Overview: Incubator projects – XP examples

These are open-source resources, with extensive curriculum support. These links include learning targets, support resources, and final products. More projects/expeditions are listed here:

- https://sites.google.com/xpschool.org/curriculum/expedition-archive/20182019
- https://sites.google.com/xpschool.org/curriculum/expedition-archive/20192020
- https://xpschool.org/our-expeditions/
- https://xptrust.org/our-curriculum/
- https://xpeast.org/our-expeditions/
- https://sites.google.com/xpschool.org/curriculum/our-expeditions

Project Name	Project Summary
"From the ground up: how those who mined Doncaster, made Doncaster." *What does the community of Doncaster owe to the miners?* **Year 7 UK** **11/12 years** **https://xpschool.org/our-expeditions/from-the-ground-up/**	**"From the ground up"** ***Driving Question: What does the community of Doncaster owe to the miners?*** › **Keywords: community; industry; jobs; rocks and minerals** *Exploring how a community is founded on the **natural resources** of the **local area**, and the men who **mined** them.* During the expedition students visit the National Coal Museum and interview **mining experts** to look at how they **worked and lived**. Students read David Almond's novel 'Kit's Wilderness', a story about a boy returning to his **family roots** in a **mining community** in Northumberland. They also study the **rock cycle** and how specific types of **rocks and minerals** came to be where they are in Doncaster. The writings of all students are then collated to make a book called *'From the ground up: how those who mined Doncaster, made Doncaster.'* To view the learning targets and read more about this expedition **click here**. › **Final product: local history book (published and stocked in Waterstones)** **https://xpschool.org/our-expeditions/from-the-ground-up/**
Robolympics *How do robots think?* **Year 8 UK** **12/13 years** **https://xpschool.org/our-expeditions/robolympics/**	**Robolympics** ***Driving Question: How do robots think?*** › **Keywords: logic, algebra, logic gates, programming, robots, bearings, inputs/outputs, Venn diagrams, programming** Students are challenged to follow a set of **bearings** and **distances** on the large car park to discover a shape. They read about George Boole who is a teacher's assistant in Doncaster and a mathematician who wrote about the **laws of logic**, which are the fundamental laws in all modern-day computers. Students play games with **logic gates** such as AND, OR, NAND, NOR and XOR to work out how **inputs** change their output, learning how to express these using **Boolean algebra** and **Venn diagrams**. Students work in teams to **build** and **programme** a **robot**. › **Final product: build and programme a robot** **https://xpschool.org/our-expeditions/robolympics/**

Project Name	Project Summary
Bridges to Nowhere *How does an engineer design a bridge?* **Year 9 UK** **13/14 years** **https://xpschool.org/our-expeditions/bridges-to-nowhere/**	**Bridges to Nowhere** ***Driving Question: How does an engineer design a bridge?*** › **Keywords: engineering, bridges, scale, structure, design, strength, materials** Students study how Maths is used to **engineer a bridge**. Students look at three case studies examining the **engineering language** of bridges, the **structural systems** of bridges and the **mathematical principles** underlying their design. Students intuitively work out what makes structures **strong** through experimentation and play. The final product is a 1:5 **scale** model of the students' bridge design and a written Design Proposal which includes the maths and design work that they used to engineer their beautiful bridges. › **Final product: 1:5 scale model of a bridge and written design proposal** **https://xpschool.org/our-expeditions/bridges-to-nowhere/**
Get Up! Stand Up! *How do robots think?* **Year 8 UK** **12/13 years** **https://sites.google.com/xpeast.org/standupy7e25/home**	**Get Up! Stand Up!** ***Driving Question: How do robots think?*** › **Keywords: humanities, art, identity, prejudice, slavery, Africa** *"You never really understand a person until you consider things from his point of view... Until you climb inside of his skin and walk around in it."* — Harper Lee, To Kill a Mockingbird This project considered **identity** and **prejudice** through the **history, geography and art** of the **slave trade** and the text '**To Kill a Mockingbird**', as well as the slave trade from Roman times to the present day, the Trade triangle, and art as cultural identity. From 'To Kill a Mockingbird' by Harper Lee our own identity was examined, the moral universe of Maycomb and its inhabitants, Southern stereotypes, the Jim Crow segregation system, and the physical and social risks of making a stand. **Map-making skills** allowed us to explore the key human geography and physical features of Africa today and modern-day slavery in the Democratic Republic of Congo, in the form of mining for minerals to use in our mobile phones, highlighting some of the **socio-economic inequalities and ethical questions** which exist in the world today. We then came full circle and looked at how our **identity** compares to others in the world due to the country we live in. We analysed different speeches to learn how different literary devices are used to **produce a speech** on a key topic and shared this as part of a Presentation of Learning in front of parents and a panel of influential people within Doncaster. › **Final product: presentation** **https://sites.google.com/xpeast.org/standupy7e25/home**

Project Name	Project Summary
Escape Earth *"Should humans leave Earth?"* **Year 7 UK (11/12 years)** **https://sites.google.com/xpeast.org/y7e25escapeearth/expedition-details**	**Escape Earth** ***Driving Question: "Should humans leave Earth?"*** › **Keywords: universe, geodesic, dome, forces, greenhouse gas, global warming, gravity, pressure, friction, speed** The project was in three cases: **Our place in the universe** explored **geodesic domes**, and our place in the **universe** through studies of the universe, our anchor text, '**The 11th Hour**', and visits to the **University of Sheffield physics laboratories**. In maths, we looked at the size of objects in our universe (**planets, stars** etc.) and the distances between them. We became familiar with **standard form notation** and **converting** between **units of measure** to **compare** the **size** of such objects. **Earth's fate** explored 'our place', **Earth**, in terms of its structure, including the **composition** of the Earth's **atmosphere**, how the **greenhouse** effect is contributing to **global warming**, and made links to how the work of the Eco Crew may address some of the issues at a school level. In maths, we looked at the ratio of greenhouse gases in our atmosphere, how this had increased over time and the **correlation** to increased **global temperatures**. **Leaving Earth**, considered the **forces** involved in leaving the Earth's **gravitational field** in a space rocket. We discussed the current SpaceX programme, the challenges associated with managing such an endeavour, and visited the Jodrell Bank observatory. In addition to studying **gravity** on Earth and in space, we considered other **contact forces** such as **friction** and their impact on a rocket launch. We learnt about **resultant forces** and drew **accurate force diagrams** in a variety of contexts. We carried out a rocket workshop in school to **calculate speed** and considered the importance of pressure. We then carried this work on in maths, by familiarising ourselves with the speed, distance, time equation, and were able to calculate all three by rearranging the equation. Our **Final Product** built a **geodesic dome** from recycled cardboard, using the laser cutter to ensure the pieces were produced accurately with links to geometry and scale factors, it mimicked the shape of the accommodation proposed for astronauts who may colonise Mars in the future. Once built, the dome was elevated above the stairway near the XP East Science labs, to allow students' work to be showcased from above and below. Our **Celebration of Learning** included an evening event for parents, friends, and external stakeholders such as our visiting experts to view the Final Product geodesic dome and for students to showcase their work on an interactive journey through our expedition. › **Final product: geodesic dome and showcase https://sites.google.com/xpeast.org/y7e25escapeearth/expedition-details**

Project Name	Project Summary
Here comes the Sun *"What is my impact on the world around me?"* **Year 9 UK (13/14 years)** **https://sites.google.com/xpschool.org/y9c24herecomesthesun/home**	**Here comes the Sun** ***Driving Question: "What is my impact on the world around me?"*** › **Keywords: ecosystem, birdlife, habitat, biodiversity, Zooniverse, respiration, food chain, photosynthesis, peatlands, conservation, adaptation** Birds, nature, and **ecosystems** that exist around us were explored by building **habitats** to understand the impact that humans can have on **biodiversity** by creating conditions that are favourable for other species. We worked on a **Zooniverse** project to help to train **AI** to recognise **mitochondria** in cells to help with research and diagnosis of mitochondrial disease in humans. We explored **energy** flow from **sunlight** through a **food chain**, and throughout an ecosystem using the **nightjar**. We studied living things: **microscopic cellular structures** right up to **organ systems** to aid with **respiration** and **photosynthesis** and **transpiration** plants, using advice from birding **experts** who were able to talk to us about **behavioural** and **structural adaptations** that make the nightbird suited to its environment. Our second case study looked at the **wider ecosystem** of the Humberhead **Peatlands**. We learned from the experts at Natural England how humans have impacted on the ecosystem and how their **conservation** efforts are helping to protect the nightjar. The final case study focused on ecosystems on a more macroscopic level, and the impact historical humans have had on ecosystems and planetary resources using mathematics to explore how energy is passed through a food chain, by looking at the amount that is wasted using **efficiency formula substitution** work. We explored the human impact including diet on **biodiversity** and sustainability. We examined data on the population of the world's wildlife and how **human behaviour** had changed ecosystems and caused mass extinction in many cases. We looked at more sustainable impact on our planet, supported by data from the **United Nations Environment Programme's** (UNEP) international panel of sustainable resource management. During all these case studies, we read extracts from our anchor text, 'Fieldnotes from a catastrophe' which helped us to understand the wider impact of **climate change** on ecosystems outside of our context. Throughout the expedition students and staff conducted fieldwork as part of their daily exercise to the moors and gathered **digital** artefacts including **360° photographs, audio, and video footage.** The expedition culminated in putting together a **virtual tour** of the moor at the Humberhead Peatlands nature reserve, starting at the car park, travelling through the forested area onto the peat itself. The virtual tour has a specific focus on the nightjar, its adaptations, and its place in the food chain with additional information about its prey, the producers that they feed on and how energy flows through the food chain. The purpose of the virtual tour is to raise awareness of the conservation efforts that are happening at the peatlands and to encourage families and parents to visit the site so that they too can enjoy what is a breathtakingly beautiful and nationally important part of Doncaster's natural landscape. › **Final product: virtual tour of Humberhead Peatlands nature reserve to raise awareness** **https://sites.google.com/xpschool.org/y9c24herecomesthesun/home**

Project Name	Project Summary
Society, Steam and Speed *What makes a successful community? What does the community of Doncaster owe to the railways?* **Year 7 UK (11/12 years)** **https://xpeast.org/our-expeditions/society-steam-and-speed/** This project can be adapted to the locality and the key industries of the school E.g. for Stoke Society, Clay and Trade What makes a successful community and what does the community of Stoke owe to the Potteries?	**Society, Steam and Speed** ***Driving Question: What makes a successful community? What does the community of Doncaster owe to the railways?*** › **Keywords: railway, community, history, industrial revolution, steam, HS2, relative motion** A learning expedition about the **railways** in our **local area**. Students visited our local area to carry out observations to help them understand the **community** of Doncaster. Thinking carefully about what **successful and unsuccessful** aspects of a community might look like, they compiled a portfolio of images of **features** and **landmarks** which helped them build up an idea as to what the community of Doncaster is currently like. Students then shifted their focus to travel back in time to discover more about Doncaster and its **railway heritage**. They studied the changes as Doncaster became one of the main towns in the Industrial Revolution, a result which they found out had occurred because of the **development** of Doncaster as a major railway town and the role that this played in **attracting** people to **work** here. The National Railway Museum in York helped us understand just how **influential** Doncaster was in the building of steam trains including two of the world's most **famous locomotives** having been built at the plant works: The Flying Scotsman and The Mallard. We studied the **craftsmanship** and **quality** it had taken to build these machines, **people's fear and fascination** with these new modes of **transport**, and collated ideas about how the use of the railway was **promoted** to encourage the public to take a ride! They sketched ideas and took photographs to help them later in the art studies. By thinking as mathematicians and scientists, students were able to use concepts such as **pi** and the **geometry** of a circle, alongside the concepts of **relative motion** (speed = distance / time), **friction** and air resistance to allow them to calculate the time it would take for a passenger who boarded a train in Doncaster to travel to an unknown destination. Students then travelled to the **future**, thinking about the construction of the new **HS2** rail link which will pass through the outskirts of Doncaster by 2033, through two different viewpoints of either a positive impact on the community of Doncaster or a negative influence on their town. Students formulated a piece of **persuasive** writing which helped inform a live debate about Doncaster's and HS2's future. We studied 'Lion: A Long Way Home' by Saroo Brierly, an autobiographical text about a boy who becomes lost as he boards a train with his older brother, who then spends time surviving on his own, facing constant danger living on the streets. His story then takes the students halfway across the world when he is adopted by a family who live in Tasmania. Saroo then describes how he uses his memories, but particularly **Google maps**, to help him find landmarks he can remember and so to eventually find out where he is from. This book taught us more about different communities, railways and, most importantly, our school's character, values and habits of work and learning. › **The final product** was a book which showcased their work. Each student contributed, demonstrating their understanding of the railways and, more specifically, how much Doncaster has been and will continue to be, influenced by trains.

Project Name	Project Summary
'We've come a long way, baby!' *"How far have we been able to rationalise health based on people's wealth?"* **Year 10 UK (14/15 years)** **https://sites.google.com/xpschool.org/c242020-2021/home**	**'We've come a long way, baby!'** ***Driving Question: "How far have we been able to rationalise health based on people's wealth?"*** › **Keywords: health, wealth, poverty, pandemic, medieval, cholera, social justice, philanthropy, government, public health, Twitter, altruism, bias** This expedition followed a **thematic study** of **health**, considering how it has changed over time from the Medieval period to the modern day. We focused on factors which can affect our health, such as **wealth, poverty, science and technology** and the role of **government**. In English, students analysed the poems 'Living Space' and 'London', whilst revisiting the anchor text 'A Christmas Carol' to hone exam technique. Non-fiction texts on health from both the 19th and 21st centuries were analysed as students compared the **writers' perspectives** on **pandemics**. Students considered how a range of factors can influence our health, debating which factor/s they felt had the most influence. We also began to consider how the health of people in our local area had been affected by past and present outbreaks. Through historical sources, students were able to investigate the impact of cholera on Doncaster during the 1800s. From a **local perspective**, we then moved to a more **global view** of health. Students used the case study of cholera outbreaks in Yemen to both compare and contrast the effects of cholera today with Doncaster in the 1800s, using **WHO statistics**, and looking at how writers have presented the stark living conditions of people in other countries through the lens of the poem' Living Space'. **We used three case studies: past, present, and future.** **CASE STUDY 1: Past:** the characteristics of Medieval Britain and how living conditions influenced the health of people in towns and the countryside. We explored the enquiry question: **did anyone care about health in medieval England?** Following a look at medieval England we then focused on the Early Modern Period and considered how much continuity or change there was in people's living conditions, people's responses to the plague and the role **authorities** played in **public health**. We recapped the character of Scrooge alongside the themes of **social injustice and generosity**. We considered Scrooge's development from a misanthropist to a philanthropist and the benefits this brought to others around him, specifically that of Tiny Tim. This work helped to further understand the role which not only the authorities, but people in society, can play on our health. Our Anchor Texts: 'A Christmas Carol', Historical texts from 'A People's Health' **CASE STUDY 2: Present:** we explored the major changes in health during the **Industrial Revolution** and how our understanding of health has evolved through pandemics such as **Spanish Flu** and **Covid**-19, as well as new medical conditions such as **AIDs**. **CASE STUDY 3: Future:** Health at what cost? We looked at how messages from **governmental organisations** around health are delivered. We used expertise from within the community to discover more about the power of the **NHS** and **Public Health England**, and how we could best inform our own community on how to stay safe. We used the expertise of @MyDoncaster to learn how Doncaster Council uses **Twitter** to keep communities informed of key changes, actions, and events within the borough, including the **techniques** and **formulas** that make Twitter an **effective** form of **communication** and how it helps ensure the council **messages** reach across the **communities** of Doncaster.

