

NC Purpose of Study

A high-quality science education provides the foundations for understanding the world through the specific disciplines of biology, chemistry and physics. Science has changed our lives and is vital to the world's future prosperity, and all pupils should be taught essential aspects of the knowledge, methods, processes and uses of science. Through building up a body of key foundational knowledge and concepts, pupils should be encouraged to recognise the power of rational explanation and develop a sense of excitement and curiosity about natural phenomena. They should be encouraged to understand how science can be used to explain what is occurring, predict how things will behave, and analyse causes.

Intent	Implementation	Impact
At Broadway Junior School we believe that a high quality science education provides the foundations for understanding the world through the specific disciplines of biology, chemistry and physics. Science has changed our lives and is vital to the world's future prosperity, and all pupils should be taught essential aspects of the knowledge, methods, processes and uses of science. Through building up a body of key foundational 'Big Ideas', pupils should be encouraged to recognise the power of rational explanation and develop a sense of excitement and curiosity about natural phenomena. They should be encouraged to understand how science can be used to explain what is occurring, predict how things will behave, and analyse causes. Science in our school is about developing children's ideas and ways of working that enable them to make sense of the world in which they live through investigation, as well as using and applying process skills. The staff here ensure that all children are exposed to high quality teaching and learning experiences, which allow children to explore their outdoor environment and locality, thus developing their scientific enquiry and investigative skills. They are immersed in scientific vocabulary, which aids children's knowledge and understanding not only of the topic they are studying, but of the world around them. We intend to provide all children regardless of ethnic origin, gender, class, aptitude or disability, with a broad and balanced science curriculum.	Teachers create a positive attitude to science learning within their classrooms and reinforce an expectation that all children are capable of achieving high standards in science. Our whole school approach to the teaching and learning of science involves the following: Science will be taught in planned and arranged blocks by the class teacher, to have a subject specific approach. This is a strategy to enable the achievement of a greater depth of knowledge. Through our planning, we involve problem solving opportunities that allow children to find out for themselves. Children are encouraged to ask their own questions and be given opportunities to use their scientific skills and research to discover the answers. This curiosity is celebrated within the classroom. Planning involves teachers creating engaging lessons, often involving high-quality resources to aid understanding of conceptual knowledge. Teachers use precise questioning in class to test conceptual knowledge and skills, and assess children regularly to identify those children with gaps in learning, so that all children keep up. Teachers build upon the learning and skill development of the previous years. As the children's knowledge and understanding increases, and they become more proficient in selecting, using scientific equipment, collating and interpreting results, they become increasingly confident in their growing ability to come to conclusions based on real evidence. Working Scientifically skills are embedded into lessons to ensure these skills are being developed throughout the children's school career and new vocabulary and challenging concepts are introduced through direct teaching. This is developed through the years, in-keeping with the topics.	The impact and measure of this is to ensure children not only acquire the appropriate age related knowledge linked to the science curriculum, but also skills which equip them to progress from their starting points, and within their everyday lives. All children will have: - A wider variety of skills linked to both scientific knowledge and understanding, and scientific enquiry/investigative skills - A richer vocabulary which will enable to articulate their understanding of taught concepts - High aspirations, which will see them through to further study, work and a successful adult life.

Key Vocabulary

Life cycle, infant, toddler, child, adolescent, puberty, adult, elderly, old age, development, growth, gestation, baby, teenager, maturity, physical changes, emotional changes, reproduction, offspring, data, survey, pattern, conclusion.

Knowledge	Skills
Children will know: - Humans change throughout their lives. - Growth and development occur in stages. - Babies develop before birth during gestation. - Puberty is a stage of development leading to adulthood. - Adults continue to change as they age. - Older people experience changes associated with ageing. - Growth patterns can be investigated scientifically. - Scientists use observations and data to identify patterns in human development.	By the end of the unit, pupils will be able to: - Describe the stages of the human life cycle. - Explain how humans grow and develop. - Compare physical changes at different life stages. - Interpret simple data. - Carry out a survey. - Identify patterns in results. - Draw conclusions using evidence. - Use appropriate scientific vocabulary.

Enrichment Opportunities

- Invite a health professional to discuss growth and development.
- Interview family members about how they have changed over time.
- Create a class timeline of the human life cycle.
- Measure hand span or height across the class.
- Link with PSHE when discussing growing up in an age-appropriate way.
- Link with Maths through data handling and graphs

Learning Objectives/End Points

- Describe the stages of human development.
- Explain how humans change from birth to old age.
- Identify physical changes during life.
- Use scientific evidence to identify growth patterns.
- Collect and interpret data.
- Present conclusions clearly using scientific vocabulary.

Key Questions/Learning Objectives/End Points

To describe the stages of the human life cycle. Sequence life stage cards and create a life cycle timeline.	To explain how babies grow and develop before and after birth. Compare images showing stages of development and discuss gestation and early childhood milestones.	To describe the changes that occur during puberty and adolescence. Match physical and emotional changes to the correct life stage through discussion activities.	<u>(TAPS Focused Assessment)</u> <u>To investigate patterns in human growth.</u> Human Growth Survey (TAPS): measure height and hand span (or other agreed measurement), record data and identify patterns.	To explain how adults continue to change through adulthood and old age. Compare photographs of people at different ages and discuss physical changes associated with ageing.	To apply knowledge of human development and present conclusions. Create a human life journey booklet, poster or presentation showing development from birth to old age.
Starter (10 mins) Show photographs of people of different ages. Ask: What do you notice? Can you put them in order? Main (40 mins) Introduce the stages: Baby Toddler Child Adolescent Adult Elderly	Starter (10 mins) Discuss: What can a newborn baby do? What can't they do? Main (40 mins) Explain gestation (age-appropriate). Explore how babies develop into toddlers and children. Children create a simple development timeline using pictures and key milestones. Plenary (10 mins) Which skills do children learn first?	Starter (10 mins) Recap previous life stages. Main (40 mins) Introduce puberty as a normal stage of growing up (keeping content age-appropriate and aligned with the science curriculum). Discuss common physical and emotional changes. Children match changes to the correct life stage. Plenary (10 mins) True or False quiz using key vocabulary.	Starter (10 mins) Ask: Is the tallest person always the oldest? How could we investigate this? Main (40 mins) Complete the TAPS Human Growth Survey. Children: Measure height, hand span or foot length (depending on the TAPS activity). Record results in tables.	Starter (10 mins) Compare photographs of the same person at different ages. Main (40 mins) Discuss changes that may occur in adulthood and old age (e.g. hair colour, wrinkles, mobility, eyesight). Children complete a comparison table showing changes across life stages. Plenary (10 mins) Which changes happen to everyone? Which changes are different for different people?	Starter (10 mins) Quick recap quiz on life stages and key vocabulary. Main (40 mins) Children create a "Journey Through Life" booklet, poster or foldable showing: The stages of development. Key physical changes. Scientific vocabulary. Complete an end-of-unit assessment or concept map. Plenary (10 mins) Exit Ticket:

Children sequence picture cards and create a timeline. Plenary (10 mins) Discuss: Which stage lasts the longest? How do we know?	Why do all babies develop at slightly different rates?		Present findings using a bar chart or line graph where appropriate. Identify patterns and answer assessment questions. Plenary (10 mins) Discuss: What patterns did you notice? Were there any surprising results? Why do scientists collect data from many people?		One thing I learned about human growth. One scientific word I can now explain. One question I still have.
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Substantive Knowledge

- Humans follow a predictable life cycle.
- Growth occurs most rapidly during infancy and adolescence.
- Puberty prepares the body for adulthood.
- Ageing involves gradual physical changes.
- Growth varies between individuals.
- Scientific investigations can identify patterns in human growth

Careers

Linking Curriculum Learning to Careers

Discuss how the skills developed in this unit are used in a range of careers, including:

- Doctor
- General Practitioner (GP)
- Paediatrician
- Nurse
- Children's Nurse
- Midwife
- Health Visitor
- Paramedic
- Surgeon
- Pharmacist
- Dietitian
- Nutritionist
- Sports Nutritionist
- Food Scientist
- Care Worker
- Occupational Therapist
- Physiotherapist

Transferable skills such as Curiosity Observation Investigation Problem solving Teamwork Communication Research Organisation Attention to detail Classification Data handling Critical thinking Decision making Creativity Resilience Responsibility Confidence

Learning from Career and Labour Market Information

- Introduce pupils to careers in healthcare, medicine, nursing, midwifery, child development, psychology, nutrition, physiotherapy, elderly care and scientific research. Highlight the range of people involved in supporting humans at different stages of life.

Addressing the Needs of Each Pupil

- Provide varied opportunities including discussion, practical investigation, data collection, role play, research, visual timelines and presentations. Encourage pupils to recognise that different strengths such as caring, communication, scientific thinking, practical skills and organisation are valuable in different careers.

Linking Curriculum Learning to Careers

Explicitly connect human development to careers such as doctor, nurse, midwife, health visitor, paediatrician, physiotherapist, psychologist, nutritionist, biomedical scientist, occupational therapist and social care professional.

Encounters with Employers and Employees

- Invite a healthcare professional, nurse, midwife, health visitor, physiotherapist, doctor, care worker or scientist to discuss their role and how they use knowledge of the human body and development.

Experiences of Workplaces

- Explore workplaces such as hospitals, GP surgeries, maternity units, children's centres, care homes, laboratories, rehabilitation centres and universities. Where possible, use photographs, virtual tours or workplace visits.