

# **Geology: Rocks, Crystals, Gemstones**

## **God is Pure and Holy; God is our Rock; God is Truth**

### **Spiritual Overview:**

#### **Christians are the salt of the earth**

Salt is a Biblical symbol of purity. Salt was used for seasoning and preserving food, as an antiseptic in medicine and with all kinds of offerings. Covenants were sometimes made with salt. The synoptic gospels all mention salt, and describe the followers of Jesus as salt. If the salt is impure it loses its value.

Christians are the salt of the earth. If the salt loses its flavour, then it is of no value. This can be likened to Christians who lose their purity. Christians have no power over the enemy if they take on the flavour of the world. To win the daily battle of light against darkness, Christians must retain their purity. This can only be done by staying connected to Jesus, the vine, and by putting on the whole armour of God.

The Biblical reference to metals and gemstones, in relation to building the ark for the dwelling of God's presence, and also the Holy City, (Revelation 21), are also symbols of purity. Only the best and the most precious materials may be used in the presence of such a holy God.

#### **God is our Rock / God is Truth**

God uses the symbol of a rock to describe something strong and immovable, He is that rock. Jesus told the story of the wise and foolish builders, where we are instructed to build our lives upon the rock.

God's word is a rock of truth, dependable and totally reliable. Because many geologists believe that the Earth has existed for billions of years they have a bias when dating the age of rocks. Their dating methods start from a basis that the Earth is billions of years old. But rocks and fossils do not have dates stamped upon them. The date must be interpreted, and this depends on the scientists' belief about the past. Every dating method relies on many assumptions about the past that cannot be proved. Many dates given by geologists have been proved wrong, e.g. when creation scientists submitted rocks formed by lava flows of 50 years ago, conventional dating methods came up with a date of thousands of years.

#### **Our response to 'God is Pure and Holy'**

Because God is Pure and Holy I will...

- Obey Him.
- Try to do the things He wants me to do.
- Ask God to forgive me when I sin.
- Ask Him to make me clean inside.
- Admit when I make mistakes.
- Remember the fruits of the Spirit and try to show them in my life.
- Have respect for other people.

- Put God first in my life.

### **Our response to 'God is our Rock, God is Truth'**

Because God is my rock I will...

- Trust Him in times of trouble
- Depend on Him
- Build my life on Him
- Believe and obey His word
- Believe that God created the Earth as recorded in Genesis

### **Supporting devotional resource**

*Themes for Christian Studies Level 4, (Pure): The battle of light and darkness*

*Themes for Christian Studies Level 5, (Pure): Christians should be salt and light to the world.*

*Themes for Christian Studies 4, (Truth): God's word is a sure foundation, (the house on the rock)*

### **Biblical references**

#### *About rocks*

Matthew 7:24 the man who built his house on the rock

Psalms 18:2; 19:14; 40:2; 61:2; 92:15 God is our rock

#### *About salt/crystals*

Job 6:6 Salt for preserving food.

Ezekiel 16:4 Salt as an antiseptic.

Leviticus 2:13; Ezekiel 43:24 Salt as an offering.

Numbers 18:19; 2 Chronicles 13:5 Covenants made with salt.

Matthew 5:13 You are the salt of the earth. But if the salt loses its saltiness, how can it be made salty again? It is no longer good for anything except to be thrown out and trampled by men.

Luke 14:34-35; Mark 9:49-50 Salt of the earth

Colossians 4:6 Salted conversation

Ezekiel 47, especially 47:11 Salt is retained

#### *About gemstones and precious metals*

Exodus 25 Materials for building the Ark: Metals including pure gold; gemstones; only the best for the most holy God.

Malachi 3:3 God is a judge who refines like a fire that refines metal.

Revelation 21 & 22 The purity of Heaven; a holy city made of pure gold, with gates of pearls and foundations of precious jewels.

#### *About purity / goodness*

1 John 1:5-7 God's light casts out evil

Ephesians 6 The armour of God

Galatians 5:22-23 The fruit of the Spirit, especially 'goodness'

Philippians 4:8 Whatever is true, noble, right and pure - think about such things.

John 14:15 You are my friends if you do what I command you.

2 Corinthians 3:18 With unveiled faces we reflect the Lord's glory, being transformed into His likeness.

Hebrews 9 & 10 We can now enter into the Most Holy Place through the blood of Jesus.

Psalms 23:6 Surely goodness and mercy will follow me all the days of my life and I will dwell in the house of the Lord forever.

## Key Questions

What is geology?

What is a geologist?

Why did God create rocks and soil?

How long ago did God create rocks?

What would we say if we heard that a rock was billions of years old?

How do rocks remind us of God's strength?

What is purity?

Why does salt remind us of purity?

How can salt change the taste of food?

We could say that the world has 'good flavour' and 'bad flavour'. What does this mean?

How can Christians help the world to have 'good flavour'?