Project Name	Project Summary
	CASE STUDY 4: Is Speech free? We looked at the concepts of **altruism** and **bias**. We shared ideas based on two stories about the same person. This allowed us to see how our altruistic behaviour can be **manipulated** by the **media** and the impact this can have on our mental health and the **mental health** of others. We began to look at the laws that try to prevent this and those that support it and what mental health protections are available. › **The final product** Throughout the expedition, we captured ideas from the various stages. This led to students taking over Doncaster Council's Twitter feed. Students used the twitter feed to promote how to stay safe in the Doncaster Community through **infographics**, **images**, and **humour**.
Kraftwerk *How can we best represent the values of a community through a crafted product?* **Year 10 UK** **14/15 years** **https://xpschool.org/our-expeditions/kraftwerk/**	**Kraftwerk** ***Driving Question: How can we best represent the values of a community through a crafted product?*** › **Keywords: craft, skills, design, draft, experimentation, business, economic impact, marketing, values, character** The work in this expedition allowed students to gain a Level 2 V-Cert qualification in Creative Studies whilst fulfilling an **authentic** product brief. Students began the expedition by working with **Sheffield Hallam University** students who helped them to explore different **craft skills**. We experimented with craft skills for our products, recording what we produced in a **portfolio**. Students were able to build their skills through **drafting** and **experimentation**. Students also considered the **business opportunities and economic impact** of their work by **costing** their products and investigating ways to **market** them. They were set a **design brief** by Club Doncaster Foundation, the organisation that will run our new community Sports Hall, to "produce a creative craft product that will help to **promote** the new Sports Hall. It must reflect the combined **values** and **character** traits of both Club Doncaster and the XP Trust whilst also appealing to the wider community." In their English studies, students were asked to produce lively **articles** about their creative studies and their final product. These were submitted to the local **Arts magazine 'Doncopolitan'** with a view to one of them being published in the magazine. To support their creative studies, in Maths sessions students completed work around the concept of shape and space. Students covered the following areas: **measures, circumference and area, constructions and loci and congruence and similarities**. The expedition culminated in a Presentation of Learning which took the form of a **marketplace**, where students talked to parents and guests about their **crafted work** and the **design process** that informed their final product. A wider audience for all the craft products was considered, and work is now underway to allow the products to be **curated**. › **Final product: Marketplace of craft products** **https://xpschool.org/our-expeditions/kraftwerk/**

