God is Protector Teacher's Topic Guide Year 6

Topic: Our special planet **Duration: 3 weeks**

Spiritual Awareness
God has provided a special home for us in the Cosmos. Because God is wise, He knows the exact conditions for our survival on this planet and created it especially for us. Although God is outside of time, He created time for us. He created the Earth to spin and rotate on its axis while it orbits around the sun.

Our special planet has built-in protection. The Earth is the only planet in our solar System that is suitable for living things. It is just the right temperature, has air, flowing water and gravity. God designed planet Earth for human life. He also designed the Earth with a special protective layer, the atmosphere. The atmosphere protects the Earth from extreme heat and cold, from radiation and from harmful meteors. God has a plan for our planet. He knows the beginning and the end. He wants us to trust Him and remain with Him as we walk through life, and not to worry about the future.

Values: Our response to 'God is Protector'
- **Trust** in God to be a guide for the journey of life
- **Confidence** that God is in charge

Outcomes: Students will
- understand the properties of the atmosphere
- explain the position of the earth in space
- compare the special features of earth with other planets: the earth is one of the eight planets in our solar system, but it is unique in that it is the only planet with living creatures
- understand how the relationship between the earth, sun and moon, and the rotation of the earth on its axis give us time, seasons, day, night, years, months
- measure time
- observe moon changes over a month
- observe movement of shadows
- compare hours of daylight at the equator and the poles at different times of the year

Bible stories and passages
Joshua 10 - The day the sun stood still. (God has control over time; He has control over nature).
Mark 4:35-42 Jesus calmed the storm. (He has control over nature.)
Psalm 104:19 – You created the moon to mark the month; the sun knows the time to set.

Verses about trusting God for the future:
Ecclesiastes 3:11 - He has made everything beautiful in His time.
Jeremiah 29:11 I alone know the plans I have for you, plans to bring you prosperity and not disaster, plans to bring about the future you hope for. (Good News Translation)
Proverbs 3:5-6 Trust in the Lord with all your heart, and do not lean on your own understanding. In all your ways acknowledge him, and he will make straight your paths. (ESV)
Psalm 95:4-5 In his hand are the depths of the earth, and the mountain peaks belong to him. The sea is his, for he made it, and his hands formed the dry land.
Psalm 24:1 The earth is the Lord's, and everything in it, the world, and all who live in it.

Key Questions
What makes our planet more special than any other planet?
What protection has God given to our planet?

What does the Bible tell us about trusting God, even when there are troubles and even disasters? What does God say about the future?

Activities

- Describe the earth's atmosphere.
- Discuss the importance of the atmosphere for protection from a) meteors, b) ultra-violet rays, c) extreme heat and cold.
- Define the ozone layer: part of the upper atmosphere - the air from about 10 km. to 50 km. above the Earth. This layer, the stratosphere, contains ozone. Ozone protects the Earth from ultra violet rays.
- Discuss the importance of the ozone layer. (Without the ozone shield, the sun's rays would damage our health, including skin and eyes. It would also affect plants and animals.)
- Draw a diagram of the solar system to show the earth's place in space.
- Compare conditions on earth to those of other planets and discuss suitability to life.
- Record local temperatures. Make a list of highest, lowest and average temperatures around the world. Establish the temperature range that best supports life.
- Make a table to show the seasons in the Northern Hemisphere compared to the months and seasons in the Southern Hemisphere.
- Discuss the relationship of the earth to the sun by using two different size balls and demonstrate how the earth moves around the sun.
- Make a sundial and observe movement of shadows.
- Discuss the relationship between the earth, the sun and the moon.
- Observe how the relationship between the earth, sun and moon gives us time, seasons, months, day and night.
- Draw the changing shape of the moon over a month.
- Research the relationship between the phases of the moon and our months.
- Discuss differences in seasons in Northern and Southern hemispheres.
- Research the north and south poles and observe differences in hours of daylight in winter and summer.
- Draw and name star patterns.

Geography: Give students plenty of practice with identifying continents and countries on the world map.
Beacon Media student research cards: 'Our Special Planet'
Thinking Skills: Space and time
Biography: Douglas Mawson

Values education Year 6
God is Protector
Peace

Peace is …
A calm feeling inside, no matter what is going on outside

Activity
Story: The Two Artists
Once upon a time there were two artists. Each artist was asked to paint a picture that would best depict the idea of peace.

