

Educational Offering

Scottish Seabird Centre Educational Programmes



The Scottish Seabird Centre

About Us

We are a **Marine Conservation and Education Charity** whose purpose is to inspire, educate and motivate people to care for Scotland's marine environment.

Our work is built upon a foundation of 4 pillars: Conservation, **Education**, Community and Experience.

We deliver education programmes, science resources and events that are targeted to national education frameworks.

In 2022, we engaged with **over 4000 learners**, delivering a variety of STEM learning opportunities across a wide range of school and community groups.

We are in the unique position to provide excellent outdoor STEM learning experiences on our beautiful stretch of Scotland's wildlife-rich coastline.



Our workshop offering

How to use this pack



This pack outlines the workshops we have on offer for you. These span from Early Years to Tertiary Education. As such, we have presented our offering in 2 sections:

- **Workshop Summaries** – A brief summary of each workshop – **Page 5-12** (Pages 5-7 for Primary, Pages 8-12 for Secondary)
- **CfE E&Os and Lesson Plans and Objectives** – Our curriculum targets, learning objectives and a brief description of the lessons activities – **Page 13-49** (Pages 13-31 for Primary, Pages 32-49 for Secondary)

Any enquires, please contact Jack Cuffley - education@seabird.org.

Many of our sessions can be adjusted to suit an in-school delivery. Additionally, If there is a topic you are interested in studying that is not currently being offered in this pack please contact education@seabird.org. We would be more than happy to discuss this further, and design something to meet your needs.

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Our offering of activities for ages P1 to College/University

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Workshops Available – Early Years / Level 1

4-6 / P1 – P4

Early Years:

Puffin Tales and Seal Stories

Explore our beautiful beaches and oceans through fun stories about two of Scotland's more charismatic animals. The children will learn about the life cycle and adventures of Perry Puffin and Sammy seal!

Seashore Explore

This workshop will have the group out and about searching for fun stuff on our beaches. They'll begin to understand the importance of taking plastics and other waste away. They will also have fun finding shells and building sand castles.

Rockpool Ramble

Your children will learn about a few of the creatures they can find in the rockpools just outside the centre. They'll then be taken to explore the pools and try to find and collect some creatures themselves to share with the rest of the group. Finally, the group will have the opportunity to craft their favourite creature they found.

Level 1:

Seashore Explore

We'll explore the beach, searching for anything we can find! We'll begin to discuss how the things we find arrived on the beach and whether it should or should not be there. A chat and a game about what we leave on our beaches will be played, having the children start to understand the potential impact waste and pollution can have on our ocean. This session will end with a beach art / sand castle competition, as well as some fun beach games.

Rockpool Ramble

This workshop will have the group being able to name some of our common animals we find in our rockpools, discovering how they survive in the challenging environment. They'll then head out and try to find them themselves, sharing with the group what they find. Finally, the group will have the opportunity to craft their favourite creature they found in the rockpools.

Seals and Seabirds

Your children will learn about our signature species of birds and seals. We will explore their life cycles and habitats, discussing potential threats to them and what we can do to help. The group have the chance to explore the Discovery Experience and use our live cameras to see real time footage of these species out on the local islands as well as increasing their learning through our interactive exhibits. Finally, the group will flex their artist muscles by creating an adorable sock seal which they can take away with them.

Workshops Available – Level 1 Continued / Level 2

P1 – P4 / P5 – P7

Level 1 Continued:

Islands – Habitats and Food Chains

Your group will understand why animals live where they do. We'll explore the topics of habitats and discuss what makes our local island habitats so different and exciting. Finally, your group will start to map out local food chains or webs, and understand how these can be disrupted by potential invaders. As well as crafting their own island showing what lives upon it.

Seabird Survival – Adaptations and Evolution

This session explores the topics of evolution and adaptation, exploring why seabirds behave and look the way they do. Through a series of fun games and activities we will understand the features of seabirds and how they are specially adapted to face the challenges of their environment. We will finally discuss the impact we can have on these animals, and what we can do to help them.

Level 2:

Seals and Seabirds

Your children will learn about our signature species of birds and seals. We will explore their life cycles and habitats, discussing potential threats to them and what we can do to help. The group have the chance to explore the Discovery Experience and use our live cameras to see real time footage of these species out on the local islands as well as increasing their learning through our interactive exhibits. Finally, the group will flex their artist muscles by creating an adorable sock seal which they can take away with them.