Project Name	Project Summary
'Poetry in the Making: Poetry makes the horizon endure' *What is the point of poetry?* **Year 10 UK** **14/15 years** **https://xpschool.org/our-expeditions/poetry-makes-the-horizon-endure/**	**'Poetry in the Making: Poetry makes the horizon endure'** ***Driving Question: What is the point of poetry?*** › **Keywords: humanity, nature, horizons, community, heritage** Students studied 'The Hawk in the Rain' by Ted Hughes and a collection of unseen poetry. The poems studied encouraged students to consider, explore and express the relationship between **humanity** and **nature** through the idea of **horizons**. Students worked with a poet, exploring the concept of horizons using a **mind map** and wrote group poems using **phrases** from Hughes' **poems** as starting points. Students continued to work with the poet to celebrate the work of Ted Hughes and make students aware of Hughes' **local links** and **heritage**; nurture creativity, imagination and skills to enable students to produce a high-quality poem; develop confidence in students' written and spoken voices; better understand themselves, students' relationships with others and the natural environment; be better able to express thoughts and emotions through the written word; and to promote the poetry produced and the skills acquired in a publication. For the final product for the expedition students used their learning of how to **critically respond** to poetry by writing an original poem of their own. The poems were then presented to the **Ted Hughes Festival** to be considered for **publication**. All the poems were collected and included in an **eBook**, together with an answer to the Driving Question and a short commentary to explain their choice of language, form and structure in their poetry. › **Final product: e-poetry book** **https://xpschool.org/our-expeditions/poetry-makes-the-horizon-endure/**
"Raiders and Invaders" *How far did the Vikings forge a legacy?* **https://xpschool.org/our-expeditions/raiders-and-invaders/**	**"Raiders and Invaders"** ***Driving Question: How far did the Vikings forge a legacy?*** › **Keywords: Viking, legacy, craftsmen, warrior, technology, metalwork, settler, artefact, trade, invasion** Students studied the **Viking Expansion** c.750-c.1050, beginning with meeting a 'real Viking', and from his story discovered what Vikings were rather than from some of the **misconceptions** that people have of them. They also worked as Viking **craftsmen** using techniques in **metalworking** to produce simple weapons and jewellery. Students examined the Viking expansion from their homelands in c.750 across areas of Europe and into Britain, with a specific focus on the settlement of **Jorvik**. From this, students looked at key areas of Viking life from the Volga Vikings, the Vikings as **invaders and settlers**, and important Kings during this period. Students visited Jorvik Viking Centre in York to complete fieldwork and studied Viking **artefacts** and **narratives** to get a greater understanding of the Viking expansion and the **legacy** that they left behind. We looked at some of the **technological** developments of the Vikings and how they used Earth's **resources** to forge weapons, tools and create a fleet of technologically **superior** longships which powered the **expansion** through **trade** and **invasion**.

Project Name	Project Summary
	The final product for the expedition was an informative leaflet which contained a first-person narrative of a historically significant Viking and an evaluation of an artefact such as a weapon or jewellery, and the scientific processes that the Vikings perhaps unknowingly used to create it. › **Final Product – How far did the Vikings forge a legacy? Leaflet** https://xpschool.org/our-expeditions/raiders-and-invaders/
"Do you 'sea' what I see?" *How changeable is nature?* **Year 8 UK** **12/13 years** **https://xpschool.org/our-expeditions/do-you-sea-what-i-see/**	**"Do you 'sea' what I see?"** ***Driving Question: How changeable is nature?*** › **Keywords: waves, erosion, power, emotional, tsunami, fieldwork, coastal, environment** Students analysed four main case studies looking at how Science, Maths, Geography and Literature tackle the idea of waves. This involved a study of scenes from 'The Tempest' and themed poetry, the geography of wave action and erosion, the effects of wave power, peaks, and troughs from both a scientific and mathematical perspective, as well as emotional waves and the push back from this. An expert from the South Yorkshire Police spoke to students about his experiences dealing with the aftermath of the tsunami, inspiring them to form poems based on his experiences. Fieldwork was carried out at two coastal locations, Hornsea and Flamborough Head, enabling students to see the diverse local coastal landscapes and study how the waves and water leaves a different imprint on the environment. As a result of this learning, we created a poem based on the literature studied and inspired by the coastal environments visited during fieldwork. We studied a range of artists and used images taken during fieldwork as inspiration for an art installation within the heart of the school. The expedition culminated in a Presentation of Learning at The Point, Doncaster where students presented their poetry to parents as part of a poetry slam as well as discussing waves and erosion, wave power and the power of waves, whether literal, physical, or emotional, in their everyday lives. › **Final Product – Poems** https://xpschool.org/our-expeditions/do-you-sea-what-i-see/

