

Light and colour: Outcomes and activities

God is Truth Year 2

Spiritual awareness: God is faithful to His word. His word is Truth.

Jesus said, "I am the way, the truth and the life." He also said "I am the light of the world". Because He is truth, He brings light to a world in darkness.

Our response to 'God is Truth'

Because God is truth I will...

- Put God first in my life.
- Never follow other gods.
- know that God is true to His word
- be true to the words I speak and keep my word
- understand that to live in God's light, I need to be forgiven for our sin
- understand that to live in the light I need to follow God, trust and obey and read His word.

Key Questions

What is light?

How does light make you feel?

What is darkness?

How does darkness make you feel?

Why does light remind us of the things that come from God?

Why does darkness remind us of things that come from Satan?

What does the Bible mean by 'living in the light'?

Who is the light of the world?

Why do we need light?

Outcomes

Students will

Knowledge

- Understand the critical role the sun plays in supplying the earth with light and energy
- Understand the meaning of transparent, translucent and opaque
- Understand the difference between reflected and refracted light (middle/upper primary)
- Understand that light can be broken up into colour
- Name the primary colours and the colours that are formed when primary colours are mixed together
- Explain human dependence upon light
- Explain animal dependence upon light.
- Understand the critical role the sun plays in supplying the earth with light and energy.
- Recognize that the sun is a star.
- Know the difference between a star and a planet.
- Explain the connection between day / night and the earth's rotation.

Skills

- observe and describe the colours of the rainbow
- identify colours that will make an object stand out from its background
- conduct experiments with light and record results

Activities

- Conduct blindfold walks to show dependence upon light.
- List reasons for plant, animal and human dependence upon light.
- Devise an experiment to show that plants depend on light for growth.
- List daytime and night time activities of humans and animals. Which animals are nocturnal?
- Paint with water on white concrete path, and observe the way the water evaporates in the sun.
- Classify lights into different categories, e.g. lights in the sky, electric lights, projected lights, reflected lights, fire light.
- Experiment with objects or materials that reflect e.g. mirrors, glass, water, shiny metals.
- Experiment with prisms. See how sunlight passes through glass and splits the white light up into spectrum of colours.
- Identify and draw the colours of the rainbow in the right order.
- Blow bubbles and discuss the colours that are seen in the film.
- Identify primary colours (red, blue, yellow) and secondary colours, (grn, orange, purple).
- Name the colours that will be formed when two primary colours are mixed.
- Make black and white collages.
- Use paint, experiment with colour mixing.
- Make a cardboard colour wheel by combining two or more colours and spinning the wheel rapidly on an axle.
- Using a combination of different coloured paper and pencils, discover the combinations of colours that are bright or dull looking.
- Make shadow puppets.
- Set up a shadow stick, observing shadow lengths throughout the day.
- Experiment with light using opaque, transparent and translucent paper.

Values education Year 2

God is Truth

Trustworthiness

Trustworthiness means that ...

You will do what you say you will do.

You keep your promises

You are honest

You can be trusted

You keep secrets when you are meant to keep secrets

Discussion and activities

Think of a person is trustworthy.

Why would you say that they are trustworthy?

Think of your best friend.

Why is it important to be a trustworthy friend?

Would your friend want to stay being your friend if you shared secrets about them that they didn't want shared?

Would your friend want to stay being your friend if you said you were going to do something, but you didn't?

God is trustworthy

That means He will keep His word. He will do what He says He will do in the Bible.

The Bible calls this "faithfulness".

What does the Bible say about God's faithfulness?

Psalm 36:5 Your steadfast love, O LORD, extends to the heavens, your faithfulness to the clouds.

Psalm 89:8 O LORD God of hosts, who is mighty as you are, O LORD, with your faithfulness all around you?

Psalms119:90 Your faithfulness endures to all generations; you have established the earth, and it stands fast.

Art Year 2

God is Truth

Topic: Light and colour

Biblical connection: The God of the Bible is the only true God. He brings light to those who walk in darkness. He always keeps His promises.

Bible art as a wall display: Noah's ark landed and sign of rainbow, the sign of God's promise.



Painting and drawing

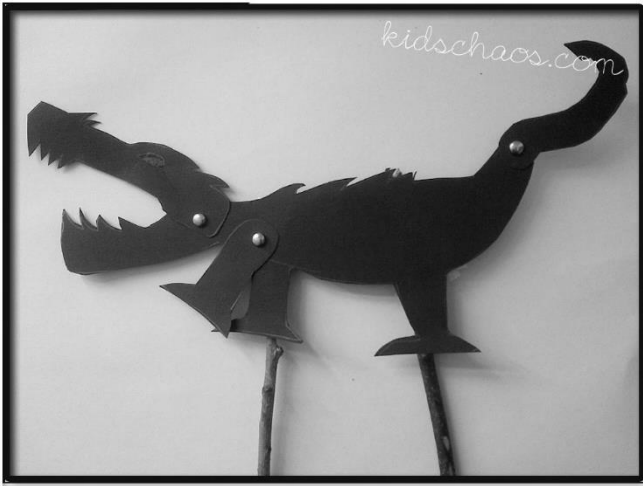
- Marbelling. Drop some thin paint of two colours on to a sheet of paper. Fold in half.
- Paint using three primary colours.
- Two colours of powder paint are together in a container: blue and yellow; red and blue; or red and yellow. Paint with dry powder paints on wet paper.

