Hampshire Services
HIAS SCHOOL IMPROVEMENT

HIAS MOODLE+ RESOURCE

Geometry and the Art of Architecture

TASC

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www.hants.gov.uk

Overview

In this document

This mathematics task is part of a TASC resource (Thinking Actively in a Social Context).
This document provides the instructions for the geometric task sheets:

- ‘The Eiffel Tower’
- ‘Schwedagon Pagoda’
- ‘St Basil’s Cathedral’
- ‘The Parthenon’

It is suitable for KS3 and KS4.

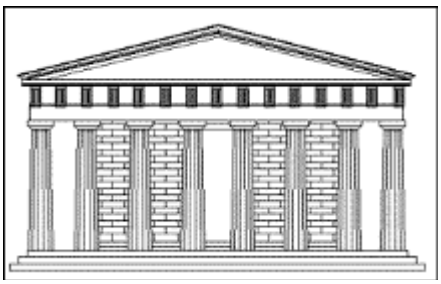
Points to consider when using this resource

Students should work collaboratively and will need geometric measuring resources and A3 paper.

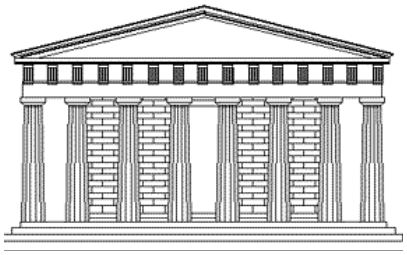
Geometry and the Art of Architecture

Your group are going to produce a poster of a famous building and identify its geometrical shapes and properties.

- Choose one of the Famous Buildings Cards
- Identify examples of geometry from the photographs of your building. Look for the following:
  - Types of angles: acute, obtuse, right, reflex
  - Regular polygons such as equilateral triangles and squares
  - Other polygons such as right-angled triangles, rectangles and rhombuses
  - Circles and semi-circles
  - Three dimensional shapes such as prisms, pyramids, cones, domes and spheres
  - Parallel and perpendicular lines
  - Symmetry: Mirror and rotational.
  - Transformations: reflections, rotations, translations, enlargements
  - Examples of similarity and congruence.
  - Repeating patterns and tessellations
- Draw the building on your poster as accurately as you can. Think about constructing shapes and the use of scale.
- Label the examples of geometry on the poster.
- Use the facts on the reverse of the card to add some interesting information about the building to your poster.
- Colour your building.
- Display your poster for others to see.



Geometry and the Art of Architecture: TASC



Gather and organise: What do we know about buildings and their shapes? What sort of shapes are the buildings that we know about?	
Identify – What is the task? You are going to produce a poster of a famous building and identify its geometrical shapes and properties. Choose one from the Famous Buildings cards or one of your own. You are also going to write a brief description of your building, perhaps it's size, builder, age, location, history…	
Generate: What sort of geometrical properties might a building have? (symmetry, angles, shapes, pattern, scale)	
Decide: Divide up the tasks in your group. You need to identify the geometry, draw or construct the shapes in the building, research facts about the building, edit the writing, colour and label the poster, talk about your building to the class using your poster. Decide what mathematical equipment you will need. Decide where and how you will find information about your building.	

Implement: Working in groups of about four, produce your poster. Make sure you label all the geometrical features of your building.	
Evaluate: How well did you do? Have you identified the geometry of the building? What would you change? Did they choose the best research sources? Which ones were most useful? Did you use appropriate equipment? Is there anything you need to practise more or get better at, such as measuring or constructing a shape accurately?	
Communicate: Present your poster to the whole class. Elect a spokesperson to describe the geometry of the building and relate the interesting facts. Ask for questions from the class and everyone in the group should be prepared to answer.	
What have we learned? Did we learn any new skills, such as accurate drawing and measuring or identifying shapes? What did you learn about your building and how it was constructed? Are all buildings made in the same way, using similar shapes?	

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