One artist painted a crystal clear lake in the mountains. There was not a breath of wind, and not a ripple on the lake. The lake, like a mirror, reflected the image of the surrounding trees and mountains.

The second artist painted a picture of a roaring waterfall. Hanging over the waterfall was a great tree branch. Hidden away in a secure part of the limb was a little bird's nest. Inside the nest was a tiny bird, sitting peacefully as the water rushed and swirled below her and the water sprayed around her. Amidst the tremendous roar of the waterfall the little bird sat as if she had not a worry in the world. Her nest was snug and warm, nestled in the strong branch. She knew she was safe.

Discussion
1. Which picture do you think gave the best idea of peace? Why?
2. What kind of troubles can we have?
3. What can give us a feeling of peace when we are in the middle of troubles?

The second painting can be similar to feeling safe and secure in God's care. God doesn't promise that we will be free from all troubles, but He does promise that when we do have troubles, He will be with us, and can give us peace inside.

Bible references
Matthew 7:24-26 The house on the rock.
Job: Job trusted God, despite many troubles.
John 14:1-3,18,25-27 Jesus promised inner peace to His disciples, and the comfort of the Holy Spirit.
2 Corinthians 1:3-4 God comforts us in times of trouble.
John 16:33 In the world we have tribulation but in Christ we have peace.
Matthew 11:28 Come to me all of you who are tired from carrying heavy loads, and I will give you rest. (GNB)

Year 6 Art

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Our special planet

Biblical wall art and text: The earth is the Lord's, and everything in it, the world, and all who live in it. Psalm 24:1
Students can paint a giant map of the world, showing land and sea, mountains and deserts.

Painting
Suggestions for planet earth subject:

- A night sky
- Weather and seasons
- Lands of ice and snow
- A desert scene

Some painting techniques

- Spatter work for stars in a night sky (paint on a toothbrush, and run finger down the toothbrush to make speckles)
- Colour blending for sky effects
- Snow scenes using only black, white and tones of grey
- Combine oil pastel and paint. Use oil pastel to draw details on a painted background.

Practical Science Year 6

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Make a rain gauge

(to measure rainfall)

Materials:

- Empty two-liter plastic bottle
- Scissors
- A few handfuls of clean pebbles, gravel, or marbles
- Masking tape
- Water
- Ruler
- Permanent marker
- Rainy weather
- Paper and pencil

Experimental Procedure

Carefully use the scissors to cut the top of the bottle off at the wide part just below where it begins to get narrow.

Put the pebbles in the bottom of the bottle—these will help keep it from getting blown over if it's windy.

Turn the top of the bottle upside down—make sure there's no cap on it! It's going to act like a funnel—and place it in the bottom part of the bottle, pointing downward. Line up the cut edges and tape them together so the top part is held firmly in place.

Use a long piece of tape to make a straight vertical line from the top edge of the bottle to the bottom. Use the marker to draw a line on the vertical piece of tape just a little above the top of the pebbles. This will be the bottom of your rain gauge.

Set the ruler against the vertical tape so that the "0" line lines up with the bottom mark. Use the marker to mark every quarter-inch (or, if you want to get fancy, every eighth-inch) along the piece of tape. Then label the inches from bottom to top. (Alternatively, you can mark centimeters and half-centimeters instead.)

Set the bottle on a level surface and pour some water in until it reaches the bottom mark. Your rain gauge is now ready to go!

Put the rain gauge outdoors—you'll need to pick a really good spot! You want somewhere level that's open to the sky and that's not likely to get too windy, where the gauge isn't likely to be disturbed. There shouldn't be anything hanging over the gauge that could either

block any rain or make extra raindrops drip into the bottle (like a tree or a power line or the edge of a roof).

Pay attention to the forecast. On a day that you're likely to get rain, make sure the water in the bottom hasn't evaporated below your bottom mark; if it has, refill it to that mark.

If it rains within 24 hours, check your gauge and see how high the water is now. That's how much rain has fallen in the last day! On your piece of paper, make a note of the date and the amount of rain. Then read the newspaper or go online and find out the official amount of rainfall in your area for the day and make a note of it—see how closely your figure matches the official one!

Repeat steps 7-9 for several rainy days.