Seashore Explore

Explore the beach searching for anything we can find, we'll begin to discuss how the things we find arrived on the beach and whether it should or should not be there and wander along the beach giving it a clean and searching for nurdles. Through games we'll explore the impact waste and pollution can have on our ocean. This session will end with a beach art / sand castle competition.

Rockpool Ramble

This workshop will have the group being able to name some of our common animals we find in our rockpools, discovering how they survive in the challenging environment. They'll then head out and try to find them themselves, sharing with the group what they find at the end. We will then begin to organise the animals based on similar characteristics and start classifying them like scientists do. With older groups we will begin to discuss survey methods.

Workshops Available – Level 2 Continued

P5 – P7

Level 2 Continued:

Islands – Habitats and Food Chains

Your group will understand why animals live where they do. We'll explore the topics of habitats and discuss what makes our local island habitats so different and exciting. We'll explore the topics of ecological niches and competition. Finally, your group will start to map out local food chains or webs, and understand how these can be disrupted by potential invaders and human impacts.

Seabird Survival – Adaptations and Evolution

This session explores the topics of evolution and adaptation, exploring why seabirds behave and look the way they do. Through a series of fun games and activities we will understand the features of seabirds and how they are specially adapted to face the challenges of their environment. We will finally discuss the impact we can have on these animals, discussing pollution and plastics, and what we can do to help them.

Variety of Life – Biodiversity

This workshop explores the wide range of species that we have living globally and locally in our waters. We'll start by establishing a means of grouping organisms creating our own set of classifications, then head out onto the beach and start to put these rules into action. We will then classify everything we have found as a group and begin to discuss the dynamics there could be between them e.g. predator/prey, interspecific competition etc. creating a map of the interactions between everything we've found. Finally, we will assess the impact humans have on these interactions through practises such as fishing.

Seabirds in Crisis – Climate Change, Conservation and Renewables

This workshop will have the group being able to describe how we impact the planet, positively and negatively. We will head onto the beach for a brief beach clean and discuss the impact that waste can have on the oceans. We will explore the ideas of climate change and greenhouse gases and the impact that we have on these issues. The group will explore the idea of how we can manage our own lives to live more environmentally friendly through redesigning our centre.

Seaweed and Seagrass – In partnership with Restoration Forth

Your children will learn all about the importance of seaweed and seagrass. Through a series of games and activities your group will be able to identify the difference between seagrass and seaweeds, their roles in marine ecosystems and the habitats they form. They'll learn about the impact we can have on the habitats and how we can help protect them.

Workshops Available – Level 3

S1 – S3

Level 3:

Rockpooling

This workshop will introduce students to the organisms that live in our rockpools. They'll understand why this ecosystem is particularly challenging and explore the gradation of the intertidal zone. They'll begin to use scientific survey methods to explore the biodiversity of the rockpools identifying the species that can be found. We will then collate our findings as a group to assess whether we can identify any trends and draw any potential conclusions.

Island Biogeography

This session explores the topics of evolution and adaptations. We will explore how the unique species that are typically found on islands came to be, and how the isolated nature of the island influences this. We will then look at our local island and discuss how their unique nature has given rise to the different habitats and species which exist upon them, and explore how vulnerable they are to invaders and threats. Finally, we will create our own island and design how species can evolve and adapt on our island.

Seabird Adaptions and Evolution

Through the examples of local seabirds, we will understand the pressures that influence evolution and how this process can result in the phenotypes we see in our local species. Through a series of fun games and activities we will understand the features of seabirds and how they have specially adapted to face the challenges of their environment. Finally, we will discuss the impact we can have on these animals, exploring how humans cause large threats to our seabirds and what we can do to help.

Biodiversity of our Oceans

This workshop explores the wide range of species that we have living globally and locally in our waters. We'll start by establishing a means of grouping organisms creating our own set of classifications, then head out onto the beach and rockpools putting these rules into action. We will then classify everything we have found as a group and begin to discuss the dynamics there could be between them e.g., predator/prey, interspecific competition etc. Finally, we'll create a 3D map of the ecosystems exploring all the dynamics that exist.

