EASTER BUSH SCIENCE OUTREACH CENTRE

Get hands-on with real-life science

See DNA Teacher's Information

Learning level	P5 – S5; adaptable
Research themes	Body systems and cells DNA & genes Inheritance
Duration	20-45min; adaptable

See DNA overview:

See DNA will bring a research scientist from University of Edinburgh into the classroom to do some hands-on DNA extraction from strawberries. Depending on learning level, pupils will explore what and where DNA is and inheritance. Depending on learning level, these themes will be put into context using real scientific research as an example of how these ideas are used in the workplace and inform pupils about the cutting edge research occurring in Scotland. DNA extraction can be done at the desk and shouldn't be too messy with pupils working in groups!

Please note that this activity uses strawberries (handled, not eaten) which some pupils may be allergic to. Please inform the researcher if any pupils have an allergy. Banana or kiwi fruit can be substituted for strawberries in these cases.

Learning objectives

P5-P7	S1-5
• To understand that living things are made of cells • To understand that DNA is a recipe for life • To recognise that scientists can use DNA to answer scientific questions	• To understand that DNA is present in the nucleus of nearly every cell and is structured into 23 chromosomes. • To recognise that genes are present as two alleles on each pair of chromosomes and are inherited.

	• To understand that DNA can be isolated and used for scientific research using techniques like DNA sequencing.

Curriculum links

Level 2	Level 3
• I can identify and classify examples of living things, past and present, to help me appreciate their diversity. **SCN 2-01a** • By exploring the characteristics offspring inherit when living things reproduce, I can distinguish between inherited and non-inherited characteristics. **SCN 2-14b** • Through research and discussion I have an appreciation of the contribution that individuals are making to scientific discovery and intervention and the impact this has made on society. **SCN 2-20a**	• I have extracted DNA and understand its function. I can express an informed view of the risk and benefits of DNA profiling. **SCN 3-14b** • I have collaborated with others to find and present information on how scientists from Scotland and beyond have contributed to innovative research and development. **SCN 3-20a**

Level 4	National 4
• I can use my understanding of how characteristics are inherited to solve simple genetic problems and relate this to my understanding of DNA, genes and chromosomes. **SCN 4-14c** • I have researched new developments in science and can explain how their current or future applications might impact on modern life. **SCN 4-20a**	Key areas: • Cell biology: DNA, genes and chromosomes • Multicellular organisms: Genetic information • Biology added value

National 5
• Unit 1: DNA and he production of proteins • Unit 1: Genetic engineering • Unit 2: Cells, tissues and organs • Unit 2: Variation and inheritance

Developing the Young Workforce 'I can' statements

Second level	• I can discuss the relevance of skills to the wider world and make connections between skills and the world of work. • I can explain to others my ambitions/what I would like to do and look for ways to achieve them/that. • I can recognise the skills I have and need for work. • I can identify my interests, strengths and skills and use them to make informed choices.

Broad General Education	• I can demonstrate and apply the skills I have learnt across the curriculum in relation to the world of work. • I can identify my interests, strengths and skills and use them to make informed choices.
Senior Phase	• I can identify the skills I have learnt across the curriculum, how these relate to the world of work and can apply these appropriately during work placements and other work-related learning. • I can confidently access and interpret the information I need to make well informed choices about my learning options, pathways and how these relate to possible future careers.