Author: Michelle Formoso

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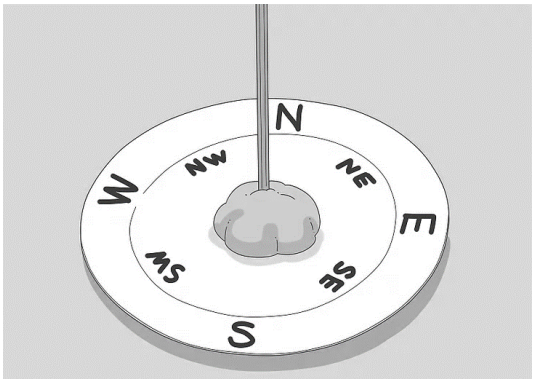
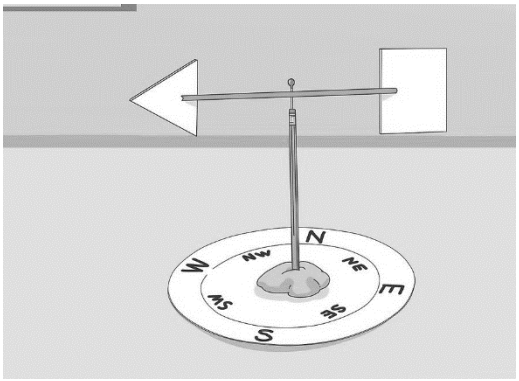
Make a wind vain (to measure wind direction)

- Materials:
- Paper plate
- Blue tac
- Pencil with rubber on end
- pin
- straw
- cardboard and scissors to cut the shapes





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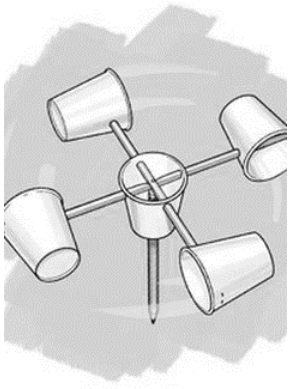
Make an anemometer (to measure wind speed)

Materials:



- 5 paper cups
- 2 straws
- pin
- paper hole punch
- scissors
- stapler
- sharp pencil with an eraser (rubber)

Process:

Take four of the paper cups and use the paper punch to punch one hole in each, about 5 cm (half an inch) below the rim.

Take the fifth cup and punch four equally spaced holes about a quarter inch below the rim. Then punch a hole in the center of the bottom of the cup.

Take one of the four cups and push a straw through the hole. Fold the end of the straw and staple it to the side of the cup across from the hole. Repeat this procedure for another one-hole cup and the second straw.

Slide one cup and straw assembly through two opposite holes in the cup with four holes. Push another one-hole cup onto the end of the straw just pushed through the four-hole cup.

Bend the straw and staple it to the one-hole cup, making certain that the cup faces the opposite direction from the first cup. Repeat this procedure using the other cup and straw assembly and the remaining one-hole cup.

Align the four cups so that their open ends face in the same direction either clockwise or counter-clockwise around the center cup.

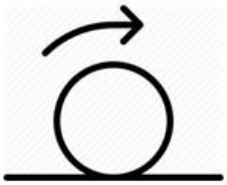
Push the straight pin through the two straws where they intersect.

Push the eraser end of the pencil through the bottom hole in the center cup. Push the pin into the end of the pencil eraser as far as it will go.

Now your anemometer is ready for use!

Explanation: An anemometer is useful because it rotates with the wind. To calculate the velocity at which your anemometer spins, count the number of revolutions per minute.

Thinking Skills

Space 1 List 10 outer space objects that we cannot see in the night sky.	**Space 2** What if: The sun disappeared
Space 3 List the disadvantages of, and the improvements to: A space suit	**Space 4** What are the similarities between: A moon buggy A pair of scissors
Space 5 Draw a space rocket. Now make it: **B**igger **A**dd something to it **R**eplace something on it	**Space 6** Give three facts about space that this picture could represent. 

Space 7 Make a prediction. How could rockets be powered in 50 years?.	**Space 8** Find 10 different uses for: sunlight
Space 9 "Everyone should be able to take a space shuttle trip into outer space." List 3 good points and 3 bad points for this	**Space 10** Brainstorm solutions for: How to get rid of the space junk floating around in our upper atmosphere.
Space 11 Design a machine for: Watering pot plants in a space station	**Space 12** Make an acrostic for: S P A C E