THOMAS JEFFERSON'S ARCHITECTURE GEOMETRY WARM-UPS

Overview:
Students will use historical documents, namely Thomas Jefferson's architectural drawings, to solve real life application problems using the Geometry concepts learned in the classroom.

Jefferson as Architect: **(From Monticello.org)**

Thomas Jefferson said that "Architecture is my delight, and putting up and pulling down, one of my favorite amusements." He spent much of his life "putting up and pulling down," most notably during the forty-year construction period of Monticello. Influenced by his readings of ancient and modern architectural writings, Jefferson gleaned the best from both his reading and from his observations in Europe, creating in his architectural designs a style that was distinctively American.

As Secretary of State, Jefferson was responsible for the design of the Federal City in Washington, D.C. Working with Major Pierre Charles L'Enfant, Jefferson helped to lay out the city and had a voice in selecting the plans of many of the first government buildings in America. Jefferson used this opportunity to "improve the taste of his countrymen" by "presenting them models for their study and imitation." When he was selected to plan the Virginia State Capitol, for instance, he wrote that it was "a favorable opportunity of introducing into the state an example of architecture in the classic style of antiquity." It is in part because of Jefferson's influence that our federal buildings set an American precedent for the neoclassical style. For this reason, architectural historian Fiske Kimball called Jefferson "the father of our national architecture."

(From http://xroads.virginia.edu/~cap/jeff/jeffarch.html)

Jefferson believed that architecture was the heart of the American cause. In his mind, a building was not merely a walled structure, but a metaphor for American ideology, and the process of construction was equal to the task of building a nation. The architecture of any American building should express the American desire to break cultural--as well as political--ties to Europe. American architecture, Jefferson believed, would embody the fulfillment of the civic life of Americans, and he sought to establish the standards of a national architecture, both aesthetically and politically.

Notes to Teacher:

- Each warm up should take approximately 5-10 minutes.
- Solutions to the problems & citation for the images are written in the "notes" section of the file.

List of warm up files and skills used in the warm up

Name of Warm Up File	Skills used in Geometry Problem
Jefferson Circles - Sector Area WarmUp	Calculate the area of a sector based on a given diagram. Needs to use protractor to measure angle.
Jefferson Concentric Circles Area WarmUp	Calculate the area between the concentric circles based on a diagram.
Jefferson Isosceles Triangle Construction WarmUp	Use geometry tools to construct a copy of a triangle given. *use compass to measure sides to see that it is isosceles.*
Jefferson Quadrilateral Classification WarmUp	Identify quadrilaterals (trapezoid, parallelogram, rectangle, square, etc) in a diagram. Should use geometry tools for measuring sides, angles & diagonals. *Extension: classify triangles & look for symmetry*
Jefferson Reading a Floor Plan WarmUp	identify the features of a floorplan (i.e. doors, windows, & stairs).
Jefferson Rectangle & Octagon Area WarmUp	Calculate the area of the living space of a floor plan that includes an octagon and two squares.
Jefferson Semi-Circle Arch WarmUp	Calculate the arclength of a semi-circle arch (*can use arc length or circumference formulas*)
Jefferson Similarity WarmUp	Determine if a translation is a dilation and give the scale factor. Determine if two triangles in a drawing are similar.
Jefferson Surface Area of a Dome WarmUp	Calculate the surface area of a dome
Jefferson Symmetry with Garden Temple WarmUp	Identify the symmetry, lines of symmetry, rotational symmetry seen in a diagram.
Jefferson Symmetry with House Elevation WarmUp	Identify the symmetry seen in an elevation drawing of a home.
Jefferson Translation WarmUp	Identify the translation vectors and write the vectors in component form.

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