Workshops Available – Level 3 Continued

S1 – S3

Level 3 Continued:

Conservation, Renewables and Climate Change

This workshop will have the group being able to describe how we impact the planet, positively and negatively. We will start with a debate discussing the environmental issues that interest your group followed by ways in which we can reduce our impact. The group will explore the idea of how we can manage our own lives to live more environmentally friendly through designing an environmentally friendly town. The students will be split into groups to research an assigned topic for the town's consideration; waste, energy etc. They will then be presented with a budget and be tasked with providing for the town on their area of expertise. The groups will then gather and debate on how to best spend their funds to make the most environmentally friendly town possible.

Seaweed and Seagrass – In partnership with Restoration Forth

Your students will learn all about the importance of seaweed and seagrass. Through a series of games and activities your group will be able to identify the difference between seagrass and seaweeds, their roles in marine ecosystems and the habitats they form. We'll explore the topics of photosynthesis, the carbon cycle, biodiversity, and habitats as well as learn about the impact we can have on these species and how we can help protect them.

The Cycles – Water, Carbon and Nitrogen

This workshop offers an exploration of the water, carbon and nitrogen cycle. We will understand the importance of water for life to exist and how it changes between states of matter. The group will also investigate through using our discovery experience and beach front activities how carbon and nitrogen move through our local ecosystem, as well as their importance as a foundation of life. We will discuss how human influences are impacting these cycles and therefore how they are disrupting these cycles.

Marine Research Introduction / Survey Skills (Full Day Workshop)

This workshop will have students investigating a topic of interest like a real marine scientist. They will design and develop an experiment, creating a hypothesis to explore as well as their own methods. They will pilot their investigation, collect data, and begin to analyse and draw conclusions based upon what they have found. With this workshop we typically encourage a pre/post session for experiment conception and analysis, this can be teacher led or delivered in school.

Alternatively this workshop can be used to demonstrate and practise a variety survey methods such as quadrats, transects, random sampling, abiotic measurements etc. to introduce student to practical field work skills.

Workshops Available – Level 4

S4 – S5

Level 4:

Rockpooling

This workshop will introduce students to the organisms that live in our rockpools. They'll understand why this ecosystem is particularly challenging and explore the gradation of the intertidal zone. They'll begin to use scientific survey methods to explore the biodiversity of the rockpools identifying the species that can be found. We will then collate our findings as a group to assess whether we can identify any trends and draw any potential conclusions.

Island Biogeography

This session explores the topics of evolution and adaptations. We will explore how the unique species that are typically found on islands came to be, and how the isolated nature of the island influences this. We will then look at our local island and discuss how their unique nature has given rise to the different habitats and species which exist upon them, and explore how vulnerable they are to invaders and threats. Finally, we will create our own island and design how species can evolve and adapt on our island.

Seabird Adaptions and Evolution

This session explores the topics of evolution and adaptation. Through the examples of local seabirds, we will understand the pressures that influence evolution and how this process can result in the phenotypes we see in our local species. Through a series of fun games and activities we will understand the features of seabirds and how they have specially adapted to face the challenges of their environment. Finally, we will discuss the impact we can have on these animals, exploring how humans cause large threats to our seabirds through pollution and plastics and what we can do to help.

Variety of Life

This workshop explores the wide range of species that we have living globally and locally in our waters. We'll start by establishing a means of grouping organisms creating our own set of classifications, then head out onto the beach and rockpools putting these rules into action. We will then classify everything we have found as a group and begin to discuss the dynamics there could be between them e.g., predator/prey, interspecific competition etc. Finally, we'll create a 3D map of the ecosystems exploring all the dynamics that exist.

Workshops Available – Level 4 Continued

S4 – S5

Level 4 Continued:

Conservation, Renewables & Climate Change

This workshop will have the group being able to describe how we impact the planet, positively and negatively. We will start with a debate discussing the environmental issues that interest your group followed by ways in which we can reduce our impact. The group will explore the idea of how we can manage our own lives to live more environmentally friendly through designing an environmentally friendly town. The students will be split into groups to research an assigned topic for the town's consideration; waste, energy etc. They will then be presented with a budget and be tasked with providing for the town on their area of expertise. The groups will then gather and debate on how to best spend their funds to make the most environmentally friendly town possible.

