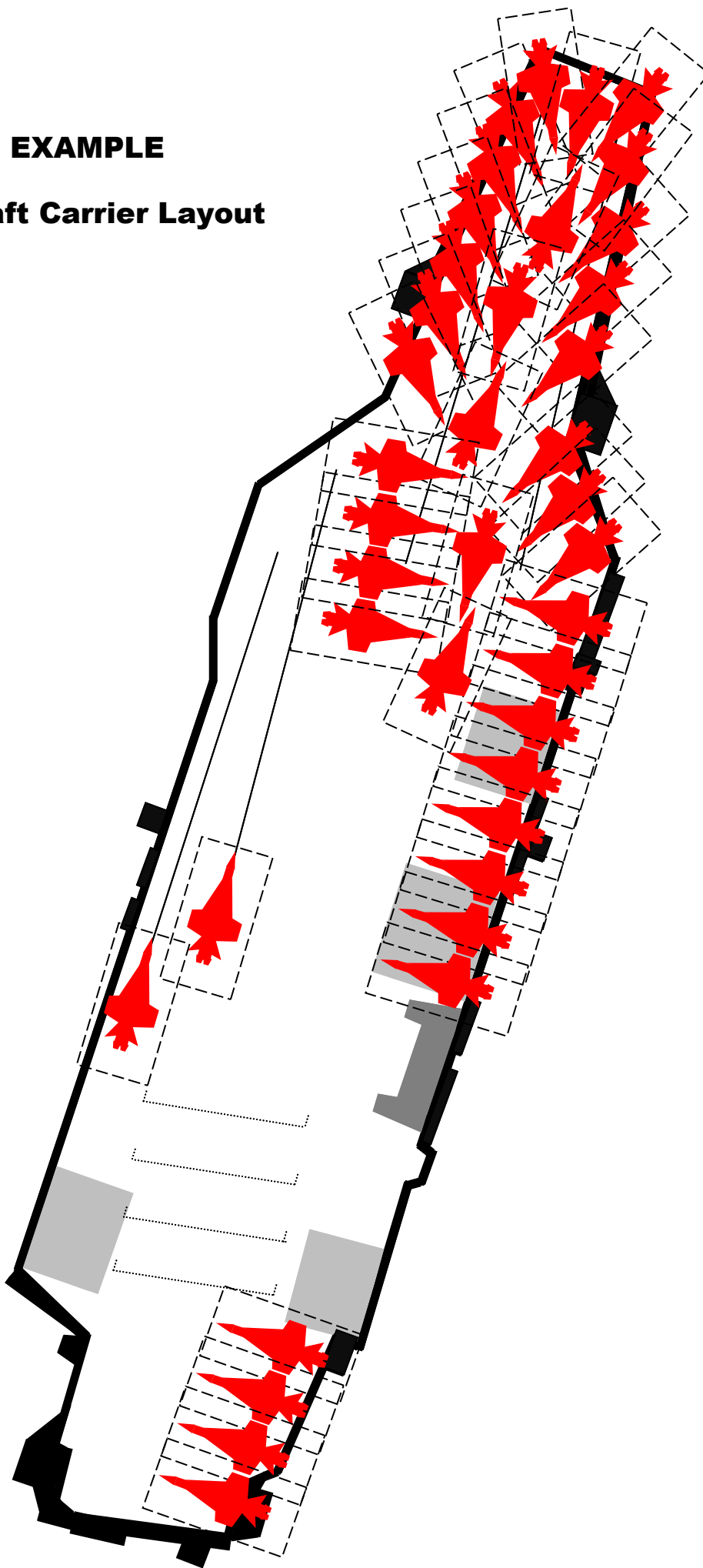*Photo by: David Bohrer (for The White House)*

How many aircraft do you see on deck in this photograph? _____

Notice that one runway and at least one elevator is left open. Why do you think they do that? _____

_____

EXAMPLE

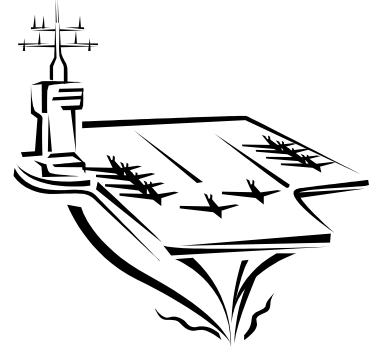**Aircraft Carrier Layout**

EXAMPLE

Aircraft Carrier Layout

EXAMPLE

Aircraft Carrier Layout

Name: _____

Use the graph paper to help you sketch the rough shape of an aircraft carrier using three rectangles and two squares. Start measuring every shape from the top left corner.

