| Title of the project: Bee Team projects	Adults involved in the project: MP + Bee Team staff (IRIS, Northumbria University)	Group: KS3

Importance statement:

Science is everywhere in the world around us. STEM are all areas of learning that our kids need to be comfortable with to excel in the future. In particular, science is important to help students develop an understanding of the world they live in, extend their thinking and promote their observation and explanation. It provides a real-life experience of 'being' a scientist and working on STEM projects. Scientific knowledge is useful for all sorts of things: from designing bridges, to slowing climate change, to prompting frequent hand washing during flu season. Scientific knowledge allows us to develop new technologies, solve practical problems, and make informed decisions — both individually and collectively.
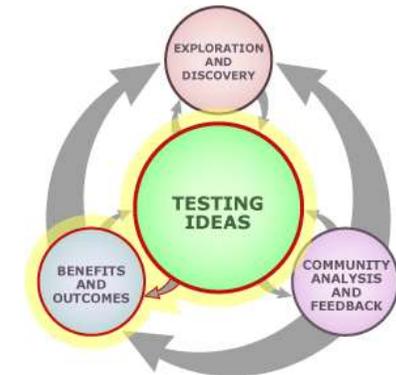
The students will:
- learn strategies for active exploration, thinking and reasoning and develop working theories for making sense of the natural, social, physical and material worlds around them
- experience the project process; improving their enquiry, problem solving and communication skills (possibility of presenting findings to a conference)
- develop skills in creativity, teamwork and time management
- have the possibility to achieve a Bronze CREST award and (if successful) students will receive a personalised certificate to recognise their achievements
- liaise with the Institute for Research in Schools (IRIS) and present their finding to a junior conference.

How Science fits into the Key Stage 3 curriculum:

- Project planning and research (which include a wide range of literacy and numeracy activities)
- Public speaking – both inside and outside school (e.g., conference in Edinburgh)
- Scientific understanding of how to process samples, taxonomic skills (shape recognition under microscope), bee foraging, plant identifications, insect identifications

- Team working and inclusion – everyone gets involved and shares in the successes of each project

Every Child Matters – *aimed to ensure every child has the chance to fulfil their full potential. The five outcomes which matter most to children and young people are:*	Corbridge Middle School Key Enrichment Objectives – *we believe our enrichment should offer pupils the opportunity to :*	Personal Learning & Thinking Skills - *these are generic skills that are essential to life, learning and work. PLTS have a significant impact on a person's ability to make a confident contribution, both within and outside of their working environment.*
Safety and well-being	Building personal confidence	Reflective learners
Healthy lifestyles	Developing social skills	Effective participators
Economic well-being	Team building	Independent Enquirers
Enjoyment and achievement	Factual based learning	Self-managers
Positive contribution to society	Learning or developing a specific skill	Creative thinkers
	Promote awareness of cultural diversity	Team workers

Weekly Planning:

Project: The Bee-Project in collaboration with the Institute for Research in Schools (IRIS), Dr Matthew Pound and Dr Rinke Vinkenoog from Northumbria University. Pollinators are in decline through a combination of land-use changes, decreasing plant biodiversity, pesticides and climate change. This project allows the students to explore pollinator ecology and biodiversity through two related, but distinct, disciplines.
Part 1 investigates the biodiversity of the school and how this could be improved to support pollinators. This project supports UN Sustainable Development Goal 15, could lead to a scientific publication and the possibility of presenting at a conference in Edinburgh. This work collaborates with the honeybee research project: https://www.northumbria.ac.uk/about-us/news-events/news/2018/03/honeybee-research/
Part 2 of the project is to process samples to extract pollen from honey, identify the plants which produced the pollen and report our findings.

