



Mr. Clarkson's Math Classes
Cambridge Middle School / High School
Cambridge, Idaho 2016 / 2017 School Year
Mr. Jerry Clarkson jclarkson@cambridge432.org
Class Website: mrclarksonsmath.info

Geometry Year Project

Your Dream House

In order to put many of your Geometry skills to work in a practical and enjoyable application, through the year you will be designing and drafting your dream house. Before you get too excited, this will not be exclusively “your” dream house. You will work with a team of 4 people, a family, that will be virtually building and owning this home. A portion of your grades for this project will be based on your interaction with your “family” therefore your participation and cooperation is tantamount.

Minimum Requirements

Your house must include the following but may exceed these requirements.

- Minimum 2300 ft²
- Minimum of 3 bedrooms
- Minimum of 2 bathrooms
- One Kitchen, an additional kitchenette or service bar is acceptable.
- One dining area, an additional nook or breakfast bar is acceptable.
- Two main living spaces, one living room and one family room.
- Minimum of two car attached garage or three car detached garage.
- Must be designed with a basement and interior stairway.
- The house may be of a single level plus the basement or may be two story or multi-level. No designs higher than two stories.
- Must include square footage calculations and notations for each room.
- Must include at least two angular features of different angles.
- Must include at least two curved features of regular geometric curves.
 - Curved features will include written, illustrated and mathematical instructions for framing reproductions of the curve.
- Must include at least two ridge lines either perpendicular to one another or at angles to one another.
- Must include at least one exterior covered porch or deck.
- Must include gables rather than a full hip roof (for geometric purposes).

Plans Will Include

- One page foundation and basement design.
- One page overall layout for a multilevel design.
- One page for each level.
- One page rafter or truss structure.
- At least one page mechanical design (HVAC, plumbing, other piping, electrical, other wiring).
- One exterior elevation design for each family (team) member, each one a different side of the house.
- At least one page landscaping design.
- At least one room design for each family (team) member. Each room design will be a minimum

of three pages.

Scope and Sequence

- ➔ 1 September 2016 House Style Plan Due – Student Family Team will indicate the style of house that they plan to design including the number of levels. This plan should include a rough sketch of the front elevation style and/or floor plan of the house.
- ➔ 15 September 2016 House Rough Sketch Due – This should be a basic idea of the floor plan of the house with the basement and each level indicated. A general elevation sketch may be included.
- ➔ 6 October 2016 House Plan Step 1 – This will be a scaled drawing of the exterior outline of the floor plan for all levels. Curved and angular features may be left until a later date. Plans must be optimized for best use of materials.
- ➔ 20 October 2016 Exterior Walls – Fill out the exterior outline to show the dimensions of all exterior walls. Curved and angled features may be left until a later date.
- ➔ 10 November 2016 Interior Walls – Extending the scaled drawing showing the layout and dimensions of the interior walls. Curved and angular features may be left until the next date.
- ➔ 22 November 2016 Curved and Angular Features – Curved features will include the point(s) of origin, radius or radii, written instructions for framing reproduction of the feature including the mathematical formulas for the feature. Angular features will include the dimensions to each endpoint of each segment with written instructions for determining the endpoints and the intended angle(s) including any necessary mathematical formulas.
- ➔ 8 December 2016 Doorways – Add to the plan the dimensions and swing of all doorways.
- ➔ 20 December 2016 Windows – Add to the plan the dimensions and placement of all windows.
- ➔ 12 January 2017 Kitchen and Bath Cabinets – Add to the floor plan the outlines and dimensions of all cabinetry.
- ➔ 19 January 2017 Room Design Sketches – This is individual work on one room of the house. Each student will submit a preliminary concept and floor plan sketch for the design of an assigned room of the house. Room assignments will be made by the team and approved by Mr. Clarkson. Sketches are to be approved by the team before further plans are made for the room.
- ➔ 2 February 2017 Room Design Floor Plans – Complete floor plan will include an accurate reproduction of all interior and exterior walls, windows and doors of the overall house plan related to this particular room including any closets associated with the room. Each student will add the outline and dimensions of all furnishings for the room showing the areas for open space and walkways. Indications of wall decor may be included.
- ➔ 16 February 2017 Kitchen Concept Drawings – Each student will do an elevation and concept drawing of one view of the kitchen following the master plan cabinetry layout and agreed cabinetry design.
- ➔ 02 March 2017 Room Concept Drawings I – Concept elevation views looking the other two directions in the room showing furnishing and decor of the room.
- ➔ 16 March 2017 Room Concept Drawings II – Concept elevation views looking two directions in the room showing furnishing and decor of the room.
- ➔ 13 April 2017 Landscape Plan – The family team will plan for the landscaping around the house and submit a layout plan.
- ➔ 27 April 2017 Exterior Elevations – Each student will draw one view of the exterior of

the house. The family team will agree to and follow a unified design for siding and exterior features. Each drawing will include the landscaping as previously planned for that side of the house.

- ➔ 11 May 2017 House Plans Mechanicals (HVAC, plumbing, other piping, electrical, other wiring) – Each student will be responsible for planning one type of mechanical installation. The installations may not conflict (wiring or plumbing through a heat duct) and must be coordinated. Plans for each mechanical will overlay a reproduction of the original wall plan.
- ➔ 22 May 2017 Final Submission of completed house plans prepared for possible public display at the Hell's Canyon Days Art Exhibit and/or the Fair Art Exhibit.
- ➔ The class calendar including all of these dates may be viewed at <https://calendar.google.com/calendar/embed?src=91oo3q2q0npff2grl0i5npvrs4%40group.calendar.google.com&ctz=America/Denver>

Grading

Project grading will be on a four point scale reflecting team participation, thoroughness, and accuracy. Individual assignments during second semester will reflect only the individual's contribution to the project. Consideration is given for each students artistic talents. The project is 15% of the overall grade and will be reflected at quarters, semesters, and the end of the year.

	<i>Criteria</i>	
4	Student is demonstrating cooperative participation with the family team in offering helpful ideas as well as supporting and encouraging others. Student has been instrumental in assuring that plans are thoroughly completed and accurate.	A
3	Student is demonstrating cooperative participation with the family team and has helped with completing accurate plans.	B
2	Student is demonstrating moderate participation with the family team and has helped only as asked or as necessary.	C
1	Student has failed to cooperate and needs additional individual work in order to assure that the plans are progressing well.	I

Geometry Year Project Response

Please sign this bottom half of this sheet, fold, detach, and submit to Mr. Clarkson before 1 September 2016.

I have read, understand, and agree to complete these assignments to the best of my abilities.

Student Signature and date

I will have read these assignments and will plan to help keep my child on-task toward the completion of the assignments.

Parent(s) Signature(s) and date