

Name: _____

Period: _____

Date: _____

Mrs. Grant

PROBLEM BASED LEARNING ACTIVITY

THE POOL DILEMMA



Mrs. Shannon wants to put a swimming pool in her backyard that contains 729 square feet. Mrs. Shannon has been doing some research through catalogs and has narrowed her choice between two pools - a rectangular pool and a circular pool. The rectangular pool is 30' x 25' with a height of 15 feet. The circular pool has a diameter of 15 feet and a height of 15 feet.

To help the principal in her decision, she has hired your team of experts to advise her on which pool she should select that will fit in her backyard and would be the most cost efficient. Mrs. Shannon has informed you that she wants to put fencing around the pool for safety concerns and wants to pick the pool that will have the

cheaper water expenses. Use your expertise to help Mrs. Shannon select the pool that meets all of her requirements. Refer to your rubric frequently to help guide your decisions.

Name: _____

Date: _____

Period: _____

Mrs. Grant

PROBLEM BASED LEARNING ACTIVITY
THE POOL DILEMMA
PROBLEM ANALYSIS WORKSHEET

#1. Which swimming pool would fit in the backyard?

Mathematical Calculations:

Rectangular

Circular

Explain:

.....

.....

.....

.....

#2. Which swimming pool will be cheaper to put fence around?

Mathematical Calculations:

Rectangular

Circular

Explain:

.....
.....
.....
.....

#3. Which swimming pool would have the cheaper water expense?

Mathematical Calculations:

Rectangular

Circular

Explain:

.....
.....
.....
.....

POOL ARCHITECTS, INC.



SWIMMING POOL RECOMMENDATION

Swimming Pool Architect Team
Names:

.....
.....
.....

Specially Prepared for: Mrs. Shannon

Recommendation:

.....
.....
.....
.....

Formula #1 ~ $C = \pi D$ where $\pi = 3.14$
D = diameter of
a circle

Formula #2 ~ $C = 2\pi R$ where $\pi = 3.14$
R = radius of the
circle

#2. Area is the amount of square units inside
of any object. To calculate the area of a
circle use the following:

Formula ~ $A = \pi R^2$ where $\pi = 3.14$
R = radius of the
circle
(All areas are in square units)

#3. Volume is the amount of space that a
solid figure can
hold. To calculate the volume use the
following:

Formula for a Rectangular Solid:

$V = L W H$ where L = length
of the solid

W =
width of the solid

H = height of the solid

Formula for a cylinder:

$$V = \pi R^2 H$$

where $\pi = 3.14$

R = radius of the

cylinder

H = height of the

cylinder

(All volumes are in cubic units.)

PROBLEM BASED LEARNING ACTIVITY
THE POOL DILEMMA



The PBL will be graded using four categories. Each category will be given a grade of 1, 2, 3, and 4 and will be multiplied by the following weights:

	<u>WEIGHT</u>		<u>WEIGHT</u>
Fencing Expense Analysis.....	10	Recommendation.....	3
Backyard Fit Analysis.....	10	Water Expense Analysis.....	10
Submitted by the Due Date =	+1 point = 100%	Total Grade=	_____

CATEGORIES	NOVICE	APPRENTICE	PRACTITIONER	EXPERT
FENCING EXPENSE ANALYSIS	Uses the correct geometric measurement and <u>some</u> of the calculations are correct	Uses the correct geometric measurement and <u>most</u> of the calculations are correct	Uses the correct geometric measurement and <u>all</u> calculations are correct	<u>*all of practitioner</u> + can solve Expert Question #1 7 th Grade Math Packet pg. 46 Ques. #80
BACKYARD FIT ANALYSIS	Uses the correct geometric measurement and <u>some</u> of the calculations are correct	Uses the correct geometric measurement and <u>most</u> of the calculations are correct	Uses the correct geometric measurement and <u>all</u> calculations are correct	<u>*all of practitioner</u> + can solve Expert Question #2 7 th Grade Math Packet pg. 52 Ques. #87 pg. 53 Ques. #89
WATER EXPENSE ANALYSIS	Uses the correct geometric measurement and <u>some</u> of the calculations are correct	Uses the correct geometric measurement and <u>most</u> of the calculations are correct	Uses the correct geometric measurement and <u>all</u> the calculations are correct	<u>*all of practitioner</u> + can solve Expert Question #3 S & M Textbook pg. 346 Ques. #2 pg. 350 Ques. #5

RECOMMENDATION	Uses <u>some</u> Mathematical reasoning and proper English to support the team recommendation	Use <u>mostly</u> Mathematical reasoning and proper English to support team recommendation	Uses <u>all</u> Mathematical reasoning and proper English to support team recommendation	<u>*all of practitioner</u> + all of project is computer generated using any Microsoft Programs
----------------	---	--	--	---

ARCHITECT TEAM MEMBERS:

.....
.....
.....

TOTAL GRADE: