



Big Question: How are babies made?

AoLE: Science and Technology	Subject: Science	Year:7
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Big Question / Aim / Objective / Concept	Vision (Proposed outcome) / Purpose of curriculum	Prior knowledge / Learners previous knowledge
How are babies made?	This unit will look at the structure of the human body and other organisms through a theme of human reproduction. It will consider natural and modern reproductive strategies, in terms of saving endangered animals and human procreation. The unit will also look at advances in medicine including reproductive medicine and organ transplants; what they are, their history and why they are needed. Within this context, the concepts of cells, tissues, organs and organ systems are explored, together with the use of the microscope. Natural and modern reproductive strategies, in terms of saving endangered animals and human procreation.	<p>From KS2/previous units most pupils will:</p> <ul style="list-style-type: none"> • recognise the main stages in the growth and development of humans • recall that cells are adapted to their functions • be able to name and locate some organs of their bodies • be able to name and explain the functions of some parts of a flower <p>The concept of organs should have been covered at KS2 and most pupils will have knowledge of human and plant organs and where they are found. Most should have a basic knowledge of the functions. This concept is extended and new examples are introduced. The microscope is then introduced as a useful tool for looking at tissues. The unit continues by introducing cells and looking at how some cells are adapted according to their function. The organisation of cells and tissues into organs and organ systems is then covered.</p>

What does progression look like in this Big Question?

Progression Indicator	Description of learning (What matters statements)	Student evidence of progression (Blooms) / Knowledge
Excelling	<p>I can research, devise and use suitable methods of inquiry to investigate my scientific questions.</p> <p>I can use my findings to draw valid conclusions.</p> <p>I can identify questions that can be investigated scientifically and suggest suitable methods of inquiry.</p> <p>I can suggest conclusions as a result of carrying out my inquiries.</p> <p>I can engage with scientific and technological evidence to inform my own opinions.</p> <p>I can understand how my actions and the actions of others impact on the environment and living things. I can describe the impacts of science and technology, past and present, in my everyday life.</p> <p>I can use a range of models to explain and make predictions.</p> <p>I can select relevant scientific knowledge from a range of evidence sources to evaluate claims presented as scientific facts.</p>	<p>Explain why some people may not want to have an organ transplant.</p> <p>Estimate the sizes of specimens viewed under the microscope.</p> <p>Recognise the reasons behind using fertility treatment.</p> <p>Explain how reproduction was thought to happen before sex cells were discovered.</p> <p>Recognise some of the benefits and drawbacks of cloning.</p> <p>Identify the many variables that are hard to control in a survey.</p> <p>Recognise how knowledge of the results of having sex is important in making lifestyle choices.</p> <p>Explain the adaptations of sperm and egg cells.</p> <p>Explain how sex cells contain the information required for new life.</p> <p>Describe the role of chromosomes.</p>



	<p>I can review my own opinions based on new scientific evidence.</p> <p>I can describe the impacts of science and technology, past and present, on society.</p> <p>I can creatively respond to the needs and wants of the user, based on the context and on the information collected.</p> <p>I can identify and consider factors when developing design proposals.</p> <p>I can explain how reproduction, mutations and the environment can lead to variation and adaptations within organisms which can affect their chances of survival.</p> <p>I can describe the levels of cellular organisation and how cells perform biological processes that ensure the development and survival of organisms.</p> <p>I can explain the threats to the development and health of organisms and describe how the effects of these are reduced by natural defences, preventions and treatments..</p> <p>I can describe how living things compete for specific resources and depend on each other for survival.</p> <p>I can describe the features of organisms and recognise how they allow them to live, grow and reproduce for survival in their environment.</p> <p>I can explain the role of different organs and systems that enable plants and animals to live and grow.</p> <p>I can describe some changes in growth and development caused by hormones.</p> <p>I can identify the threats to the development and health of organisms and recognise some natural defences, preventions and treatments.</p>	
<p>Advancing</p>	<p>I can ask questions and use my experience to suggest simple methods of inquiry.</p> <p>I can recognise patterns from my observations and investigations and can communicate my findings.</p> <p>I can use my knowledge and understanding to predict effects as part of my scientific exploration.</p> <p>I can recognise that what I do, and the things I use, can have an impact on my environment and on living things.</p> <p>I can explore relationships between living things, their habitats and their life cycles.</p> <p>I can identify things in the environment which may be harmful and can act to reduce the risks to myself and others.</p> <p>I can recognise patterns from my observations and investigations and can communicate my findings.</p> <p>I can use my knowledge and understanding to predict effects as part of my scientific exploration.</p> <p>I can recognise that what I do, and the things I use, can have an impact on my environment and on living things.</p> <p>I can explore relationships between living things, their habitats and their life cycles.</p>	<p>State reasons why people carry donor cards.</p> <p>Identify some jobs that require a knowledge of cells and organs.</p> <p>Describe how evidence from microscopes has changed theories about what organisms are made from.</p> <p>Explain how scientists tell others about their work.</p> <p>Recognise that some experiments do not involve fair tests.</p> <p>Calculate microscope magnifications and draw observations to a scale.</p> <p>Identify the variables in an investigation and plan how to control them.</p> <p>Recall the functions of the main organs in plants and humans.</p> <p>Recall all seven life processes.</p> <p>Describe the differences between animal and plant cells. Explain the functions of the parts of cells.</p> <p>Describe what happens in and the purpose of cell division.</p> <p>Draw and interpret data from simple line graphs and bar charts.</p> <p>Recognise the need for a large sample size in investigations.</p> <p>Explain the role of the placenta in pregnancy.</p> <p>Explain the functions of the main reproductive organs in humans.</p> <p>Describe what happens in the menstrual cycle.</p> <p>Describe egg and sperm cells and some of their adaptations.</p> <p>Explain why a pregnant woman must avoid some substances.</p> <p>Describe what happens during birth.</p> <p>Describe some of the ways in which a young animal is cared for.</p> <p>Draw and interpret data from simple line graphs and bar charts.</p> <p>Recognise the need for a large sample size in investigations.</p>
<p>Securing</p>	<p>I can show curiosity and question how things work.</p> <p>I can explore the environment, make observations and communicate my ideas.</p> <p>I can recognise that plants and animals are living things which grow.</p> <p>I can identify, follow and begin to create sequences and patterns in everyday activities.</p>	<p>Recognise organ transplants as a scientific development requiring experimentation.</p> <p>Present results correctly as drawings, tables and charts.</p> <p>Use a microscope to see cells clearly and to identify parts of the cell.</p> <p>Make predictions.</p> <p>Identify the parts of a cell using a microscope.</p>



