



Medium Term Unit Planning

Topic Name: - PUMP IT UP!

Learning outcome:

The children will learn about the circulatory system and the impact healthy diet and exercise can have. They learn about the effect and dangers of drugs. Linked the Pig heart Boy text, the RE focuses on the potential conflicts between science and religious beliefs. In Art the children explore drawing and sculpture for people in motion.

Hook

Making blood!

Topic Showcase (e.g. display, museum, performance, presentation)

Oracy:

Class debates linked to Literacy and PSHE.

Key Vocabulary:

Science – blood, plasma, haemoglobin, platelets, coagulation, circulation, oxygen
Music – beat, pulse, time
Art – sculpture, position, movement, representation,
RE -creation, universe, evolution, interpret, conflict, complementary, scientist, literally

Key Texts (whole class reading/end of the day book/Talk for Writing Texts etc.):

Pig Heart Boy

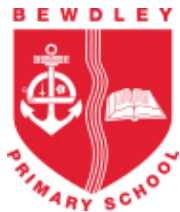
Citizenship/Community Opportunities:

(Focus – change in attitude/increase knowledge and awareness/make a difference)

Improved awareness of healthy lifestyles and the importance of this.

Experiences/Visits/Visitors

Visit to High School – Heart dissection



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Main Subjects covered:

Science PSHE Art RE (Music)

Subject 1 Threshold concepts

Science

Subject 2 Threshold Concepts

PSHE

Subject 3 Threshold Concepts

Art

Subject 4 Threshold Concepts

Music

Subject 5

RE

Notes:

Lesson title and learning Intention

Threshold concepts (success criteria)

Milestones (success criteria)

Lesson structure/differentiation

Science

Component of blood

Understand humans and animals

Identify and name main parts of the human circulatory system, and describe the functions of the heart, blood vessels and blood.

Make blood + explanation of components. Give chn an additional ingredient - antigens which help fight infection, and they define what blood group or type we all have.
Watch video on blood and recap on main functions of components. Electron microscope image – sketch one of the components. Look at



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| | | | artist impression of blood. Experiment with different media, look at shape, texture and colour. Create own artist impression of blood components. Haikus? |
| 1. Parts and functions of the heart | Understand humans and animals | Identify and name main parts of the circulatory system | Label parts of the heart with function – Heart jigsaw as an intro Videos – diagrams and animations Do own sketches of heart and label with parts and arrows for direction |
| 2. The circulatory system | Understand humans and animals | Identify and name main parts of the circulatory system | STEM circulation game Circulation game on the playground. Representation of circulation journey. |
| 3. Heart Rates | Understand humans and animals | Recognise the impact of diet and exercise on the way bodies function. Take measurements, using a range of scientific equipment, with increasing accuracy and precision. | What is a heart rate? Teach children how to measure/calculate. Take heart rates when resting, after moderate and vigorous exercise. Discuss results and observations |
| 4. Graphs | Work scientifically | Record data and results of increasing complexity using tables, bar and line graphs. | Graphing results from heart rate exercise – line graphs. |
| 5. Heart Rates | Understand humans and animals | | Heart rate hypothesis activity: Children work in groups to decide heart rate of different people in various situations. |
| 5. Animal heart rates | Understand humans and animals Music - pulse | Play and perform in solo and ensemble contexts, using their voices and playing musical instruments with increasing | Bar graph showing bpm's of different animals/age groups. Heart Beat Sound Installation: Get chn to create a sound installation using drums to beat the heartbeats of different animals. |



