**Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Period: \_\_\_\_\_\_\_\_\_\_\_ Date: \_\_\_\_\_\_\_\_\_\_\_**

**Chapter 8 Project – EFFECTS ON VOLUME BY EFFECTING THE RADIUS (8.G.9)**

*This project is similar to the activities in 8.1C Notes. Here, you will select either a sphere or cone and then test the effects on the volume by either doubling, tripling, quadrupling, halving, thirding, or quartering the radius. Create 3 examples to test it out and make a conclusion. You can find the effect on the volume by dividing the 2nd volume by the first volume. Leave your volumes in terms of pi for more accurate results.*

*Last you will explain what the effect was on the volume, by citing your 3 examples and the results. Write in complete sentences and explain well. You will put your results in Google Slides. Your classmates will be grading your final product.*

***YOU WILL GRADE EACH OTHER GOOGLE SLIDE ON FRIDAY, DECEMBER 6, 2019.***

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| *Below state what you are going to observe*  *(1.) Pick a solid \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ (cone or a sphere?);*  *(2) What you are mathematically doing to the radius (doubling, tripling, etc.)? \_\_\_\_\_\_\_\_\_ the radius* |

**Example 1**

|  |  |  |
| --- | --- | --- |
| Radius = \_\_\_\_\_\_\_ | Radius = \_\_\_\_\_\_\_ | Effect on Volume |

**Example 2**

|  |  |  |
| --- | --- | --- |
| Radius = \_\_\_\_\_\_\_ | Radius = \_\_\_\_\_\_\_ | Effect on Volume |

**Example 3**

|  |  |  |
| --- | --- | --- |
| Radius = \_\_\_\_\_\_\_ | Radius = \_\_\_\_\_\_\_ | Effect on Volume |

Continued on Back

CONCLUSION. Use the examples you created above to help you write a clear, well written explanation.

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| --- |
| If the RADIUS of a \_\_\_\_\_\_\_\_\_\_\_ is \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, … |

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**REVISITING 8.1C NOTES: Example 1**

If the diameter of a cylinder doubles, what effect does it have on the volume?

|  |  |  |
| --- | --- | --- |
| Cylinder 1:  Diameter 4 cm; Height 3 cm | Cylinder 2 (Hint: Diameter of Cylinder 2 should be twice as much as Diameter of Cylinder 1. Height of both should be the same.)    Diameter 8 cm; Height 3 cm | Effect on Volume:  (Divide volume of cylinder 2 by the volume of cylinder 1) |

Rubric for Chapter 8 Project – Effects on Volume

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **CATEGORY** | **5 pts.**  **ADVANCED** | **4 pts.**  **PROFICEIENT** | **3 pts.**  **BASIC** | **2 pts.**  **BELOW BASIC** |
| CONTENT –OVERVIEW:  Overall content understanding and demonstration | Detailed examples with accurate calculations and a clear solution. Used formula and possibly another visual aid to show information with proper terminology and vocabulary. | Worked out examples with accurate calculations and a solution. Formula shown properly. Used proper terminology and vocabulary. | Worked out examples with mostly accurate calculations and a solution. Formula used to show information. Used some proper terminology and vocabulary | Examples shown with little or mostly incorrect calculations. Formula used to show information. Missing proper terminology and vocabulary. |
| CONTENT –  ESSENTIAL QUESTION:  Appropriateness, relevance, details, and examples | Project demonstrated student’s own interpretation and expression of the topic with a detailed explanation in their own words. Evidence was shown through the provided examples. The explanation made sense and was clearly understood by the reader. | Project showed student’s own explanation of the topic with a simple explanation in their own words. Evidence was shown through the provided examples. The explanation made sense and was understood by the reader. | Project showed student’s own explanation of the topic with a simple explanation in their own words but the explanation is unclear. Evidence was shown with through the provided examples. | Project is missing an explanation of the topic or the explanation in incorrect. Evidence is shown with 2 or less examples. |

OBJECTIVE: Create examples to analyze the effects on volume when you mathematically change the radius of a cone or sphere

CCSS: 8.G.9