Project Name	Project Summary
"CSI Doncaster" *How did Neilson, Boyce and Salmon kill Lee Freeman, and how do we prove it?* **Year 9 UK** **13/14 years** **https://xpschool.org/our-expeditions/csi-doncaster/**	**"CSI Doncaster"** ***Driving Question: How did Neilson, Boyce and Salmon kill Lee Freeman, and how do we prove it?*** › **Keywords: TV fiction, reality, detective, crime scene, pathology, evidence, conviction** Students watched an episode of the TV **fictional detective** Sherlock for immersion to show the **contrast** between make-believe and detective work in the real world. The "murder" scenario was introduced which was written alongside a Chief Detective Superintendent. This established a sense of realism to the detective and forensic work and added authenticity to the expedition. An in-depth discussion of the pathology with a Surgeon of Maxiofacial surgery was also part of this experience as students tested and located evidence. They completed a blood test and a blood splatter pattern analysis as part of this process in their attempt to find evidence to convict the suspects. Students then produced an MG3A form, which is the official title of the form used when convicting a non-guilty plea. They had to fill in the form with our summarised evidence of the case in preparation for presentation to the final expert, a barrister, in the hope of conviction. The expedition culminated with a presentation of learning in front of parents and experts, sharing the evidence that they had collected for the case. › **Final Product – MG3A and Presentation of findings**
Get Physical *What is the science behind superhumans?* **Year 8 XP** **12/13 years** **https://xpschool.org/our-expeditions/get-physical/**	**Get Physical** ***Driving Question: What is the science behind superhumans?*** › **Keywords: health, agility, fitness, superhuman, muscular system, skeleton, biomechanics, community athletics** Students completed **health** and **fitness** tests, such as the Illinois **agility** test and the multi-stage fitness test. Students collected their performance data which would be analysed later in the expedition. Students then took part in athletics events at the local athletics stadium, events they would later investigate, measuring out some of the mind-blowing world records for events such as the long jump and high jump, with students pondering if these records were indeed set by **superhumans** and how they were achieved. **The expedition was split into two case studies.** In **case study one**, Funny Bones, students examined the **muscular system** and the **skeletal system** and understood their structure and how they worked together for movement. We looked at health and fitness and students took part in fitness training sessions which examined how the **musculoskeletal** system is used during training and how training can improve **performance**. We did anatomical drawings of the skeleton and the muscular system which helped students to examine these closely and produce **scientifically accurate** sketches which they could then write about in their science journals.

Project Name	Project Summary
	Fieldwork combined the use of experts. We visited the **sports science** department at Sheffield Hallam **University** and were given a **lecture** on the field of **motion capture** and **performance analysis of sporting technique**. The lecturer explained his academic journey and the research he was conducting. He introduced students to the specialist video equipment and software that he had developed which was used to track **elite** tennis players performance and technique. Students were then able to complete some fitness tests using the **cycle ergometers** in the **physiology lab** and undertake our own performance analysis using state of the art motion capture equipment. This helped students in answering our Driving Question, as they saw all of the science and research that goes into creating elite athletes: super humans. Students' final product work was based around the **research and analysis** of different **athletic field events** to create a **coaching resource** that either coaches or beginner athletes could use to improve performance. They picked field events such as the hammer or long jump and looked at the following aspects: the **musculoskeletal system**, the specific **types of movement** and the **biomechanics** of the technique, forces, and key coaching points. Students collected this information and presented it as a learning poster for interested people to see. We found space to exhibit the poster, such as at the local athletics club with which we have a great relationship. This will form part of our students' **legacy** as **future users** of the facility. › **Final Product – Posters**
"I'm free to do what I want" *Are we really free to choose?* **Year 10 UK** **14/15 years** **https://xpschool.org/our-expeditions/im-free-to-do-what-i-want/**	**"I'm free to do what I want"** ***Driving Question: Are we really free to choose?*** › **Keywords: holocaust, Nazi Germany, Hitler, power, control, dictatorship, opposition, propaganda, political bias, fake news** At the National **Holocaust** Museum we learnt about the treatment of **Jewish people** before, during and after the rise to **power** of the **Nazis** in Germany, then began to study the rise to power of **Hitler** as part of the World Depth Study for GCSE: **Dictatorship** – How did the Nazis **total control** of Germany so quickly? **Control** and **Opposition**, 1933– 1939 – How did the Nazis tighten their grip on the German people? Changing Lives, 1933–1939 – How can we summarise the changing lives of the German people, 1933 – 1939? Alongside their historical studies, students **critically appreciated** and **analysed** '**Animal Farm**' by George Orwell, considering how the writer through an **allegorical structure** explores the idea of **totalitarianism**. Students analysed and discussed a wide range of non-fiction texts to provoke thinking about how we are **susceptible to manipulation** by the **media** and how this can determine our thinking. Students explored the use of **propaganda** in **Nazi Germany** as a basis for exploring other forms of propaganda, **political bias** in **newspaper** articles and the more recent concept of **'fake news' in social media**.

