God is Protector Teacher's Topic Guide Year 5

Topic: Shelter **Duration: 3 weeks**

Spiritual Awareness: God is our shelter
For in the day of trouble He will keep me safe in His dwelling; He will hide me in the shelter of His tabernacle and set me high upon a rock. Psalm 27:5

A house is a shelter from wind and rain, from heat and cold. It provides protection from the elements. God is our shelter. He is our Heavenly Father who protects us against the storms of life. God's shelter is invisible. That is, the invisible shelter of His love and care.

Shelters can also provide protection from physical danger. The castle of the Middle Ages, was a refuge in times of attack. Forts and fortresses are also refuges. A refuge is a place where we can go when we are in trouble. God promises to be our refuge and strength. We can trust in God's amazing power and strength. God is stronger than any fortress. He can protect us from danger and evil. He provides us with weapons to fight evil. These weapons are found in the armour of God.

God is able to protect us because of His strength. He is not only great, strong and mighty, but also faithful in His care for us. The Psalms tell us that God is a rock. He is a refuge and our strength, and an ever-present help in the time of trouble. This picture of strength is linked with His omnipotence. He is Lord and King, the only true God, great and mighty and one in whom we can trust.

Our response to 'God is a Powerful Protector'
- Because God is a Powerful Protector I will…
- trust God
- have faith
- have peace
- not be afraid because He is with me
- give my worries to God
- do what God asks me to do
- believe that God will do as He says
- put on the armour of God to protect me against the enemy

Bible stories: God is our strength
Exodus 7-14 - God set the Israelites free, and by His strength He held back the Red Sea.
Judges 6-8 - Through His power God used Gideon to set the Israelites free.
Judges 13-16 – Samson could have used his God-given strength for the glory of God and the support of his nation, but his sin caused him to lose God's protection
Joshua 6 - The walls of Jericho. God's power is greater than man's strength.
Joshua 10 - By His strength and power God caused the sun to stand still.
Ephesians 6:10-18 The armour of God

Bible Verses
Psalm 46:1 - God is our refuge and our strength, an ever-present help in the time of trouble.
2 Samuel 22:2 & 32; Psalm 18:30-36; Psalm 31:3; Psalm 71:3; Psalm 89:26; Psalm 91:5 - God is a rock
2 Samuel 22:33 - It is God who arms me with strength
Proverbs 18:10; Psalm 61:13 - God is a strong tower
Luke 1:37 - Nothing is impossible with God.
Phil 4:13 – I can do all things through Christ who strengthens me.

Buildings in the Bible
Tower of Babel (Genesis 11)
Noah's Ark (Genesis 6-8)
The tabernacle (Exodus 26 & 27)
The temple (1 Kings 6 & 2 Chron. 3 & 4)
The house on the rock (Matt 7:26)
Image of Christ the cornerstone (Ephesians 2:20)
Image of the body of Christ as living stones (1 Peter 2:5)

Key Questions
Why does a rock remind us of strength?
What does the Bible tell us about God's power and strength?
Which miracles in the Bible show God's strength?
There is evidence that some early people groups lived in caves. How would you use Biblical evidence to explain to someone that early cave dwellers were not ape-like beings but intelligent people like you and I?

Outcomes
Knowledge
- study early shelters of traditional people groups around the world
- compare building techniques and materials
- identify some famous architectural structures around the world
- understand that the stability of a structure is affected by the type of force and where that force impacts the structure

Skills
- assess the strengths and weaknesses of different types of shelters
- design and build structures to produce maximum strength
- assess strength of bridge and tower construction, using engineering features such as arch, dome, cylinder, cantilever, buttress
- discover rigid and non-rigid shapes
- test materials and structures for strength and ability to support weight
- explain why some shapes will support weights better than others
- change the shape of a piece of paper or card to support a weight more successfully
- explain the two types of support used in buildings: tension and compression
- explain how laying patterns can affect the strength of a brick wall
- predict the ability of a beam to span between two supports

Values

- work as part of a team in construction work
- show patience in construction work
- trust in God as our strength through life