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| | | accuracy, fluency, control and expression. | |
| 6. Osmosis | Understand humans and animals | Understand how nutrients are absorbed into the body. | <p>Egg investigation – http://www.schoolingamonkey.com/osmosis-for-kids-blood-cell/ put egg in vinegar and jelly snakes in water, measure first.</p> <p>Next part of egg experiment – shell off, put into red water.</p> <p>Multi-coloured skittles. Add 100ml water. Observe what happens. Measure jelly snakes Make suggestions as to what happened in each experiment and how this relates to the movement of nutrients and water within our bodies to help transport it to all our body parts.</p> <p>Osmosis Art. Photos of egg experiments at each stage – pic collages with explanation of what osmosis is – absorption of water in the body.</p> |
| 7. Diffusion | Understand humans and animals | Understand how nutrients are absorbed into the body. | <p>Diffusion prints. Gelatine into petri dishes, drop ink. Predict what will happen. Write down prediction. Drop ink. Print at each stage. Statement how diffusion links to process of absorption of nutrients.</p> |
| PSHE – Drugs Education – Keeping Safe | | | |
| Differences between a drug and a medicine | PSHE – Drug Education | Recognise the impact of diet, exercise, drugs and lifestyle on the way their bodies function. | <p>Myth or fact game. Discuss the answers and explain. Drugs are substances that create chemical reactions in the body. Use photos -mind map drugs – sort into legal/illegal, drugs/medicine.</p> |



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| | | Recognise the impact of diet, exercise, drugs and lifestyle on the way their bodies function. | What is the difference between a drug and a medicine? |
| Peer pressure | PSHE – Drug Education | Recognise the impact of diet, exercise, drugs and lifestyle on the way their bodies function. | Play the quiz. Talk about peer pressure to start smoking etc, Difficult to say no. video, booklet. Role play. |
| Effect of drugs | PSHE – Drug Education | Recognise the impact of diet, exercise, drugs and lifestyle on the way their bodies function. | Intro the drugs advert. Advertising campaign- photo montage to raise awareness off effect of drugs on body. Work in pairs. Message to incorporate science of drugs and include a slogan, Research- investigate effect of drugs on body using list of websites. |
| Art – People in Motion | | | |
| Sketching | Master techniques - drawing | Use a variety of techniques to add interesting effects (e.g. reflections, shadows, direction of sunlight). Use a choice of techniques to depict movement, perspective, shadows and reflection. Use lines to represent movement. | In sketch books practice using 2B and 4B pencils to sketch people. Work on getting proportion correct. Use the wooden manikin models. |
| Sketching from photos | Master techniques - drawing | | Use the photos taken in the playground to draw pictures of children in motion extending skills. Sketch book work. |
| Own choice | Master techniques - drawing | Choose a style of drawing suitable for the work (e.g. realistic or impressionistic). | Children to be given a choice of media/paper to create a picture of their person in motion. |
| Giacometti | Take inspiration from the greats – Giacometti, Nolde | Show life-like qualities and real-life proportions or, if more abstract, provoke different interpretations. | Giacometti – look at examples. Discuss how their person in motion will look as a sculpture. 2D to 3D. Scrunch paper clay! |



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| Sculpture | Master techniques – sculpture | Use tools to carve and add shapes, texture and pattern. Combine visual and tactile qualities. Use frameworks (such as wire or moulds) to provide stability. | Sculptures – out of foil. Bases Push foil person into clay so it dries stuck! Tissue paper the foil models when dry. |
| RE U2.2 Creation and Science: conflicting or complementary? | | | |
| 1 - Genesis | Making sense of belief | <ul style="list-style-type: none"> Identify what type of text some Christians say Genesis 1 is, and its purpose Taking account of the context, suggest what Genesis 1 might mean, and compare their ideas with ways in which Christians interpret it, showing awareness of different interpretations | Identify what type of text some Christians say Genesis 1 is, and its purpose - Suggest what Genesis 1 might mean, and compare their ideas with ways in which Christians interpret it, showing awareness of different interpretations - Make clear connections between Genesis 1 and Christian belief about God as Creator - Show understanding of why many Christians find science and faith go together - Identify key ideas arising from their study of Genesis 1 and comment on how far these are helpful or inspiring, justifying their responses - Weigh up how far the Genesis 1 creation narrative is in conflict, or is complementary, with a scientific account, giving good reasons for their views. |
| 2 – Science or Genesis? | Making sense of the text | <ul style="list-style-type: none"> Identify what type of text some Christians say Genesis 1 is, and its purpose Taking account of the context, suggest what Genesis 1 might mean, and compare their ideas with ways in which Christians | Read Genesis 1. Ask pupils to come up with as many questions as they can about the Genesis text and about the beginnings of the universe and life. Get pupils to sort their questions: are some better answered by science and some by Genesis? (For example: Why doesn't Genesis mention dinosaurs?) |