Overview: Bee Project Part 1		Areas of Learning	'Assessment' Opportunities	Resources
Week 1	• Introduce project and rules: How can we improve the biodiversity of the school to support pollinators? • Starter: Is Corbridge urban or rural? • Look at a scientific publication (features and results) and ask pupils to predict what results they would expect for Corbridge. • Outline the importance of pollinators for plant reproduction and food production • Research the different types of pollinators	• Developing social skills • Problem solving • Scientific Enquiry • Effective participators • Plant identification • Pollinator identification • Positive contribution to society • Economic well-being	• All work is saved and accessible.	• CREST booklets available on pupil share • Ipads to identify plants and pollinators • Sustainable Development Goals

Weeks 2 and 3	• Conduct a biodiversity/pollinators survey in the school garden with assistance from Dr Matthew Pound or Dr Rinke Vinkenoog from Northumbria University if available • Learn to identify pollinators and plants • Repeat pollinator survey on week 3. • Learn how to use excel to record data in graphs	• Enjoyment and achievement • Factual based learning • Team Building • Building personal confidence • Learning and developing a specific skill • Independent Enquirer • Self Manager • Effective participators	• Verbal participation to show understanding • Excel spreadsheet	• Pollinator identification chart • Survey record sheet • Computers • CREST Booklets	

Weeks 4 and 5	• Complete a last pollinator survey • Start compiling results of the various pollinators and biodiversity surveys. • Use word document or school 360 doc to create a scientific report. • Research how to improve the biodiversity of the school • Prepare a short presentation on the results of the project and skills developed over the project.	• Enjoyment and achievement • Factual based learning • Team Building • Building personal confidence • Learning and developing a specific skill • Independent Enquirer • Self Manager • Creative thinkers • Effective participators	• All work is saved and accessible.	• Suggestions of websites • Computers • CREST Booklets
Week 6	• Presentation of findings to Dr Matthew Pound (Northumbria University) if available/ or to class teacher • Finish off reports	• Reflective learner • Developing social skills • Positive contribution to society • Building personal confidence • Learning and developing a specific skill • Team workers	• All work is saved and accessible.	• Computers • CREST Booklets

Overview: Bee Project Part 2		Areas of Learning	'Assessment' Opportunities	Resources
Week 1	• Introduce project and rules - To identify pollen in honey to work out where bees went foraging and see if they are competing with native species. • Outline the importance of pollinators for plant reproduction and food production • Research the different types of pollinators • Learn how to process honey samples following a scientific method.	• Developing social skills • Problem solving • Scientific Enquiry • Effective participators • Plant identification • Pollinator identification • Positive contribution to society • Economic well-being	• All work is saved and accessible.	• CREST booklets available on pupil share • Sustainable Development Goals • Honey samples

| Weeks 2 and 3 | • Learn how to prepare a microscope slide and how to use a microscope
• Learn how to identify pollen grains under the microscope and collect data
• Learn how to use a digital microscope to take pictures of pollen samples | • Enjoyment and achievement
• Factual based learning
• Team Building
• Building personal confidence
• Learning and developing a specific skill
• Independent Enquirer
• Self Manager
• Effective participators | • Verbal participation to show understanding
• Excel spreadsheet | • Pollen identification chart
• Computers
• CREST Booklets
• Microscopes
• Slides
• Alcohol wipes | |

Weeks 4 and 5	• Start compiling results of the various pollen samples to determine where bees have been foraging. • Use word document or school 360 doc to create a scientific report. • Prepare a short presentation on the results of the project and skills developed over the project.	• Enjoyment and achievement • Factual based learning • Team Building • Building personal confidence • Learning and developing a specific skill • Independent Enquirer • Self Manager • Creative thinkers • Effective participators	• All work is saved and accessible.	• Suggestions of websites • Computers • CREST Booklets
Week 6	• Presentation of findings to Dr Matthew Pound (Northumbria University) if available/ or to class teacher • Finish off reports	• Reflective learner • Developing social skills • Positive contribution to society • Building personal confidence • Learning and developing a specific skill • Team workers	• All work is saved and accessible.	• Computers • CREST Booklets

How will the project be monitored/ evaluated?

- Write up of their findings using a workbook
- Teacher evaluation of their projects before submission to CREST Award
- Pupils will provide a review of what they have learned at the end of each EP rotation.

Cost implications:

£5 per entry for a Bronze CREST Award

A microscope allowing digital photography