- Rectangle (3 units wide x 5 units tall) - start 11 units in and 4 units down
- Rectangle (3 units wide x 2 units tall) - start 8 units in and 7 units down
- Rectangle (6 units wide x 15 units tall) – start 9 units in and 9 units down
- Square (3 units x 3 units) – start 10 units in and 24 units down
- Square (1 unit x 1 unit) - 13 squares in and 24 squares down

What are the perimeters of the five quadrilaterals that make up your aircraft carrier?

1. _____   3. _____   5. _____
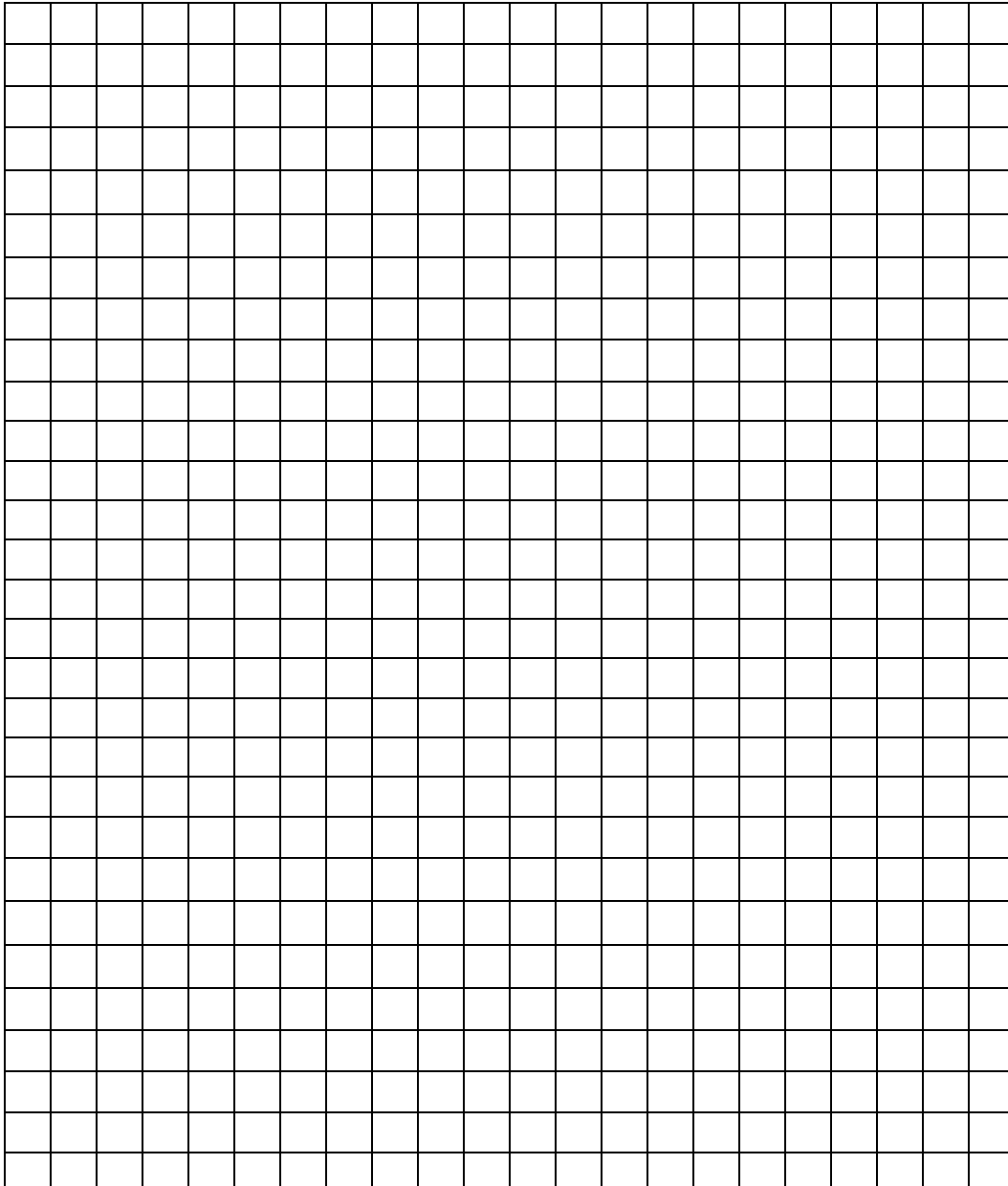
2. _____   4. _____   BONUS: Total Perimeter:
                                                          _____

Name: _____