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The Cycles – Water, Carbon and Nitrogen

This workshop offers an exploration of the water, carbon and nitrogen cycle. We will understand the importance of water for life to exist and how it changes between states of matter. The group will also investigate through using our discovery experience and beach front activities how carbon and nitrogen move through the ecosystem, as well as their importance as a foundation of life. We will discuss how human influences are impacting these cycles and therefore how they are disrupting these cycles.

Marine Research Introduction / Survey Skills (Full Day Workshop)

This workshop will have students investigating a topic of interest like a real marine scientist. They will design and develop an experiment, creating a hypothesis to explore as well as their own methods. They will pilot their investigation, collect data, and begin to analyse and draw conclusions based upon what they have found. With this workshop we typically encourage a pre/post session for experiment conception and analysis, this can be teacher led or delivered in school.

Alternatively this workshop can be used to demonstrate and practise a variety survey methods such as quadrats, transects, random sampling, abiotic measurements etc. to introduce student to practical field work skills.

Workshops Available – Bespoke Workshops

ASN/Disengaged/Further Learning - S1 – S5

Longer Workshops:

We are able to develop a longer workshop programme, potentially targeting ASN, students at risk at disengaging or those looking for further learning. This programme can cover a wide variety of topics (see below) and can span a duration of your preference. We are flexible to meet timetable constraints and are able to deliver both in school and on site sessions.

Example programmes

- Researching a coastal system
- Product designing and development
- Research skills and data collection
- ROV design and production

We hope to use these sessions to increase engagement with learning and science and can customise the course to your students and their interests.

For more information please contact: Jack Cuffley – education@seabird.org



Early Years



Puffin Tales and Seal Stories

Story Telling and Life Cycles

Curriculum For Excellence E&Os:

Health and Wellbeing

- HWB 0-12a
- HWB 0-18a
- HWB 0-19a
- HWB 0-25a

Literacy

- LIT 0-01a
- LIT 0-01b
- LIT 0-01c
- LIT 0-02a
- LIT 0-04a
- LIT 0-07a
- LIT 0-09a
- LIT 0-10a
- LIT 0-19a

Numeracy and Mathematics

- MNU 0-01a
- MNU 0-02a
- MNU 0-010a

Expressive Arts

- EXA 0-01a

Social Studies

- SOC 0-07a
- SOC 0-08a
- SOC 0-17a

Science and Technology

- SCN 0-01a
- TCH 0-15a

Learning Objectives / Workshop Plan:

Learning Objectives:

- To explore rhyme and rhythm through a series of stories.
- To gain a brief understanding on the life cycles of seals and puffins
- To explore animal behaviour through observing the seals and puffins on our live cameras.
- To craft a puffin or a seal to take home.

Workshop Plan:

- We will begin by sharing information about our favourite animals.
- We'll explore the stories of Sammy Seal and Perry puffin. The children will have the opportunity to join in with these stories helping Sammy and Perry find their way.
- We'll create our own Seals and Puffins and watch them live on our cameras (season dependant).

Seashore Explore

Outdoor Beach Exploration

Curriculum For Excellence E&Os:

Health and Wellbeing

- HWB 0-12a
- HWB 0-16a
- HWB 0-17a
- HWB 0-18a
- HWB 0-19a
- HWB 0-25a

Literacy

- LIT 0-02a
- LIT 0-04a
- LIT 0-10a

Numeracy and Mathematics

- MNU 0-01a
- MNU 0-02a
- MTH 0-016a

Expressive Arts

- EXA 0-02a
- EXA 0-06a
- EXA 0-07a

Social Studies

- SOC 0-07a
- SOC 0-08a
- SOC 0-17a

Science and Technology

- SCN 0-01a
- TCH 0-14a
- TCH 0-15a

Learning Objectives / Workshop Plan:

Learning Objectives:

- To explore what we find along our beach.
- To be able to identify what we have found and classify it; this could be living vs non-living, natural vs man-made, should be there vs shouldn't.
- To express what they have found through making sand sculptures.

Workshop Plan:

- Chat with the group what types of things we can find on the beach.
- Discuss whether those things should or should not be on the beach.
- Beach Scavenger hunt, trying to find interesting things along the beach, whilst also picking up anything that shouldn't be there.
- Make beach art and sand castles and share this artwork with the group.
- Play some fun beach games.

Rockpool Ramble

Outdoor Rockpool Exploration

Curriculum For Excellence E&Os:

Health and Wellbeing

- HWB 0-12a
- HWB 0-16a
- HWB 0-17a
- HWB 0-18a
- HWB 0-19a

Literacy

- LIT 0-02a
- LIT 0-04a
- LIT 0-09a
- LIT 0-10a

Expressive Arts

- EXA 0-05a

Numeracy and Mathematics

- MNU 0-01a
- MNU 0-20a
- MNU 0-20b

Social Studies

- SOC 0-07a
- SOC 0-08a
- SOC 0-17b

Science and Technology

- SCN 0-01a
- TCH 0-02a

Learning Objectives / Workshop Plan:

Learning Objectives:

- To be able to describe some of the animals we find in a rockpool.
- To understand safe handling of these species.
- To be able to share with the group what we found

Workshop Plan:

- Begin with a chat about what animals we can find in rockpools
- Head onto the rocky shore and look for the places where we find these animals.
- Explore the rocky shore collecting samples of species.
- Gather and share what they have found with the rest of the group.

Level 1



Seashore Explore

Outdoor Beach Exploration

Curriculum For Excellence E&Os:

Health and Wellbeing

- HWB 1-12a
- HWB 1-16a
- HWB 1-17a
- HWB 1-18a
- HWB 1-19a

Literacy

- LIT 1-02a
- LIT 1-07a
- LIT 1-09a
- LIT 1-10a

Expressive Arts

- EXA 1-03a
- EXA 1-05a
- EXA 1-06a

Social Studies

- SOC 1-07a
- SOC 1-13b

Science and Technologies

- SCN 1-01a
- TCH 1-02a
- TCH 1-14a

Learning Objectives / Workshop Plan:

Learning Objectives:

- To explore what we find along our beach.
- Be able to identify what we have found and classify it; this could be living vs non-living, natural vs man-made, should be there vs shouldn't.
- Express what they have found through making sand sculptures.
- Share this artwork with the rest of the group.

Workshop Plan:

- Chat with the group what types of things we can find on the beach.
- Discuss whether those things should or should not be on the beach and how things could have gotten there.
- Chat about how the things found on the beach influence each other/depend on each other.
- Beach Scavenger hunt, in teams try to find interesting things along the beach, whilst also picking up anything that shouldn't be there.
- Make beach art and sand castles and share this artwork with the group, giving feedback and voting on the best one.

Rockpool Ramble

Outdoor Rockpool Exploration and Identification

Curriculum For Excellence E&Os:

Health and Wellbeing

- HWB 1-12a
- HWB 1-16a
- HWB 1-17a
- HWB 1-18a
- HWB 1-19a

Literacy

- LIT 1-02a
- LIT 1-07a
- LIT 1-09a
- LIT 1-10a

Numeracy and Mathematics

- MNU 1-20a

Expressive Arts

- EXA 1-05a

Social Studies

- SOC 1-07a
- SOC 1-13b

Science and Technology

- SCN 1-01a
- SCN 1-02a
- TCH 1-02a

Learning Objectives / Workshop Plan:

Learning Objectives:

- To be able to identify the different species that live in on the rocky shore.
- To describe some of the challenges said species might face.
- To understand safe handling of these species.
- To explore how this system as a whole interacts discussing food chains and energy transfer
- Discuss the impact we can have on this ecosystem.

Workshop Plan:

- Begin with a discussion about the potential species they might find and how to identify them.
- Head onto the rocky shore and discuss the potential challenges they think the species might face.
- Explore the rocky shore collecting samples of species.
- Gather and share what they have found with the rest of the group.
- After observing the rocky shore discuss again if they can think of any other challenges and any significant differences across the rocky shore.
- Start to discuss food chains / webs involving the species found in the rocky shore, commenting on energy transfer as well as introduce humans as a potential influence on the system.