Drawing or painting the colours of the rainbow: order of colours from outside to the inside: red, orange, yellow, green, blue, indigo, violet



Construction

- Make shadow puppets. Children can work in groups or pairs to write a script for their characters.



How to make a shadow puppet theatre

What you need

1 cardboard box

1 sheet of tissue paper (large enough to cover one side of your box)

sticky tape

scissors or a craft knife

black marker pen

bedside lamp or large torch

a table

Cut the back panel out of your box.

Leave two of the side flaps to keep your puppet theatre stable, but cut off the front flaps (the pieces that close up the box).

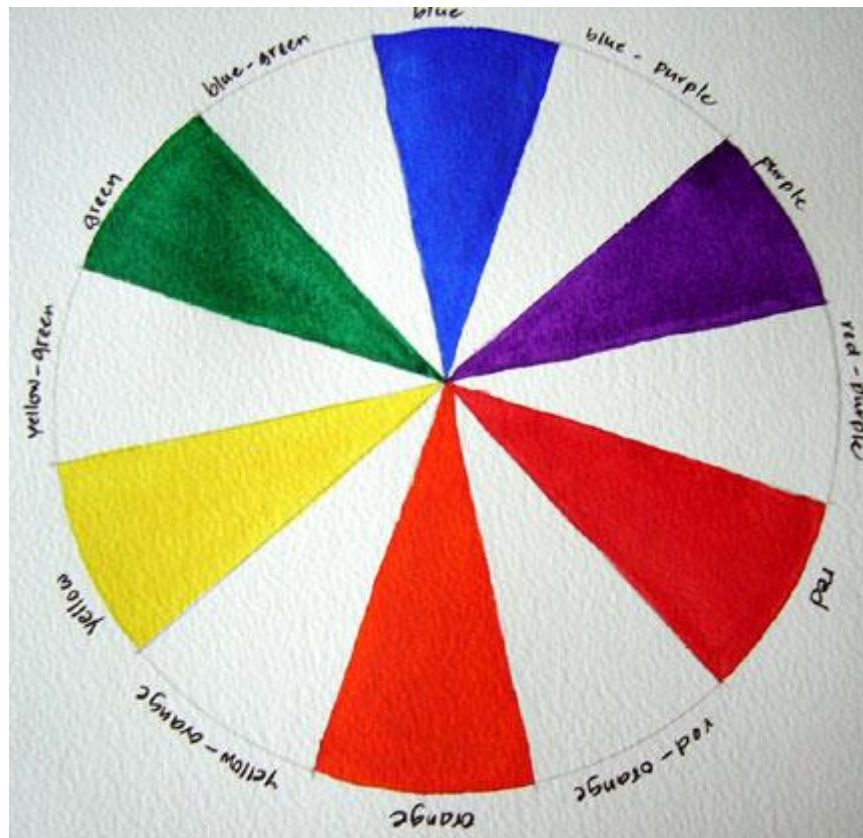
For the front of your theatre, sketch out a smaller square within the front panel, you can make it fancy with an arch and pillars if you want but really all you need is a smaller square within the main square (like a television set).

On the inside of the box, tape a piece of tissue paper that covers the opening you have just cut out.

Place the theatre on the edge of a table. Position a lamp or torch behind, shining directly into the inside, lighting up the tissue paper from within.

Make some shadow puppets and place them between the light and the screen, as close to the screen as possible works best.

Colour wheel



Practical Science:

Growing plants in the dark /light experiment

1. Take 6 pots and 6 bean seeds
2. Fill each pot with soil.
3. Plant one bean seed in each pot.
4. Place three of the pots outside in a spot that receives lots of sunshine.
5. Place the remaining three pots in a dark cupboard.
6. Water the plants and see what happens.

Do plants need light to grow?

Practical Science: Playing with Shadows

What you will need:

- Flashlight (torch)
- Blank wall
- Piece of yarn / string
- Chalk

What to do:

1. Discuss shadows. Ask them how they are formed and whether a single object can produce different kinds of shadows.
2. Take the children outside on a sunny morning. Tape a long piece of yarn / string to the ground for each student. Ask them to write their names in front of the yarn.
3. Ask the students to observe the position of the sun. Use the chalk to mark the length of each student's shadow on the yarn.
4. Return outside and repeat the same steps later in the morning, at midday, in the early afternoon and again later in the afternoon.
5. Discuss with your students how the position of the sun affected their shadows.
6. Based on their observations, ask them how they can change the shape of the shadow of a single object.
7. Experiment with a flashlight (torch) shining through a shadow box.

