I Spy Geometry

Around Me

2011 Conference for the Advancement of Mathematics Teachers

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Copy of handouts available at http://rusmp.rice.edu

GEOMETRY

in

Names

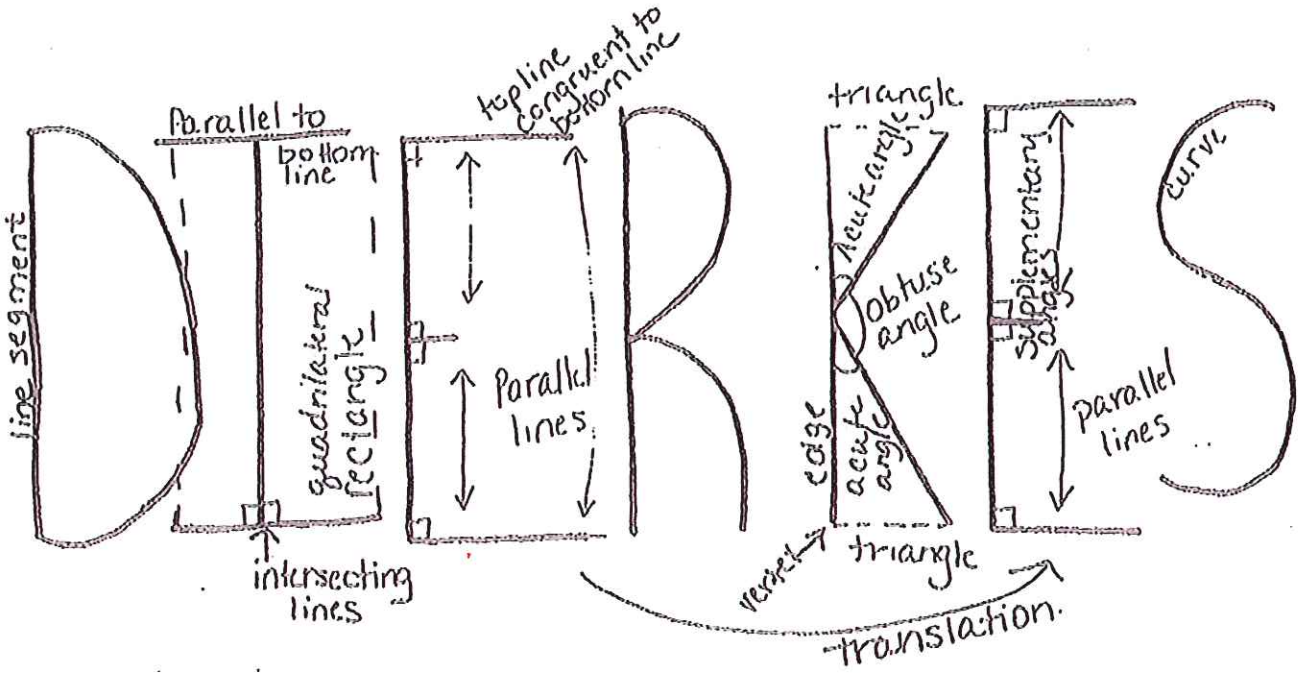
Write your name in capital letters across a large sheet of paper.

Identify the geometry terms or shapes located in your name.

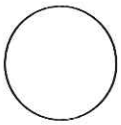
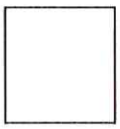
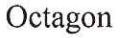
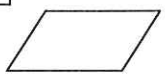
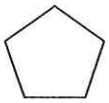
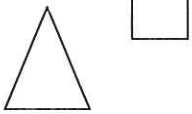
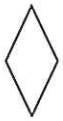
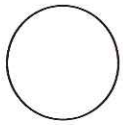
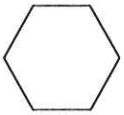
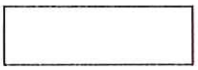
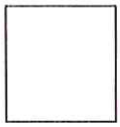
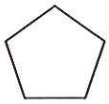
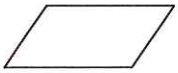
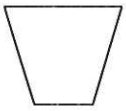
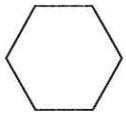
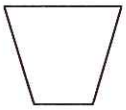
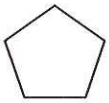
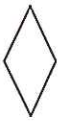
Possible vocabulary words that can be used:

