



## Mathematics

**Mathematics reveals another aspect of God's nature: A God who is orderly, precise, logical, systematic and unchangeable but also faithful and trustworthy.**

**The Covenantal nature of God is portrayed in the wisdom, beauty and covenantal nature of mathematical relationships.**

'O Lord God of Israel there is no God like you in heaven above or on earth below – you who keep your covenant of love.....' **1 Kings 8:23**

**Mathematics involves the development of thinking skills to a deeper (higher) level and this stimulates more of that which God has created.**

'As the heavens are higher than the earth, so are my ways higher than your ways and my thoughts than your thoughts.' **Isaiah 55:9**

**Mathematics serves God's people in helping them fulfil God's commission to worldwide evangelism.**

'God said to them: "Be fruitful and increase in number. Fill the earth and subdue it. Rule over (every living creature).' **Genesis 1:28**

'The consistency of mathematical truths demonstrates the orderliness, precision and consistency of God.'

'Bible Truths for Mathematics' – Ruth C. Haycock

Maths requires working with boundaries, following rules, procedure, systems and methods in order to obtain answers. There is a wonderful order in mathematical formulae and processes which provide consistency, security and fulfilment. These are a reflection of the heart of God, who created a world where everyone and everything has a vital part to play and has a freedom within God-given boundaries without which there would be chaos. The perfect resolution of all mathematical processes demonstrates beautifully how everything is held together by God and sustained by His powerful Word.

**God created number and records much numerical information for us.**

**Number reveals the infinite nature of God because numbers are infinite.  
Romans 1:20**

e.g. Book of Numbers; Genesis; Exodus; the detailed measurements of the Ark and the Tabernacle.

**God gifts men with the ability to comprehend and work with numbers.**

'But it is the Spirit in a man, the breath of the Almighty, that gives him understanding.'

**Job 32:8**

**Mathematics is a subject which deals with principles of truth. Through Mathematics aspects of God's nature are revealed: accuracy, precision, order.**

'For God is not a God of disorder but of peace.' **1 Corinthians 14:33**

## **Mathematics is a language**

- Using symbols and signs which abbreviate words enabling quick thinking.
- It helps solve problems.
- It deals with real and abstract.
- It is logical and sequential.
- It helps us to measure and quantify.

**God has given us Maths as a language which uses principles of wisdom and truth in order to govern situations or problems. In order to reach the truth, we must obey the principles which God has revealed.**

‘If you love me, you will obey what I command.’ **John 14:15**

‘If you remain in me and my words remain in you, ask whatever you wish, and it will be given you.’ **John 15:7**

**Conditions for gaining wisdom and power to govern are: -**

1. Knowing the truth. (principles)
2. Obeying the principles fully.
3. Remaining in relationship with Jesus (obedience to His love) means that we gain all necessary wisdom (fruitfulness), i.e. answers to problems. This is because in Jesus Christ all the fullness of God (knowledge, wisdom and understanding) dwells.

‘For it is written: ‘I will destroy the wisdom of the wise; the intelligence of the intelligent will frustrate.’ **I Corinthians 1:19**

‘In whom are hidden all the treasures of wisdom and knowledge.’ **Colossians 2:3**

**Pupils are trained in obedience to principles of truth in order to find solutions to problems or challenges; this will lead them to greater wisdom.**

## **Teaching Mathematics**

**A fundamental principle by which we aim in Mathematics is understanding.**

In Mathematics there are perhaps two routes to understanding: -

1. There is a place for following rote instructions (formulae) which leads to understanding, rather like blind obedience. Practise reveals the process which is taking place.
2. In other areas it is important to gain understanding by investigation prior to proceeding further.

**The teacher needs to be dependent on the Holy Spirit to discern which approach is appropriate to any given group or class.**

**Both teacher and pupil need this – dependence on God (fear of the Lord) for His help at any given stage.**

**The need for an alert attitude: -**

- a. Attention to the information given in any problem which begins the process towards a solution.
- b. Observation of detail.

