

St Bernadette's Catholic Primary Voluntary Academy

Science Medium Term Planning - KS2 Advent Term Cycle A - Worlds Of Wonder - Earth and Space, and Light



| MATERIALS | Learning Objective | Activity | Key Knowledge (By the end of the lesson) | | Vocabulary (Tier 3) |
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| | | | Substantive | Disciplinary | |
| Lesson 1 | L.O.33: To be able to describe the Sun, Earth and Moon as approximately spherical bodies. | Choose from a range of objects, the best shape to describe the Sun, Earth and Moon. Research evidence - Flat Earth verses Spherical Earth. Discuss the historical theories of Ancient India, Egypt and Greece. Compare this to the evidence we have today. | <ul style="list-style-type: none"> Know that the Sun, Earth and Moon are spherical. | Enquiry Approach Focus <u>Research</u> <ul style="list-style-type: none"> Identify scientific evidence which does or does not provide evidence for an idea or argument. | Sun Earth Moon Solar System Star Planet Celestial Body Sphere Spherical |
| Lesson 2 | L.O.31: To be able to describe the movement of the Earth and other planets, relative to the Sun in the solar system. | Select from a range of fruit to decide which one represents which planet. Create a scaled solar system model. Research and collate planetary data, producing a fact file of the planets. | <ul style="list-style-type: none"> Know the name of the planets in the solar system. Know how the Earth and other planets in the solar system move. | | Sun Earth Planet Solar System Orbit Geocentric Heliocentric |
| Lesson 3 | L.O.31: To be able to describe the movement of the Earth and other planets, relative to the Sun in the solar system. | Discuss the movement of the Earth - rotation and revolution (orbit). Make observations of how the planets move around the Sun. Compare the geocentric and heliocentric model of the solar system and how views have evolved. | <ul style="list-style-type: none"> Know the name of the planets in the solar system. Know how the Earth and other planets in the solar system move. | | Sun Earth Planet Solar System Orbit Geocentric Heliocentric |
| Lesson 4 | L.O.32: To be able to describe the movement of the Moon relative to the Earth. | Recreate a lunar month simulation and explain why, scientifically, the appearance of the Moon changes. | <ul style="list-style-type: none"> Know that the Moon orbits the Earth. Know the phases of the Moon. | Enquiry Skill Focus <u>Recording data</u> <ul style="list-style-type: none"> Use tables, drawings and other means to note observations of the | Earth Moon Celestial Body Satellite Orbit |

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| | | Match Moon phases to a lunar cycle diagram. | | phases of the Moon. | Eclipse Lunar Month Tide |
| Lesson 5 | L.O.34: To be able to use the idea of the Earth's rotation to explain day and night and the apparent movement of the Sun across the sky. | Design and implement a shadow investigation that demonstrates the spinning of the Earth. Measure shadow length at different times during the day. Explore further how shadows and day and night help us to understand and demonstrate the spinning motion of the Earth. | <ul style="list-style-type: none"> Know that the Earth moves on its own axis. Know that day and night are caused by the spinning motion of the Earth. | Enquiry Approach Focus <u>Setting Up Tests</u> <ul style="list-style-type: none"> Decide on the method and equipment to use to carry out an enquiry - changing shadows. | Earth Sun Rotation Spin Axis Night and Day Shadows |
| Lesson 6 | L.O.34: To be able to use the idea of the Earth's rotation to explain day and night and the apparent movement of the Sun across the sky. | Using a template, make a sundial and attach the gnomon. Calibrate and mark the shadow at set times. Predict where the shadow lines will fall later in the day. | <ul style="list-style-type: none"> Know that the Earth moves on its own axis. Know that day and night are caused by the spinning motion of the Earth. | Enquiry Approach Focus <u>Making Predictions</u> <ul style="list-style-type: none"> Suggest what will happen - sundial shadow lines. | Earth Sun Rotation Spin Axis Night and Day Shadows |
| Lesson 7 | L.O.24: To be able to recognise that light appears to travel in straight lines. | Explore the use of two objects on a Moon buggy design. Firstly, a periscope made up of a tube and angled mirrors. Then, calculate the best position for a rear-view mirror. | <ul style="list-style-type: none"> Know that light travels in straight lines. Know that a light source is needed to see. | | Light Source Straight Line Reflect |
| Lesson 8 | L.O.25: To be able to use the idea that light travels in straight lines to explain that objects are seen because they give out or reflect light into the eye. | Label the main parts of the human eye and explain their functions. Investigate how to get light from one point to another. Use mirrors to change the path of light. | <ul style="list-style-type: none"> Know the main parts of the human eye. Know that mirrors reflect light and that they help us to see objects. | | Light Source Straight Line Reflect Mirror Ray Angle of incidence Angle of reflection |
| Lesson 9 | L.O.26: To be able to explain that we see things because | Draw a simple diagram to explain how we see things, | <ul style="list-style-type: none"> Know that we need light in order to see things. | | Light Source |

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| | light travels from light sources to our eyes or from light sources to objects and then to our eyes. | including objects that are not light sources. Investigate splitting white light into coloured light using a torch and a prism. Combine coloured light into white light using a spinner and a pencil or string. | <ul style="list-style-type: none"> Know that white light is made up of a spectrum of colours. | | Refraction Prism White Light Spectrum |
| Lesson 10 | L.O.27: To be able to use the idea that light travels in straight lines to explain why shadows have the same shape as the objects that cast them. | Explore how you can change the shape and size of the shadow using a torch and a range of objects. Estimate the width of shadows formed by an object. | <ul style="list-style-type: none"> Know that a shadow has the same shape as the object casting it. | | Light Source Reflect Mirror Shadow Block |
| Lesson 11 | L.O.27: To be able to use the idea that light travels in straight lines to explain why shadows have the same shape as the objects that cast them. | Investigate how changing the distance between the light source and the object affect the size of the object's shadow. Predict and measure the width of the different shadows formed. | <ul style="list-style-type: none"> Know that a shadow has the same shape as the object casting it. Know that the closer the object is to the light source the bigger the shadow. | Enquiry Skill Focus <u>Recording data</u> <ul style="list-style-type: none"> Use tables and graphs to show the relationship between the distance between a light source and an object and the size of the shadow cast. | Light Source Reflect Mirror Shadow Block |
| Lesson 12 | End of Unit Assessment | | | | |