Activities

- Research the history of shelter, (See *Beacon Media Research cards: History of shelter*)
- Make small bricks from various materials, e.g. mud or clay. Add reinforcements to some, e.g. stones, straw. Test the strength of the bricks by dropping them from waist height.
- Make spaghetti or drinking straw towers and bridges.
- Investigate the strength of fresh eggs by applying loads to different parts.
- Take a sheet of A4 paper and predict its possibilities to support a weight, unaided. Pleat the paper using 4-5 cm pleats. Make a column from the piece of paper and try to support a ruler.
- Test the column with other weights. Find out how much weight the column will actually support. Make a table showing results.
- Make a bridge from the pleated paper using two supports. Find out how much weight the paper will support when placed as such. Compare results with those of the single support.
- Take another piece of A4 paper and make a column by rolling. Compare the supporting ability of the column with the above.
- Suspend a rock on a piece of string or rubber band to show the principle of suspension.
- Place a rock on top of a pillar to show the principle of compression.
- Look for use of these two principles in existing structures.
- Use a strip of card to form a bridge between two pillars (or wooden blocks). Find out how to stop the card collapsing in the middle by - a) moving the pillars closer together, b) using wider card, c) using a stronger material. Draw conclusions.
- Experiment with building blocks to show the stability of different laying patterns similar to those used in bricklaying.
- Form groups and hold a competition to see which group can make the tallest structure using only - a packet of straws, a roll of sticky tape, scissors and newspapers.
- Observe structural features in famous buildings around the world e.g. Egyptian pyramids, leaning tower of Pisa, Eiffel Tower, The Beehive (Wellington N.Z.).
- Describe some of the structural developments of Greek and Roman times such as columns, arches, stone arch bridges (aqueducts).
- Investigate the strength of triangles and arches. Make a model aqueduct using scored cardboard for arches. Use plastic straws or cardboard strips to make triangular constructions.
- Compare bridges designed on suspension or compression principles e.g. Golden Gate Bridge USA (suspension) Roman stone arch bridges (compression).
- Make models of historical examples.
- Explore the local environment comparing old and new buildings. Assess stability of buildings, taking into account building materials and methods.

Assessment: Work in a group to design and build a model of structure that is strong and stable. Explain why your model is a strong structure.

Mathematics:
Research strength of shapes and prisms; measure heights of structures; estimate, measure, and record length, height, and distance, using standard units (i.e., centimetre, metre, kilometre); estimate, measure and record the mass of the load that the structures can support.

Values education Year 5
God is Protector
Faith and Trust

Faith is complete trust or confidence in someone or something. Trust is being certain that the 'someone' or the 'something' will not let you down.

Having faith and trust means:

- we trust those who have proven themselves trustworthy.
- we feel safe with people we can trust.

Christians put their trust in God who is trustworthy. They have faith that God is in control of their life and whatever happens, He is still looking after them.

Discussion and activities
Tell your partner about a time when you felt afraid.
Tell your partner about something you might be afraid to do in the future.
What do people worry about mostly?
Finish this sentence: "When I am afraid I can have faith because …"

Bible passages

- Isaiah 41:13 "I the Lord hold your right hand. Do not be afraid. I am the one who helps you."
- Romans 8:28 All things work together for good, in the lives of those who love and trust God.
- Psalm 23 The Lord is my shepherd
- Hebrews 11:6 Without faith it is impossible to please God.
- Ephesians 6:16 Put on the shield of faith.
- Matthew 17:20 Faith as a grain of mustard seed.
- Matthew 21:21-22 If you have faith, you can say to this mountain, 'move' and it will move.

Practical Science 1

God is Protector

How strong is an egg shell?

http://www.scienceweek.ie/assets/media/Resources/Primary%20Schools/2012%20activities/2012-Science-Week-how-strong-is-an-eggshell.pdf

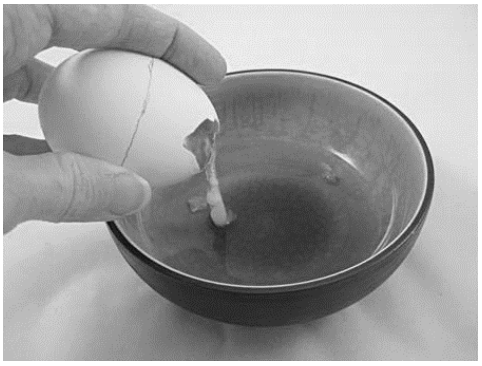
What happens if you drop an egg onto a hard surface?
That's right, the shell breaks. Is an eggshell always this fragile? Let's investigate.
What you need 4 raw eggs (same size) Pencil Glass Scissors Sheet of A4 paper Ruler Heavy books

