

6° G

MATHS & SCIENCE MODULE TEMPLATE

Subject - Maths (Year 6)

TOPIC of the module: Ratio and Proportion (Golden number)

“A mathematician, like a painter or poet, is a maker of patterns. If his patterns are more permanent than theirs, it is because they are made with ideas.” by G.H Hardy

Age of students – 11 years old

Required prior knowledge

Pupils should be able to:

- Measure and compare in standard units using rulers, tape measures.
- Use, read and write standard metric units.
- Convert measurements from larger to smaller units and vice versa.

Objectives

Pupils will be taught to: / Pupils will be able to:

- Solve problems involving the calculation and conversion of units of measure, using decimal notation up to 2 decimal places where appropriate.
- Use, read, write and convert between standard units, converting measurements of length and volume from a smaller unit of measure to a larger unit, and vice versa, using decimal notation to up to 2 decimal places.

- Solve problems involving the relative sizes of 2 quantities where missing values can be found by using integer multiplication and division facts.
- Solve problems involving similar shapes where the scale factor is known or can be found.
- Use their knowledge of place value and multiplication and division to convert between standard units.
- Solve problems involving unequal sharing and grouping using knowledge of fractions and multiples.
- Apply their knowledge in art or other subject as appropriate.

Opportunities

Cross curricular

- Becoming aware of the golden number/ ratio in famous painting and in ancient architecture.
- Researching about famous painters and their masterpieces online or in books.
- Reading and becoming familiar with famous painters, their masterpieces and other art styles.
- Appreciating and understanding great masterpieces.
- Understanding historical and cultural development of art forms.
- Writing short biographies of the painters the pupils read about in English.

Maths

- Recognising proportionality in context when the relations between quantities are in the same ratio (for example, similar shapes and pictures).
- Consolidating the understanding of ratio when comparing quantities, sizes and scale drawings by solving a variety of problems.
- Using the notation 1:x to record their work.

- Investigating mathematical problems and communicating the process adopted and their result.
- Solving problems involving unequal quantities.

Arts involved

Art and design

Resources - presentations, links to websites, materials, equipment, etc...

Maths book, handouts, worksheets, school stationery,

Time frame - number of lessons and duration of lessons

About 10, 50 minute lessons

Methods of work

Class work / group work / pair work

Procedure / steps

-Regular maths lessons (teacher's explanation / ratio and proportion exercises / reviewing previously learnt contents)

-Reading and interpreting handout (1) so that pupils can become familiar with the golden number.

- Pupils measure parts of their bodies, collect data and write down their findings.

- Pupils calculate the ratio between the different measurements in order to find the golden number.

-Pupils do some research to try to find out more about famous painters and their masterpieces.

- Pupils and teacher(s) discuss their findings and gain deeper understanding of the importance of Maths in every subject.

-Pupils describe some paintings, convey personal opinions and justify them.

Paintings - Mona Lisa / Self Portrait / The Vitruvian Man (Leonardo Da Vinci)

-The Sacrament of the Last supper (Salvador Dali)

Architecture – The Greek Parthenon

- Pupils and teacher(s) draw the golden rectangular on the paintings using Cabri-3D program or other apps.

-Pupils create and invent their artworks inspired on what they have seen, read and learnt.

-Pupils recreate pictures based on famous paintings and other artworks.

- Display of the pupils' artworks.

Evaluation summary and comments about how the module went: engagement of the students, difficulty, effectiveness, improvement suggestions ...)