Parallel lines	*Square*	*Obtuse angle*	*Circle*
Perpendicular lines	*Rectangle*	*Acute angle*	*Line segment*
Triangle	*Trapezoid*	*Right angle*	*Edges*
Congruent	*Translation*	*Supplementary angles*	*Vertices*

EXAMPLE:



Geometry Big Square Puzzle

 Square	 Rectangle  Octagon	 Pentagon 	 Hexagon
Circle 	 Rectangle  Pentagon	Parallelogram  Rhombus 	 Decagon 
Triangle  Hexagon	 Square Octagon 	Circle  Trapezoid Pentagon	Rectangle  Triangle
 	Parallelogram  Decagon	 Trapezoid 	 Rhombus

These squares will be cut apart. Students will match the picture with the correct term to form a big square that is 4 squares across and 4 squares down.

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3-D Matching

Objective: Match 3-D shapes with their name, uses in real life, and the number of faces, edges, and vertices.

Materials for each team: A set of 32 cards and the directions sheet

Directions:

1. Teams can work together in groups of 2 – 4 players.
2. Players will try to make complete sets of four cards by matching the following:
   - picture of a 3-D shape
   - name of the 3-D shape
   - real-life use of the 3-D shape
   - number of faces, edges, and vertices
3. Players should be able to make eight complete sets of four matching cards.

Extension: Teams can use the cards to play a Matching Pairs Memory game. All cards will be shuffled and placed face down. Players will take turns turning over two cards at a time in an attempt to make a match. If they are successful, they keep those cards and take another turn. If they do not make a match, the cards are returned face down and play continues with the next player until all cards have been paired up.

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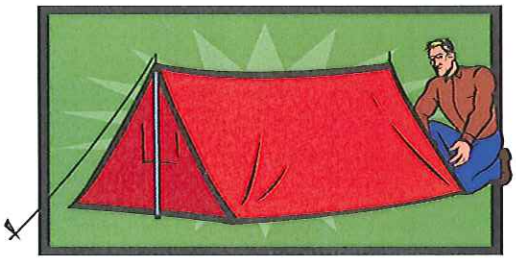

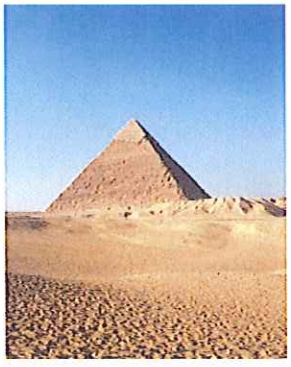

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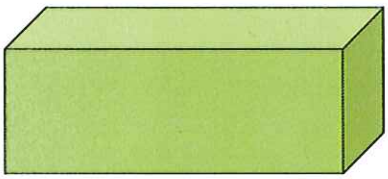

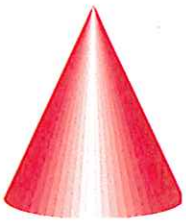

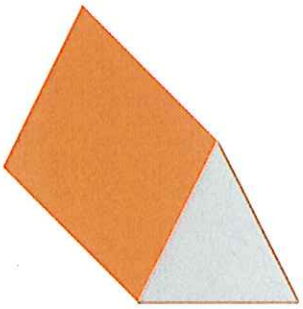

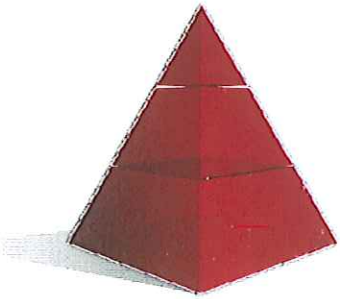

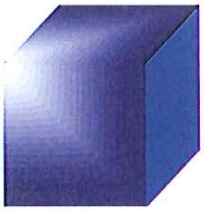

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Triangular Prism	Square Pyramid
Cylinder	Cube
Rectangular prism	Sphere
Cone	Pentagonal prism

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6 Faces 12 Edges 8 Vertices	6 Faces 12 Edges 8 Vertices
0 Faces 0 Edges 0 Vertices	5 Faces 9 Edges 6 Vertices
7 Faces 15 Edges 10 Vertices	5 Faces 8 Edges 5 Vertices
2 Faces 0 Edges 0 Vertices	1 Faces 0 Edges 1 Vertices

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Recording Sheet for *Spaghetti and Meatballs for All! A Mathematical Story*