## Learning through Mathematics

1. Obedience – we learn to follow a prescriptive route and certain principles through to a conclusion.
  2. Experimentation – we learn to take risks to get an answer.
  3. Alternative routes – we learn there is not only one way to solve a problem.
  4. Problem-solving – we learn that there is not always only one acceptable answer; there may be a need to explore many to find the most appropriate or the best according to different criteria.
  5. Enjoyment – we learn it can be fun and satisfying to resolve a problem. There is fun in playing with numbers and discovering certain properties, patterns or sequences.
  6. Presentation – we learn that it is important to present information accurately and in a visually pleasing manner which communicates well to the person reading it.
  7. Truth – we learn that God's absolute values are unchangeable.
  8. Wisdom – we learn of God's wisdom through exploring mathematical truths.
- (Note: of the above, 2, 3, 4 and 7 tend to be investigative.)

**God is sometimes prescriptive but often allows us to investigate, explore and find out in order to enrich our experience, increase our resourcefulness and to teach us flexibility e.g.**

- a) Paul's missionary journeys.
- b) Exploring and taking Canaan.

We want students to do investigative work because our aim is for them to discover wisdom by listening to God and exploring the limits of their knowledge for fresh revelation. This will develop in them the qualities of creativity, resourcefulness and a desire to know more of God and His world.

## Concepts

### 1. Numeration system and place value

Heart Concept – Numeracy.

In numeracy and computation God has revealed His systems or order by which members can be controlled and confusion avoided.

'For God is not a God of disorder but of peace.' **1 Corinthians 14:33**

Heart concept – Place value.

A place is given to a number according to its value in the whole given number. God orders and positions all things according to the value He has given e.g. our position in Christ gives us value.

### 2. The four operations (rules)

Addition and Multiplication are to do with increase. Subtraction and Division are to do with decrease and sharing. God intends things to increase. This is a sign of God's blessing e.g. His Kingdom. Decrease is seen as:

- a) The opposite of blessing e.g. in **Matthew 25:29** – 'For everyone who has will be given more and he will have an abundance. Whoever does not have, even what he has will be taken from him.'
- b) Pruning for greater effectiveness e.g. **John 15:2** – 'He cuts off every branch in me that bears no fruit, while every branch that does bear fruit he prunes so that it will be even more fruitful.'  
Division is usually to do with equality in the sharing of resources e.g. **1 Timothy 6:18** '....be generous and willing to share.'

### 3. Estimation and Approximation

These are two of a number of wide strategies because they allow us to compare and assess our information towards a given solution. When mastered, these abilities contribute to solutions in various areas of life, e.g. on any journey a driver constantly estimates fuel capacity, speed and relative distance.

a) **Estimation**

Estimation is the ability to assess the unknown by comparing it with the known in the experience of the student.

b) **Approximation**

This is a skill by which we can rule complicated numbers and operations to see if the operation we have done by mechanical means has given us the answer of the right order.

### 4. Expressions (using BODMAS)

A strategy by which order, and an agreed resolution are brought to a mathematical expression, whether it is expressed in numerical or algebraic form. (1 Corinthians 14:33) BODMAS is a word used to help students remember the best order to solve equations. It stands for B = brackets (i.e. do the bracketed parts first), O = of (i.e. do the multiplication linked to the brackets next), D = any division in the equation, M = multiplication, A = addition, S = subtraction.

### 5. Trigonometry

Trigonometry is a set of relationships which always hold true and can be used to reach a solution.

In learning trigonometry, if the pupils will listen carefully, appreciate and learn the relationships and then apply the knowledge, resolutions of problems will follow. A teachable spirit is needed.

### 6. Spatial awareness

This ability is inherent in us all to some degree but can be honed and refined by learning how to use the relevant skills and by consistent practice. God gives us many things in embryo – which are developed by listening to what is taught and then applying what we have heard.