Practical Science: Make a Sun dial

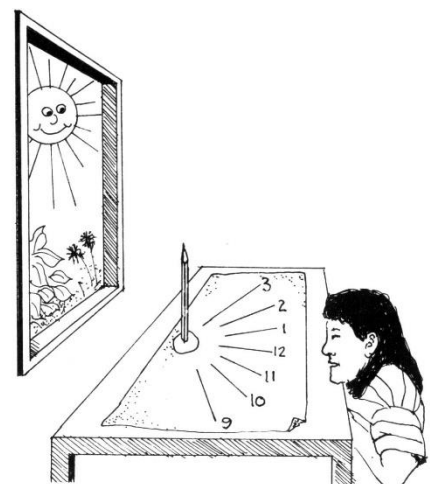
What makes shadows?

Shadows are made when something blocks the light shining on it.

In the olden days, people did not have clocks like the ones we have today. They measured time by the sun. They could tell the time by the length of the shadow made by a shadow stick (also called a Sun dial).

To make a sun dial:

1. Cut a circle from stiff cardboard to make a dial.
2. Push a sharp pencil or skewer through the middle of it.
3. Push the pencil into the ground.
4. Mark on the dial where the pencil's shadow falls each hour.



Practical Science: Mixing colours

You will need

- 5 large glass bowls
- 2 plastic cups
- Red, blue and yellow food coloring
- Water

Instructions

- Pour water into 3 glass bowls and add a few drops of food coloring to each.
- Set aside one bowl for mixing and another as a dumping bowl.
- Now let the children have fun taking a cupful of water from two of the primary colors and mixing them in the mixing bowl.
- Repeat the experiment by pouring some of the third color into the bowl.

Practical Science: Dyed Flowers

Things you will need:

- A few stems of bright, white flowers such as lilies, chrysanthemums or carnations
- Jars filled with water
- Food colouring

Instructions:

1. Use the food dye to colour the water in each jar. This experiment works best with strong dye
2. Place the flowers into the jar.
3. Now watch and wait!

You may like to test some different colours, or maybe even draw a picture of your flower as it changes!

Practical Science: Walking Water

Things you will need:

- Three cups
- Paper towel
- Water
- Food colouring

Instructions:

1. Fill two of the cups half way with water and place them either side of the empty cup.
2. Colour the water in one cup with yellow dye, and the other with blue dye.
3. Fold or cut the paper towel into two long strips (a few cm wide).
4. Place one end of the first strip into the blue colored water and the other end of the strip into the empty cup.
5. Place one end of the second strip into the yellow-coloured water and the other end of the strip into the empty cup to join the first strip. 6. Watch and wait to see what happens!

You may like to try using different combinations of primary colours!

Practical Science: Rainbow in a Glass of Water

You will need:

- A glass of water that is 3/4 full
- Sunlight
- White paper

Instructions:

- Ask a child to stand near a sunny window or any other sunlit place.
- Have him hold the glass of water above the white paper in a way that allows the sunlight to pass through the water and fall on the paper.
- Watch a rainbow appear.

Explanation:

When light passes from one medium to another medium (in this case, from air to water), it separates into the seven colors of the rainbow – violet, indigo, blue, green, yellow, orange and red. You can observe the same process in a rainbow in the sky, in a water fountain and in the mist above a waterfall.

Thinking skills

Light and colour 1

Draw a picture using one colour to show how you feel today.

Light and colour 2

Name 3 things that a torch and a book have in common.

Light and colour 3

Make a machine to paint a picture of a rainbow.

Light and colour 4

What if there were no colours in our world?

Give 3 ideas to explain what it would be like.

Light and colour 5

Draw a torch
Now redesign it by using the following steps:
B – make one part **bigger**
A – **add** something extra
R – **replace** one part with something bigger

Light and colour 6

What do you think would happen to the world if there was no light?

Give 3 suggestions.

Light and colour

Draw a picture in each box

1

It is light that lets you see things.

2

In the dark you cannot see at all.

3

**The sun gives us daylight.
The moon gives us moonlight.**

4

**Fire gives us light.
Electricity gives light.
God made these things to give us light.**

5

**The sun sends out rays of light.
It shines on the Earth.**

6

**But the sun shines only on one side of the
earth at a time.**

**Half the earth has daytime while half the
earth has night time.**

7

**The moon is like a giant mirror.
It bounces sunlight on to the earth.**

8