Number of Tables	Sketch of table arrangements	Total number of seats available

Recording Sheet for *Spaghetti and Meatballs for All! A Mathematical Story*

Number of Tables	Sketch of table arrangements	Total number of seats available
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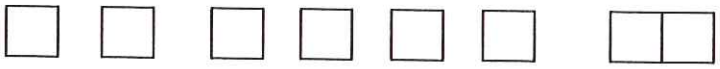
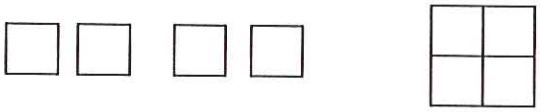
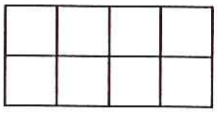
8		30
8		24
8		18
8		12
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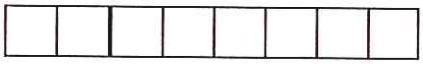
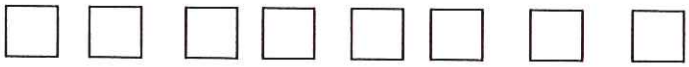
8		18
8		20
8		24
8		32

An Area Game of Categories

ROLLING RECTANGLES GAME

For each pair of students: grid paper (p. 62), two dice, one score chart (below), and a writing utensil.

Objective: Find rectangle areas that meet given conditions.

GAME RULES

- Roll the dice. Those numbers reflect dimensions of a rectangle.
- Sketch the rectangle on grid paper: label the dimensions, area, and perimeter.
- Enter the area of your rectangle as your "score" in one of the ten boxes below.
- If the area will not fit a category, enter it in CHANCE (if available) or enter a zero score in the box of your choice.
- Alternate rolls for ten turns. If you fit all categories, score 10 extra bonus points.
- Total your column. Highest score wins!

SCORE CHART

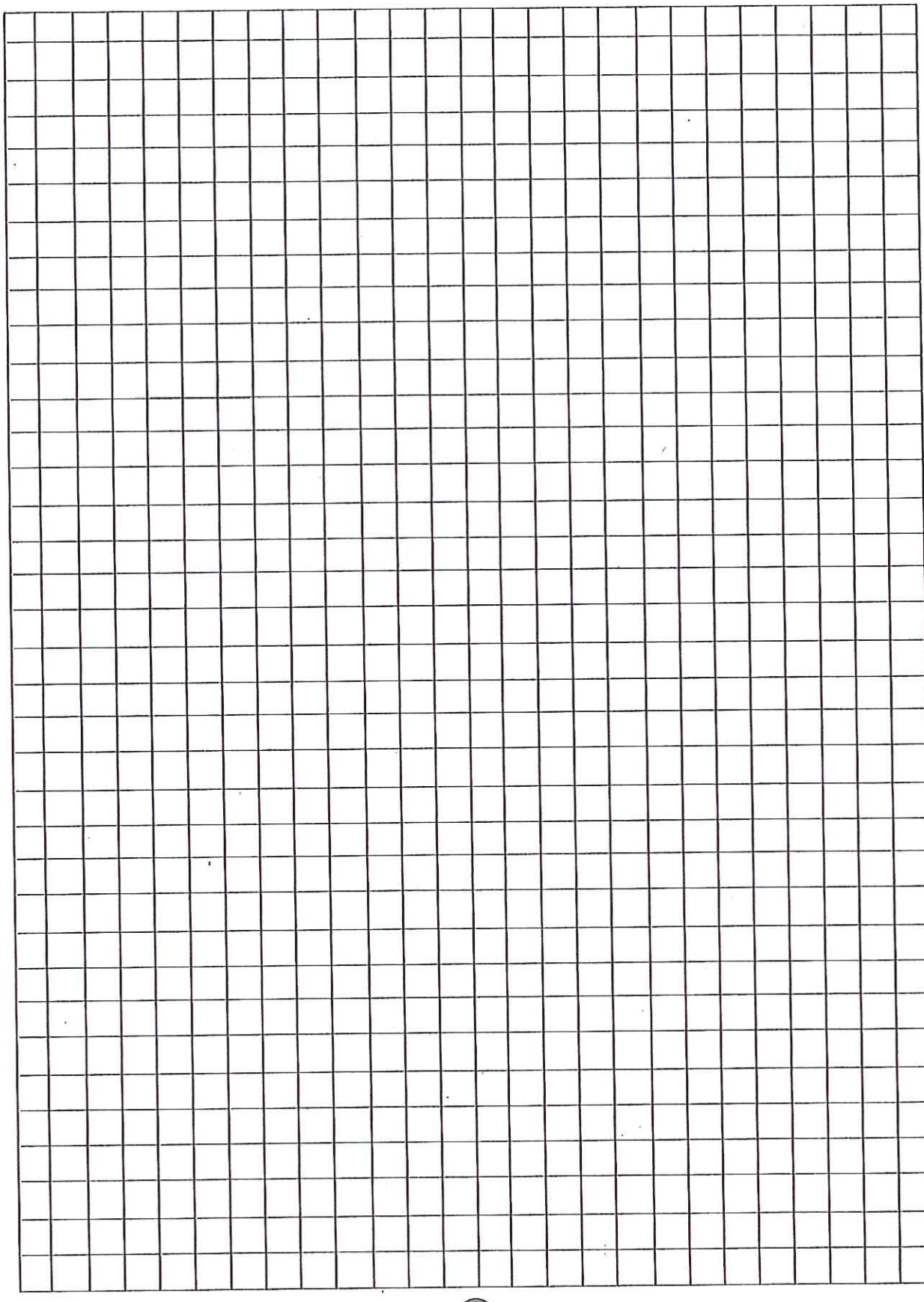
Category	Player 1: Score	Player 2: Score
1) Area (A) = Perimeter (P)		
2) Area = Even number		
3) P − A = 4 or A − P = 4		
4) Area = Perfect square		
5) Perimeter > Area		
6) CHANCE		
7) Area = Odd number		
8) Area = Prime number		
9) Area = Perfect Number		
10) Area > Perimeter		
Bonus Points (10):		
GRAND TOTAL		