What would happen if a Christian stopped following Jesus?

## Outcomes

Students will

### *Knowledge*

- Classify various kinds of rocks
- Understand ways in which rocks were/are formed
- Understand the problems with dating methods carried out by scientists who believe in evolution
- Identify rocks in the local environment
- Understand the Biblical symbol of salt as sign of purity.
- Understand that through surrendering our lives to Christ we can be changed to become more like Him.
- Observe and describe the formation of crystals.
- Understand the uses for salt
- Understand the way in which crystals develop into gemstones.
- Understand that metals are minerals and found in rocks
- Identify different metals

### *Skills*

- Collect and classify rocks according to qualities and formation processes.
- Measure, weigh and test rocks for hardness.
- Investigate salt through dissolving, preserving and evaporating experiments.

### *Values*

- Develop a desire to live pure lives as Jesus would want them to live.
- Trust in God as our rock.
- Develop a desire to share God's love, and be salt and light to those around them.
- Believe God's word.

## Activities

### ROCKS

- Make a class collection of rocks. Classify according to colour and shapes, e.g. rounded or sharp edges.
- Identify igneous, sedimentary and conglomerate rocks.
- Explain how these were formed.
- Discuss the problems with dating methods and dates given for the age of rocks by geologists who believe in evolution. Decide how old the oldest rock in the world could be according to the Bible.
- Identify and classify rocks according to the following three groups:
  1. granite, basalt, scoria, quartz, (formed by cooling of molten material)
  2. sandstone, mudstone, conglomerate, coal, limestone (formed by sedimentary deposition).
  3. marble, quartzite, slate (formed by effects of heat and pressure on previously existing rock).
- Classify rocks according to size, shape, weight, density, colour, texture, layer formation.
- Record weights and sizes of rocks.
- Test rocks for hardness / softness / brittleness using a hammer.
- Try writing with rocks on hard surfaces.
- Compare freshly broken surfaces with weather-worn surfaces.
- Visit a road cutting if possible, or an area where rock layers can be seen.
- Demonstrate some of the principles of rock formation by making toffee, firing clay, allowing layers of mud to dry out, throwing pebbles into a cement-sand-water mixture.
- Test for limestone in rocks by pouring on lemon juice, vinegar or other diluted acid. Limestone rocks will effervesce or bubble in the presence of acid.
- Identify rocks used in local buildings or monuments.
- Identify man-made rocks including bricks, tiles and concrete.
- Make some cement using 4 cups of sand, 4 cups of water and some Epsom salts. Mix sand and water together with Epsom salts and dump it in a hole made in a bucket of dirt. Pat it down and wait 2 days.

### CRYSTALS

- Use a microscope and hand lens to examine table salt.
- Describe and draw the shape of the crystals. Are they all regular?
- Grow crystals: Take a glass jar, salt, sugar or washing soda, a long piece of thread and a paper clip. Fill jar with very hot water from the hot tap. Stir in lots of washing soda. Keep stirring until no more will dissolve in the water. Tie a paper clip on to the end of a piece of thread. Tie the other end around a pencil. Drop paper clip into the jar. Wind up the thread until the paper clip is suspended in the

mixture. Leave in a place where it will not be moved. After a few days crystals will form. They will grow along the thread. To make coloured crystals, add food colouring.

- Using a magnifying glass, study rocks such as quartz, and observe crystal formations.
- Evaporate a volume of seawater and measure the mass of salt remaining.
- Explain the difference between rock salt and sea salt.
- Compare the difference between white table salt and natural grey sea salt (known as Celtic or macro-biotic salt, available from health shops).
- Research the formation of stalagmites and stalactites in limestone caves.

#### GEMSTONES

- Draw and label gemstones.
- Describe how gemstones are cut to reflect light.
- Study the precious minerals that will form the Holy City, (Revelation 21).

#### Assessment

What have I learned from studying geology...

- about rocks, crystals and gemstones?
- about God?
- about the Bible?
- about the age of the Earth?
- about doing what God wants me to do?

#### Link to Australian Curriculum

**Science Year 4:** Earth and Space Sciences – The Earth’s surface changes over time as a result of natural process and human activity

#### Learning Connections

##### Art:

- Make a wall mural of the Holy City according to the Biblical description in Revelation 21. Use sequins and glitter to indicate the precious gemstones and metals. Include the tree of life and river of life.
- Study examples of rock art.
- Make rock creatures by gluing attachments to a stone.

##### Social Studies:

- Observe uses of rock as a building material.

##### Health:

- Research the health *problems* caused by refined, white salt, and the health *benefits* of unrefined salt, which retains many valuable minerals, e.g. pink Himalayan salt.
- Investigate the salt content of processed foods.
- List the uses for salt - as a preservative; as an antiseptic; as a cleansing agent.

**Thinking skills:** See the *Creative Thinking Skills* section of this website – “*Geology*” (Middle/Upper Primary).