### 7. Probability

God is sovereign. He rules and reigns, as does His truth, therefore there is not chaos but order in God's creation.

There are laws of cause and effect.

There are laws of probability, i.e. one is able to calculate the likelihood of a happening given perfect and constant conditions e.g. tossing a perfect coin a large number of times will result in an equal number of times that the coin falls heads down and tails down.

Many aspects of business life are based on these laws of probability e.g. insurance policies.

### 8. Fractions

Everything in God's creation can be broken down into smaller parts and each component is a part of the larger whole.

**1 Corinthians 1:27** 'Now you are the body of Christ and each one of you is a part of it.'

We are a fraction of the body of Christ. The knowledge of fractions enables us to quantify amounts less than a whole with increased accuracy.

### 9. Base 10

It would seem that the origins of elementary counting are based on the use of fingers and toes, enabling a child's first experience of number to be placed in sets of ten. Most of the ancient world's numerical system (Arabic, Roman etc.) was based on ten. The metric system which developed from the French Revolution extended the base into magnitude (see measurement). Base 10 is obviously a convenient method of counting e.g. Moses delegation of government was to leaders of multiples of ten. (**Exodus 18:21**)

## 10. Place Value

Our normal structure of place value is based on powers of 10. Place value demonstrates the value of the digit due to its position relative to other digits. Value in Mathematics is an indication of quantity or amount, not of importance or desirability. Each position in the body of Christ has its own value, just as each numerical position in place value carries its own intrinsic value. Larger is not necessarily more valuable than smaller e.g. 1 gram of platinum is of more value than 2 grams of gold. The world generally apportions greater value to the larger number; this is not necessarily so in the kingdom e.g. a widow's mite can carry more significant value in God's sight than a larger monetary gift. The function of place value is to bring order to our notation of figures: - God is a God of order. **(1 Corinthians 14:33)**

## 11. Decimals

Decimals is a convenient method of writing Base 10 to the negative power, extending the place value structure to smaller quantities. Therefore, everything stated about place value applies here.

## 12. Pythagoras Theorem

Pythagoras Theorem is based on relationship pre-determined by God. When the set of relationships are adhered to, then there are known consequences which are helpful to us. This can be compared to the biblical order for relationships God gives us in society which produce 'Shalom' (well-being) when they are followed according to God's commands.

## 13. Algebra

This is a branch of mathematics where letters and signs are used to present quantities in order to find the unknown. In the same way God is unknown to man but through many and various signs God leads man to the knowledge of Him. In Algebra we use letters which are called terms e.g.  $a^2$ ,  $b$ ,  $2c$ ,  $\frac{1}{2}$ ,  $3b$  etc. When these terms are used logically we gain knowledge of the unknown.

e.g.  $a = 2$ ,  $b = 3$ , what is the value of the unknown  $c$ ?

$$\text{if } a + b = c$$

$$2 + 3 = c$$

$$5 = c$$

The value of the unknown designated as  $c$  is 5.

## Resources

Refer to 'Towards a Christian Curriculum' by Barbara Lord

## Quotes

'God is without bounds: You cannot add to God or take away from God. The concepts of addition and subtraction do not apply to the infinite. In all that He is, He is unlimited and unbounded.'

'God's creation is replete with both numerical and spatial relationships. It is the duty of man, as a dominion bearer, to observe this reality and classify it for use. Man, made in the image of God, is able to observe the physical creation and formulate relationships and consequences that both explain and predict. Throughout the history of mathematics, we find man doing just that.'

Mathematics enabled Johannes Kesler (1571 – 1630) a German Lutheran mathematician to 'think God's thoughts after Him.'

Quotes from: Mathematics: 'Is God Silent?' - by James Nickel.

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PO Box 67

Vallecito.

Ca. 9521 USA

Resource: Teaching Maths from a Christian Perspective – Julia Kennedy, The King's School, Witney, Oxon