	<p>I am beginning to follow a sequence of instructions.</p>	<p>Prepare a slide safely. Recall that the heart is an example of an organ. Recall the names and positions of the main organs in plants and humans. Describe how living things are made of cells, tissues and organs. Present data in tables and bar charts. Find information about reproduction from selected secondary sources. Recognise that scientific questions can be answered using a range of methods. Explain the basics of the scientific method. Describe one way in which our understanding of animal reproduction has changed due to scientific observations. Describe ways in which modern science can care for pregnant women and animals, and their offspring.</p>
<p>Beginning</p>	<p>I can show curiosity and question how things work I can explore the environment, make observations and communicate my ideas. I can safely use simple tools, materials and equipment to construct and deconstruct. I can recognise that plants and animals are living things which grow. I can identify, follow and begin to create sequences and patterns in everyday activities.</p>	<p>Recognise how evidence has changed the ideas we have about how animals reproduce. Describe how organ transplants can save lives. Present some results as drawings, tables and charts. Use a microscope to see cells clearly. Make simple predictions. Identify some parts of a cell using a microscope. Prepare a slide safely. Recall that the heart is an example of an organ. Recall the names and positions of the main organs in plants and humans. Describe how living things are made of cells, tissues and organs. Recognise how evidence has changed the ideas we have about how animals reproduce. State that living things reproduce. Describe the main stages of the human life cycle. Name and identify the main reproductive organs in humans. Explain what happens in fertilisation. Recognise that animals have different lengths of pregnancy and look after their young to different degrees. Recognise the changes that occur during puberty.</p>

Authentic learning experiences (Local / National / International)	Skills (Literacy / Numeracy / DCF) / Cross Curricular links
<p>Students can reflect on their and their family's own experiences of using local health services with particular focus on reproductive medicine and maternity. Students will learn about the CRGW and the role of Wales in advancing reproductive medicine. Students will learn about global trends in birth rate and links between child mortality, poverty and birth rates and impact on global population distributions.</p>	<p>Numeracy</p> <ul style="list-style-type: none"> Students will learn about scale and size Students will consider different units for measurements <p>Literacy</p> <ul style="list-style-type: none"> Students will complete extended writing tasks to describe and explain fertilisation, gestation, birth, the menstrual cycle and puberty <p>Cross-curricular</p> <ul style="list-style-type: none"> This topic has a lot of links with PSHE topics of sex and relationships

Assessment (How will we know that students have learnt what we taught them?)



<p>Formative assessment:</p> <p>Students will be provided with a range of assessment techniques throughout the topic to give them immediate feedback on a range of skills and knowledge required to progress in this topic in line with the whole school assessment policy.</p>	<p>Summative assessment:</p> <p>Students will complete one CfW practical assessment task (Impact of exercise on heart rate) and a mid and end of topic test to monitor their progress and understanding in Science.</p>
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Evaluation (To be reviewed 2024)

Strengths	Areas for Development	Pupil Voice