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| | | interpret it, showing awareness of different interpretations | Why is the universe here? Does my life have a meaning?) |
| 3 – Reasons why there may be some conflict between science and Creation | Making sense of belief | <ul style="list-style-type: none"> Identify what type of text some Christians say Genesis 1 is, and its purpose Taking account of the context, suggest what Genesis 1 might mean, and compare their ideas with ways in which Christians interpret it, showing awareness of different interpretations | <p>Return to the starter task and the idea of purpose of text. Ask pupils to identify what they think the genre of the Genesis creation text may be, and why it was written. Offer alternatives to help them express ideas, such as: Was this story written for a science textbook or for a service to worship God? Was this story written to explain to believers who we are or who God is? Was this story written to explain to believers why the world is beautiful or that God is good? (These do not necessarily require either/or responses.)</p> <p>Look at the unit key question: ask pupils to come up with some reasons why some people might say Creation and science are in conflict or complementary.</p> |
| 4. What do scientists think? | Understanding the impact | <ul style="list-style-type: none"> Make clear connections between Genesis 1 and Christian belief about God as Creator Show understanding of why many Christians find science and faith go together | <p>Recall previous learning that Christians celebrate God as Creator through harvest, but also in art and music. Have a look at some artistic responses to God and Creation- Creation stained glass in the Rondo Chapel, hymn 'O Lord my God, when I in awesome wonder, consider all the works thy hand hath made', the children's song, 'Who is the king of the jungle?' www.youtube.com/watch?v=DJwUvjVq9k4</p> <p>Discuss fact that many Christians scientists. Watch the interviews with Dr Jennifer Wiseman, astrophysicist. Which questions would pupils want</p> |



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| | | | <p>to ask her? How do they think she interprets Genesis and why? (extensive video clip interviews available from the Faraday Institute)</p> <p>Find out about Christians who are scientists, or who are interested in science. Find out how these Christians make sense of believing in a Creator God and also doing science. How do they read Genesis 1? Support pupils to ask questions to such people about faith and science: are they compatible or in conflict? Link to PHB – what would scientists say? Would people of faith have the same opinion?</p> |
| 6. Connections | Make connections | <ul style="list-style-type: none"> Identify key ideas arising from their study of Genesis 1 and comment on how far these are helpful or inspiring, justifying their responses Weigh up how far the Genesis 1 creation narrative is in conflict, or is complementary, with a scientific account, giving good reasons for their views. | <p>How often do pupils stop and wonder at how amazing the world is? Ask them to collect images that make them marvel. Look at them together — consider what difference it would make to how people treat the Earth if we all reflected on it like this more regularly. Ask pupils if they can make a connection between this experience and how reading Genesis 1 might help to inspire Christians to care for the Earth and to worship God.</p> |
| 7. What can science answer that Creation cannot? | Make connections | <ul style="list-style-type: none"> Identify key ideas arising from their study of Genesis 1 and comment on how far these are helpful or inspiring, justifying their responses Weigh up how far the Genesis 1 creation narrative is in conflict, or is complementary, with a scientific account, giving good | <p>'Genesis explores why the universe and life exists. Science explores how the universe works the way it does.' Discuss how far pupils agree or disagree, and why. Science is really important for lots of reasons (pupils can come up with some — technology, medicine, construction and so on). Consider if there are questions that science cannot answer; for example: How should we live? What is my purpose in life? What is more important, truth or</p> |



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| | | reasons for their views. | freedom? Why should I help someone who is in need? Is there life after death? Which questions do pupils have that can be answered by science, and which cannot? (This does not mean that religion can answer them completely either — but it can offer a way of thinking and responding.) |
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