

Geometric Art PROJECT

Name: _____

Section: _____

Introduction: Geometry can be used and seen in various pieces of art every day.

Your assignment is to use the parts of geometry to create an interesting design. Be as creative as you like but you need to use the tools we have learned how to use (compass, ruler, protractor) in class to create the design.



Top Left: *Unknown*

Top Right: Polanski, Anna "Geometric Mountains". Art.com. Print.

Bottom Left: Animal Art. "Lion Head – Geometric Art". Print

Bottom Right: Art by Danielle. "Geometric". FineArtAmerica. 8th March, 2018

Requirements:

Communication (Criterion C):

The following requirements are needed to be included in your art work

- A table, chart, legend OR colour coding scheme, etc to indicate where each feature is located
- Angles (right, acute, obtuse, reflex)
 - Show NAMING and MEASUREMENT of angles
- Quadrilaterals (rectangle, square, parallelogram, rhombus, kite, trapezia/trapezoid)
- Triangles (isosceles, equilateral, scalene, right, acute, obtuse)
- Minimum 5 x non-polygons
- Minimum 5 x Irregular polygons (needs to be different than the quadrilaterals & triangles)
- Minimum 3 x Regular polygons (needs to be different than the quadrilaterals & triangles)
 - ***Include SYMBOLS to show congruent angles and length of sides***
- Straight lines are drawn with rulers
- Above features are highlight by a SHARPIE or FELT marker
- Art coloured in with pencil crayons or markers

Application of Mathematics (Criterion D):

When you have completed your design, you will write a **word-processed written response** (3 paragraphs) which includes:

- **PARAGRAPH 1:** Describes the ACCURACY of the techniques (what worked, what was challenging, etc)
 - o Which shapes were easy to draw, which were more challenging? Why were these more challenging? Provide specific examples.
 - o Discusses possible strategies or solutions to ensure your **REGULAR POLYGONS** are accurate (are they actually regular polygons). How did you check for this? How can you PROVE they are “regular”?
- **PARAGRAPH 2:** Explanation of how you combined art and geometry to create your design.
 - o How have you used polygons and non-polygons to create certain images?
 - o Describe which artistic techniques you used to create your design. What inspired you?
 - o What kind of theme/mood/emotions can be generated by the use of colour?
- **PARAGRAPH 3:** Explanation of how geometry being used (applied)
 - o How is geometry used outside of math? Provides examples and research to support your response (include MLA citation)
 - o Who are some famous artist who have drawn to the geometric style of art? (include MLA citation)

Your written response should be well organized and proper mathematical vocabulary should be used and incorporated into your writing (names of regular polygons, irregular polygons, non-polygons, etc).

Artistic Impression (Creative Thinking ATL)

- Art integrates colours to express theme/mood/emotions
- Original thought or consideration put into design
- Creatively uses space provided (11" x 17" canvas)

Rubric:

Criterion C: Communicating

Achievement Level	IB Level Descriptor	Task-Specific Level Descriptor
0	The student does not reach a standard described by any of the descriptors below.	The student does not reach a standard described by any of the descriptors below.
1-2	The student is able to use limited mathematical language, use limited forms of mathematical representation to present information, communicate through lines of reasoning that are difficult to understand	The student: • attempts to use appropriate mathematical language when identifying each geometric construction • attempts to use different forms of mathematical representation when state where each geometric construction is located • communicates lines of reasoning that are difficult to follow.
3-4	The student is able to use some appropriate mathematical language, use different forms of mathematical representation to present information adequately, communicate through lines of reasoning that are able to be understood, although these are not always coherent, adequately organize information using a logical structure.	The student: • sometimes uses appropriate mathematical language when identifying each geometric construction • uses different forms of mathematical representation when stating where each geometric construction is located • communicates lines of reasoning that can be followed, although these are not always clear • attempts to organize information using a logical structure.
5-6	The student is able to usually use appropriate mathematical language, usually use different forms of mathematical representation to present information correctly, communicate through lines of reasoning that are usually coherent, present work that is usually organized using a logical structure.	The student: • generally uses appropriate mathematical language when identifying each geometric construction • moves between different forms of mathematical representation with some success when describing where each geometric construction is located • communicates lines of reasoning that are clear but not always complete • presents work that is partly organized using a logical structure.
7-8	The student is able to consistently use appropriate mathematical language, consistently use different forms of mathematical representation to present information correctly, communicate clearly through coherent lines of reasoning, present work that is consistently organized using a logical structure.	The student: • consistently uses appropriate mathematical language when identifying each geometric construction • moves between different forms of representation when describing where each geometric construction is located • communicates lines of reasoning that are complete and coherent • presents work that is organized using a logical structure.

Additional Comments:

Criterion D: Applying Mathematics

Achievement Level	Level Descriptor	Task Specific Requirements
0	The student does not reach a standard described by any of the descriptors below.	The student does not reach a standard described by any of the descriptors below.
1-2	The student: - identifies some of the elements of the authentic real-life situation attempts to apply mathematics to find a solution.	The student: * identifies some of the elements of how geometry is used in daily life. * minimal attempt to apply geometry to real life solution
3-4	The student: - identifies the relevant elements of the authentic real-life situation applies mathematical strategies to reach a solution states incorrectly whether the solution makes sense in the context of the real-life problem.	The student: - identifies the relevant elements of the authentic real-life situation in relation to geometric shapes applies mathematical strategies to reach a solution states incorrectly whether geometry is applied to a real life solution
5-6	The student: - identifies the relevant elements of the problem selects appropriate mathematical strategies to solve the problem applies the selected mathematical strategies to reach a valid solution to the problem states the degree of accuracy of the solution states whether the solution makes sense in the real-life context of the problem.	- identifies the relevant elements of the problem selects appropriate mathematical strategies to solve the problem in relation to geometric shapes and techniques (how is geometry used in daily lives) applies the selected mathematical strategies to reach a valid solution to the problem (techniques are followed and considered) states the degree of accuracy of the solution states whether geometry is the solution makes sense in the real-life context of the problem.
7-8	The student: - identifies relevant elements of the authentic real-life situation - selects appropriate mathematical strategies to model the situation applies the selected mathematical strategies to reach a correct solution attempts to explain the degree of accuracy of the solution describes whether the solution makes sense in the context of the real-life situation.	The Student: - identifies relevant elements of the authentic real-life situation (how is geometry used in daily lives) - selects appropriate mathematical strategies to model the situation (techniques are followed and considered) applies the selected mathematical strategies to reach a correct solution (techniques are correctly chosen) attempts to explain the degree of accuracy of the solution (indicates challenges to drawing certain polygons) describes whether the solution makes sense in the context of the real-life situation (what are challenges with creating regular polygons in art)

Additional Comments:

Approaches to Learning (ATL) Rubric (Creative Thinking & Creative Solutions)

Category	Novice	Learner	Practitioner	Expert
Creative Ideas	Rarely generates new ideas or approaches	Occasionally generates new ideas and approaches	Often generates new innovative ideas and approaches	Independently generates new innovative ideas and approaches
Creative Solutions	Rarely generates solutions to geometric techniques with multiple perspectives	Occasionally generates solutions to geometric techniques with consideration of multiple perspectives	Often generates solutions to geometric techniques with consideration of multiple perspectives	Independently generates solutions to geometric techniques with consideration of multiple perspectives.