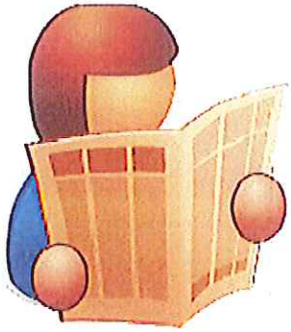
COMMUNICATE

- Which categories were hardest and easiest to roll? Why?
- How many different areas with perfect number dimensions can be rolled?

1/4" Grid Paper

measure and solve





Geometry and Measurement Scavenger Hunt

- Divide a large sheet of paper or poster board into four sections and label each section as shown below.
- Look through a newspaper or magazine and find different items for each group listed.
- Cut out the items found and tape them in the correct section of the paper. Label each item with the correct name or measurements.
- Your goal is to find as many different items as possible within the time limit.

Geometric Terms/Figures	Two-dimensional figures
Examples: *Line segment* *Ray* *Acute angle* *Obtuse angle* *Right angle* *Parallel lines* *Perpendicular lines* *Transversal*	*Examples:* *Circle* *Triangle* *Quadrilateral* *Square* *Rectangle* *Parallelogram* *Trapezoid* *Pentagon* *Hexagon* *Heptagon* *Octagon* *Nonagon* *Decagon*
Three-dimensional figures	**Comparing Perimeter and Area**
Examples: *Cube* *Rectangular prism* *Triangular prism* *Prisms* *Pyramids* *Cylinder* *Cone*	*Examples:* *Perimeter = Area* *Perimeter > Area* *Perimeter < Area*

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GEOMETRIC TERMS

parallel lines

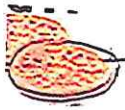
Translation

acute angle

obtuse angle

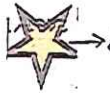
2-D shapes

Trapezoid



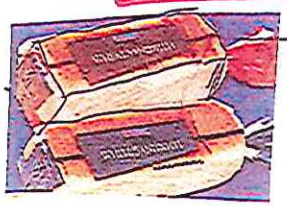
circle

Rectangle



decagon

3-D Shapes



Rectangular prism

cylinder

cube

Comparing Perimeter and Area

$P = 13.0 + 13.0 + 7.3 + 7.3$

$P = 40.6\ cm$

$A = 13 \times 7.3$

$A = 94.9\ cm^2$

$P < A$

$40.6 < 94.9$

$P = 2.0 + 2.0 + 2.6 + 2.6$

$P = 9.2\ cm$

$A = 2.6 \times 2$

$A = 5.2\ cm^2$

$P > A$

$9.2 > 5.2$

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