Project Name	Project Summary
	As a result of their studies, students answered GCSE History questions to show the depth of their understanding and the skills they had developed for interpreting different sources and different historical perspectives, alongside their analysis of 'Animal Farm' as a GCSE study text, considering writer's language, structure. and the historical context. Finally, students culminated the expedition by producing a **pop art image** and a **narrative** based on their thoughts regarding the Driving Question. Their final artwork and commentaries were displayed at **Doncaster Art Gallery** providing an **authentic public audience** for their work. Critique from the **gallery curator** provided **authentic expert critique** to ensure work was of high quality. › **Final product – Pop art and narrative** **https://xpschool.org/our-expeditions/im-free-to-do-what-i-want/**
"Maths of Physics" *How do we use maths in physics to represent the real world?* **Year 10 UK** **14/15 years** **https://xpschool.org/our-expeditions/maths-of-physics/**	**"Maths of Physics"** ***Driving Question: How do we use maths in physics to represent the real world?*** › **Keywords: energy, store, transfer, method, conservation, efficiency, renewable, specific heat capacity, kinetic energy** We started off by looking at **energy stores** and **methods of transfer**. Students applied their knowledge of this to **sankey diagrams** and **efficiency calculations**. The students then built on their knowledge of **conservation of energy** by working on **kinetic energy** and **gravitational potential energy equations**. Students worked in groups to compare the advantages and disadvantages of **non-renewable** and **renewable energy resources**. Students complemented the knowledge in the expedition by looking at an investigation into **specific heat capacity**, one of the AQA specification required practicals. Finally, students combined maths skills with physics by unpacking **distance-time graphs** and **velocity-time graphs** and the associated calculations. This knowledge and understanding culminated in a **'revision style' product**. The product was important for guiding students towards GCSE and had an **authentic** audience. › **Final product – Revision questions on website** **https://xpschool.org/our-expeditions/maths-of-physics/**

Project Name	Project Summary
"Algebracadabra" *What's the point of algebra?* **Year 9 UK (13/14 years)** **https://xpschool.org/our-expeditions/algebracadabra/**	**"Algebracadabra"** ***Driving Question: What's the point of algebra?*** › **Keywords: laws, algebraic, linear, equations, variable, lines, points, slopes, equations** The emphasis was on developing **mathematical literacy** and beginning to understand the purpose behind using **algebra** as a **language** to express an understanding of the world through understanding the **mathematical operations**, and then layering on top the deeper knowledge of algebra. We built up our skills to be able to generate **graphs** using different **functions**, with the end-product becoming a piece of **mathematical art**, generated by the **'geogebra'** package. The expedition culminated when we presented our models to our parents in a celebration of learning. › **Final product – Posters & Equations** **https://xpschool.org/our-expeditions/algebracadabra/**

EDGE FUTURE LEARNING

The Edge Foundation
44 Whitfield Street
London, W1T 2RH

T +44 (0)20 7960 1540
E futurelearning@edge.co.uk
www.edge.co.uk