MATHS TREATS
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MATHEMATICS IN ARCHITECTURE

Measurement and geometry are very important parts of mathematics. Architects use mathematical proportions to design the shape of buildings. How does the building shape link with or suggest the function of the structure?

CLASSIC ARCHITECTURE

The golden ratio is frequently seen in the proportions of buildings from ancient Greece and ancient Egyptian pyramids. Islamic architecture used geometric shapes and tiling tessellations. Astronomy and astrology seem to have influenced structures such as Stonehenge and Hindu temples. Symmetry, geometry and mathematical proportion were emphasised in Renaissance architecture.

ACTIVITY:

Look at some of the classic buildings around Victoria. Many of them were built during the Gold Rush. Who was the architect? Was the architect renowned for using particular mathematical inspiration? What shapes and patterns can you see?

MODERN ARCHITECTURE

Modern, post-modern and deconstructivist architecture of recent times use different geometries to startling effect. Moving away from symmetry, modern architecture uses geometric shapes intersecting at eye-catching angles.

ACTIVITY:

Construct a model for a new avante garde building out of clay, plasticine or paper using three intersecting geometric solids. With a rectangular room or building it is simple to work out the surface area for cladding or painting, and volume for heating and cooling. How would you work out the surface area and volume of your amazing building?

REFERENCES AND FURTHER READING

https://en.wikipedia.org/wiki/Mathematics_and_architecture
www.math.nus.edu.sg/aslaksen/teaching/math-art-arch.shtml
www.walkingmelbourne.com/architectural_guide.html
www.architecture.com.au/events/state-territory/victorian-chapter/victorian-architecture

CLASSIC ARCHITECTURE
https://en.wikipedia.org/wiki/Golden_ratio
https://en.wikipedia.org/wiki/Tessellation
www.mav.vic.edu.au/files/mathsnacks/golden.html

MODERN ARCHITECTURE
http://flavorwire.com/330293/10-amazing-examples-of-architecture-inspired-by-mathematics

https://plus.maths.org/content/perfect-buildings-maths-modern-architecture
www.mav.vic.edu.au/files/mathsnacks/mathsnacks-pdfs/mathsnacks18_platonic.pdf

IMAGES
Leadbeater possum - Steve Kuiter
Classic Greek architecture - image from Pixabay
Federation Square - Donaldytong. Retrieved from https://commons.wikimedia.org/wiki/File:Federation_Square_(SBS_Building).jpg#filelinks