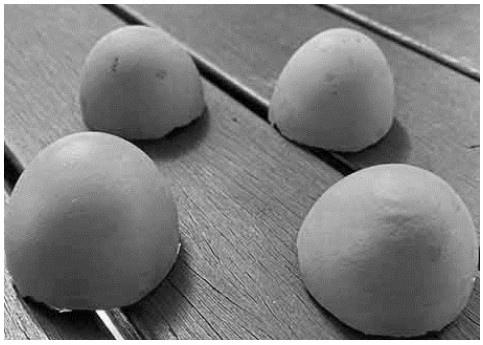
What you do

1. Using the pencil, draw a line around the widest part of one of the eggs.
2. Crack the pointed part of the egg. Pour the contents into a glass. (You could later use these eggs to make a nice healthy omelette).
3. Carefully break off the pieces of the eggshell down to near the pencil line. Use a scissors to nip off the shell near the line. Try and keep the rim of the shell as even as possible.
4. Repeat steps 1 to 3 with the other 3 eggs.
5. Draw a rectangle on a sheet of paper (about 18 cm by 12 cm).
6. Place one of the egg shells on each corner of the rectangle, with the cut edges facing down, as shown.
7. Carefully place a heavy book on top of the eggshells as shown.

What happens?
The eggs do not crack.

Why?
The halved egg shells under the books are dome shaped. As you can see from the diagram below, a dome is like a number of small arches arranged in a circle.
An arch is strong because its shape evenly spreads the weight on top of it. The weight of the books acting downwards is balanced by the strength of the dome-shaped eggshells. The weight of the books is spread evenly along the curve of the eggshells as shown below.





Practical Science 2
Triangles and squares

What you need:

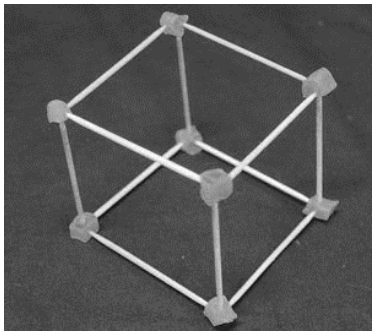
- Toothpicks or match sticks
- Lumps of blue tack or plasticine

Background information

The triangle is a strong shape and is used to support structures. Under a heavy load, a square distorts easily. If you put a brace diagonally across the square, you create two triangles and a much stronger shape. In fact, the triangle is the only shape that cannot be deformed without changing the length of one of its sides. Because it is not easily deformed, the triangle is an extremely popular building shape.

Questions

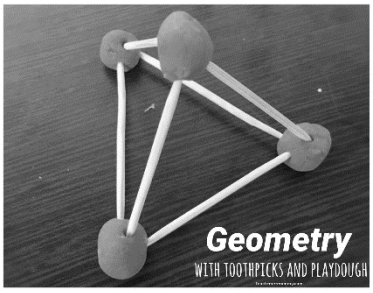
What shapes do you know?
Can you pick out any shapes in this room?
If you look at a bicycle (or a picture of one) can you pick out any shapes?
What shapes help the bicycle move? (Circles, wheels)
What shapes make the bicycle strong? (Triangles in the frame).
How would you make a corner stronger on a bench or a table?
(Ans: Add a strut across the corners to make a triangle.)



Activities

1) Squares and Cubes
(This takes 8 lumps of Blue tack and 12 toothpicks.)
Make a cube.

2) Triangles and Pyramids
Make a triangular-based
Now make a square-based pyramid. Which shape is the strongest?



3) Construction challenge:
When you make a structure that uses both triangles and squares you can make large structures. Try to make a structure using both.

Practical Science 3
Design a bridge

http://www.primaryscience.ie/media/pdfs/col/dps_maths_bridges_activity.pdf

Find a context where children have to think about crossing a river. This might be a story or a local river crossing. Find out what children think and know about bridges. They may mention tunnels as well as a means of getting across.
Have a display of pictures of bridges.
Visit a local bridge.
Do this introductory work on the day prior to doing the activity?

Questions
What is a bridge?
Where would you find bridges?
What are bridges made of?
What makes a good bridge?
What types of bridges are there? Can you name any?
(Bridge designs include arch, suspension etc.)

