NAME: _____ **DATE:** _____

STUDENT #: _____ **TEACHER:** _____

Design Requirement Student Sheet

Design Question #1

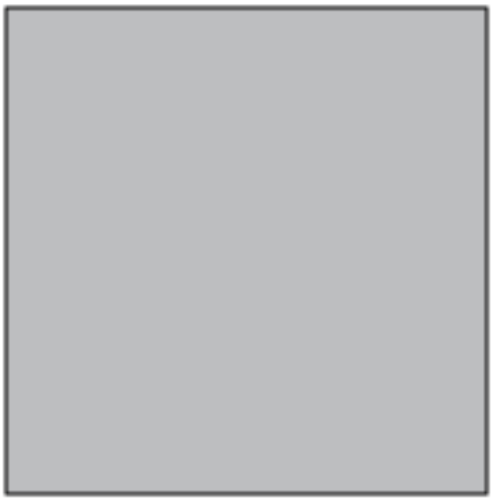
Which two geometric features of the game piece do you think provide it with stability on the board?

_____

_____

Design Question #2A

Game Board Space



Design Question #2B

Record your procedure for determining whether your game pieces meet design requirement #2, size.

Design Question #3A

Which aspect of the geometry of the game piece do you think will enable it to meet design requirement #3, image visibility?

Design Question #3B

Which aspect of the geometry of the stickers do you think will enable it to meet design requirement #3, image visibility?

Design Question #4

Which geometric feature of the game piece will enable you to determine how much plastic you will need for each piece?

NAME: _____ **DATE:** _____

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Geometric Formulas Student Sheet

What is the formula to determine the area of the base (B) of each of the following shapes?

A) Triangular Prism _____

B) Cylinder _____

C) Right Triangular Prism _____

D) Parallelogram Prism _____

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What is the formula to determine the surface area (SA) of each of the following shapes?

A) Equilateral Triangular Prism _____

B) Cylinder _____

C) Right Triangular Prism _____

D) Parallelogram Prism _____

E) Rectangular Sticker _____

What is the formula to determine the volume (V) of each of the following shapes?

A) Equilateral Triangular Prism _____

B) Cylinder _____

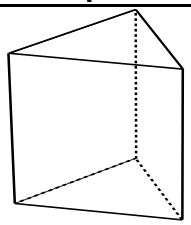
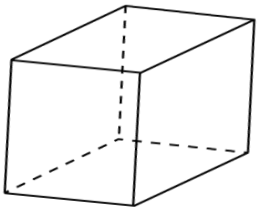
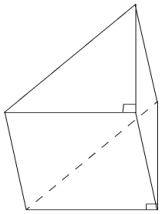
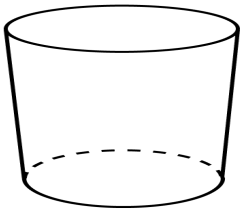
C) Right Triangular Prism _____

D) Parallelogram Prism _____

Board Game Piece Challenge 7EDM

NAME: _____ **DATE:** _____

STUDENT #: _____ **TEACHER:** _____

Initial Game Piece Data Student Sheet					
Assigned Tool					
Shape	**Shape Name**	**b**	**a**	**h**	**P**
	Equilateral Triangular Prism				
	Parallelogram Prism				
	Right Triangular Prism				
		r	**d**	**h**	**C**
	Cylinder Prism				

Sticker Information				
Shape		**b**	**w**	**P**
	Single Sticker			
	Four Part Sticker			

Legend of Geometric Notation

- **h** - Height of piece
- **b** - Length of base (for non-circular bases)
- **a** - Altitude of base (for non-circular bases)
- **d** - Diameter of base (for circular bases)
- **r** - Radius of base (for circular bases) (r)
- **c or p** - Circumference/Perimeter of base (for all bases)
- **b and w** - Dimensions of your stickers

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NAME: _____ **DATE:** _____

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Testing Procedure Student Sheet

List the measuring tool that your group has decided to use for each of the following dimensions.

1. Height of piece _____
2. Length of base (for non-circular bases) _____
3. Altitude of base (for non-circular bases) _____
4. Diameter of base (for circular bases) _____
5. Radius of base (for circular bases) _____
6. Perimeter/Circumference of base (for all bases) _____
7. Dimensions of your stickers. _____

Write the procedure your group has developed for using the calipers to measure the height and slant height of the game pieces.

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

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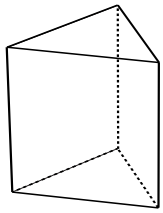
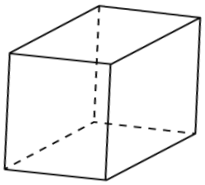
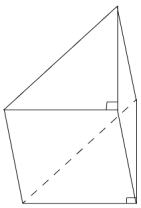
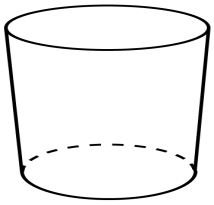
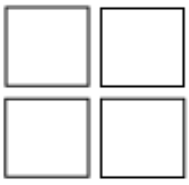
Game Piece Data Student Sheet #2								
Shape	Name	**b**	**a**	**h**	**P**	**B**	**SA**	**V**
	Equilateral Triangle Prism							
	Parallelogram Prism							
	Right Triangular Prism							
		r	**d**	**h**	**C**	**B**	**SA**	**V**
	Cylinder Prism							

Sticker Information			
Shape	**b**	**a**	**B**
			
			

Legend of Geometric Notation	
b	base length
a	altitude length
h	height of prism
r	radius
d	diameter
B	Area of Base
SA	Surface Area of Base
V	Volume of Prism

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Board Game Piece Challenge 7EDM

NAME: _____ **DATE:** _____

STUDENT #: _____ **TEACHER:** _____

Requirement Testing Student Sheet

	Requirements	Test Performed	Meets Requirement?			
			Triangular Prism	Right Triangular Prism	Cylinder	Parallelogram Prism
1	Stability: The piece must be able to stand on its own, without falling over during normal game play.					
2	Size: Four game pieces must be able to fit in the designated space on the board.					
3	Image Visibility: The individual piece must be shaped so that both a one-part and a smaller four-part sticker can be placed on it at the same time, without overlap.					
4	Cost: The cost of producing the pieces should be as economical as possible					

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Sharing Your Findings Student Sheet

Based on the requirement testing results, which game piece does your group recommend for use in the final game production? Please use complete sentences.

Please provide a written explanation for your group's recommendation. This should include statements about the tests performed and the results as compared to shapes that were not selected. Please use complete sentences.

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