

Geometry in Your World: An Art Project

DUE: NOVEMBER 6 2017

Geometry (and mathematics generally) is all around you, all the time. This project will explore this phenomenon in more detail. Your task is to create a poster, picture book, digital presentation, or other product (with prior teacher approval) with original images of 15 geometric terms from the choices below. You may use existing photos you have already taken, but not photos from magazines, newspapers, etc.

acute angle	incenter	rhombus
adjacent angles	inscribed figure	rotation
alternate interior angles	isosceles triangles	sector
angle bisector	median (of a triangle)	secant line
arc	midpoint	semicircle
chord	midsegment	scalene triangles
circumcenter	obtuse angle	segment bisector
circumscribed figure	parallel segments	similar triangles/figures
complementary angles	parallel planes	skew segments
concentric circles	parallelogram	slope
congruent angles	perpendicular segments	square
congruent triangles	plane	supplementary angles
coplanar points	polygon	tangent line
corresponding angles	prism	translation
diameter	radius	transversal
dilation	ray	trapezoid
equilateral polygon	rectangle	vertical angles
hemisphere	reflection	

Most students will succeed by taking photographs for the terms, whether in your home or around the school or other places. Drawings are acceptable only if they represent real world objects or formations (so no sketches of abstract shapes). You are encouraged to use your art form as an inspiration. [Photographs of dancers, instruments, etc.] Your photos must have a single unified theme.

Comments

- You must use original images or sketches. Do not use images from the internet, although image searches for “[term] real world” may help you get some inspiration.
- Images must be of actual objects/forms, not mathematical drawings or figures or abstract objects.
- Architecture, bridges, machines (cars, bicycles, computer parts, electronics, etc.) are good places to look
- Electronic submissions are fine: please attach a single file (Powerpoint, for example) as an email to mohyuddin_n@hcde.org . If you use Google Slides, share the file with the same address.
- If you are unsure about a term’s meaning or if a picture matches the term, feel free to ask me or others
- Do not procrastinate! It will be nearly impossible to complete this project in just a day or two.

Requirements

- Outline each object in the photograph/sketch so that the object is clearly marked for the viewer.
- Caption each image with the term itself and a short definition (Be sure your definition is mathematically correct. Some terms have multiple meanings.)
- Your images should have a cohesive theme and be presented with a creative title.
- A single image may be used three times at most. If you reuse an image, it should appear multiple times with a different object outlined. Exceptions: Squares, rectangles, rhombuses, and parallelograms can only be used once, so for example, don’t use a photo of a square object for all 4 terms. Likewise, the figure for polygon should not be reused.

Score will be an assessment grade counted entered in PS 3 times (same weight as a typical assessment)

Geometric Term	Accuracy (60%)	Creativity (30%)
1. _____	_____	_____
2. _____	_____	_____
3. _____	_____	_____
4. _____	_____	_____
5. _____	_____	_____
6. _____	_____	_____
7. _____	_____	_____
8. _____	_____	_____
9. _____	_____	_____
10. _____	_____	_____
11. _____	_____	_____
12. _____	_____	_____
13. _____	_____	_____
14. _____	_____	_____
15. _____	_____	_____
Total:	_____	+ 0.5 x _____
	Neatness/Title/Theme:	_____ (of 10)
	Final Grade	

Rubric:

Accuracy

4: Chosen image clearly and naturally demonstrates selected term, term is outlined properly and definition is mathematically accurate.

3: Chosen image mostly demonstrates selected term and definition is mostly accurate with some errors.

2: Chosen image demonstrates selected term only with additional drawing or marks not already in the photograph, and/or definition is not mathematically accurate.

1: Chosen image does not demonstrate the term is supposed to, or definition is not mathematically correct.

0: Image is completely unrelated to the term and the definition is wrong.

Creativity

4: Image chosen shows advanced geometric insight and visual awareness by seeing geometry where others may not immediately notice.

3: Image chosen is a visually and geometrically interesting object that is not commonly selected (i.e. a tile for a square, hands of a clock for acute angle, etc.)

2: Image chosen is a typical, ordinary choice for “geometry in the real world” that does not demonstrate creative insight. (i.e. the kind of objects listed first on a Google image search)

1: Image chosen is not a real-world object

0: Image was clearly not taken by the student.