Activity 1
Place two piles of books the same distance apart on each table.
Make different kinds of bridges between the books and test which ones are strongest.
e.g. make a simple bridge using 1 page of A4 paper. Test its strength by adding coins or other masses.

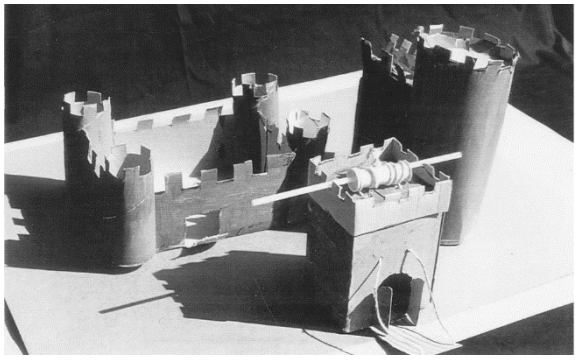
Activity 2
Design a Bridge
Explore how to make a paper bridge stronger
Using the blocks or books, paper and coins, design a bridge that will take the heaviest weight.
Try the following and record the results:

1) Make a bridge from one piece of paper and test its strength by adding coins or other masses until the bridge collapses.
2) Use two pieces of paper and test again.
3) Use one piece of paper and fold up sides, i.e. a walled bridge
4) Make an arch (using two pieces of paper).
5) Make a corrugated bridge, (folded like a paper fan.)
6) Make a bridge out of a different material.

Art Year 5

God is Protector

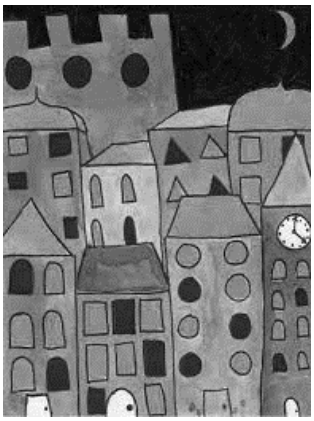
Buildings of the world



Biblical wall display: The name of the Lord is a strong tower. The righteous will run into it and be safe. Proverbs 18:10

Construction

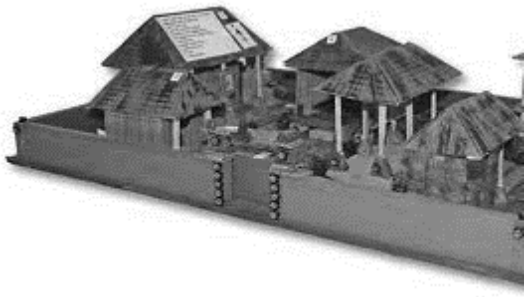
Design and build a model of structure that is strong and stable. Explain why your model is a strong structure.



Drawing and painting

Buildings past and present: Make a timeline in picture form of the history of buildings in your country.

Buildings rural and urban: draw the different buildings you might see in a village. Compare to buildings in a city.



Thinking Skills Protector Yr 5

Structure for strength 1 Draw a boat. Now redesign it by using the following steps: **B** - igger **I** – instead of **N** - onsense **G** – et rid of **O** – ther uses	**Structures for strength 2** Construct a bridge using: •a book •10 straws •sticky tape
Structures for strength 3 Give 3 possible explanations for: **a collapsed bridge**	**Structures for strength 4** Think of 5 ways that God can give us **'strength'**.
Structures for strength 5 Make a new product using: •**an egg** •**a pack of cards** •**a cardboard cylinder**	**Structures for strength 6** Design a structure that will not collapse in the event of an earthquake. Draw it if possible. Give reason for the design of your structure and the choice of materials.

Thinking Skills Protector Yr 5

Structure for strength 7 List 10 materials that are **not** used in the construction of a house.	**Structures for strength 8** What if there were no multi-story buildings allowed to be built. Write down 3 possible consequences.
Structures for strength 9 Consider 5 alternatives to: **"crossing rivers using bridges".**	**Structures for strength 10** The answer is: **"The Eiffel Tower"** Think of 5 questions.
Structures for strength 11 Brainstorm 5 ways that **"The Leaning Tower of Pisa"** could be made to stand upright.	**Structures for strength 12** List 3 disadvantages and 3 improvements to: **a brick house**