Seals and Seabirds

Large Charismatic Animal Biology and Discovery Experience

Curriculum For Excellence E&Os:

Health and Wellbeing

- HWB 1-12a
- HWB 1-16a
- HWB 1-17a
- HWB 1-18a
- HWB 1-19a

Literacy

- LIT 1-02a
- LIT 1-07a
- LIT 1-09a
- LIT 1-10a

Numeracy and Mathematics

- MNU 1-20a

Expressive Arts

- EXA 1-05a

Social Studies

- SOC 1-13b

Science and Technology

- SCN 1-02a
- TCH 1-02a
- TCH 1-04a (if using DX)
- TCH 1-15a

Learning Objectives / Workshop Plan:

Learning Objectives:

- To be able describe the life cycles of significant species of seals and seabirds.
- To understand the potential threats these species face and how we can help them
- To design and create models of these creatures through crafts

Workshop Plan:

- Begin with a discussion exploring what the group know about Seals and Seabirds.
- Introduce the group to species like the gannet, puffin and grey seal
- In the Discovery Experience, the group will begin to explore the threats to our seals and seabird through the interactive exhibits as well as see some live footage of these species (season dependant) and begin to identify their behaviours.
- Finally, we'll discuss as a group what we have learned about seals and seabirds and have the chance to craft a sock seal or puffin mobile.

Islands

Island Habitats

Curriculum For Excellence E&Os:

Health and Wellbeing

- HWB 1-12a
- HWB 1-16a
- HWB 1-17a
- HWB 1-18a
- HWB 1-19a

Literacy

- LIT 1-02a
- LIT 1-07a
- LIT 1-09a
- LIT 1-10a

Numeracy and Mathematics

- MNU 1-20a

Expressive Arts

- EXA 1-05a

Social Studies

- SOC 1-07a
- SOC 1-13b

Science and Technologies

- SCN 1-01a
- SCN 1-02a
- TCH 1-02a

Learning Objectives / Workshop Plan:

Learning Objectives:

- To be able to describe a habitat and provide examples of different habitats found around the world.
- To describe how different features of a habitat affect which species live upon it.
- To begin to associate different animals with different habitats and begin to discuss the Scottish Islands and how different species live upon each one.
- Discuss how these animals interact and the energy flow through the habitat

Workshop Plan:

- Begin with a discussion exploring what habitats are and examples of different habitats that can be found around the world.
- Head onto the beach and begin to describe some of the habitats we can see, pointing out in particular any of the island we can see.
- Discuss broadly about what do animals look for in a habitat, and then play the habitat species matching games. Firstly looking at global species and habitat and then specifically at the habitats on the islands.
- Discuss how the animals on the island can interact and comment on how certain species get to the islands.
- Introduce food chains and food webs commenting on how energy flows from producer to consumer, using the case studies of the islands.

Seabird Survival

Adaptions and Evolution

Curriculum For Excellence E&Os:

Health and Wellbeing

- HWB 1-12a
- HWB 1-16a
- HWB 1-17a
- HWB 1-18a
- HWB 1-19a

Literacy

- LIT 1-02a
- LIT 1-07a
- LIT 1-09a
- LIT 1-10a

Expressive Arts

- EXA 1-01a
- EXA 1-05a
- EXA 1-06a

Social Studies

- SOC 1-07a
- SOC 1-08a
- SOC 1-13b

Science and Technologies

- SCN 1-02a
- TCH 1-02a
- TCH 1-13a
- TCH 1-14a
- TCH 1-14b

Learning Objectives / Workshop Plan:

Learning Objectives:

- To understand the pressures that influence evolution.
- To name and identify a few species of local seabirds.
- To be able to identify the challenges seabirds face and how they have adapted to them to tackle them
- To problem solves a series of challenges representing those found in seabirds
- To understand the impact we have on these creatures

Workshop Plan:

- Introduce the concept of evolution and adaptions, in a broad global concept.
- Present the challenges a gannet faces through, the gannet dress up game. This will introduce selection pressures and adaptations through a fun interactive game.
- Describe other challenges through a series of activities such as, hollow bones vs dense bones for diving, waterproof feathers vs non-waterproof feathers.
- Have the group describe some beak shapes they have observed in the species we've explored so far and describe how they have adapted to tackle a certain challenge.
- Finally, explore human impact by staging an "oil spill" in the classroom with the group have to work together to try and fix.

Level 2



Seashore Explore

Outdoor Beach Exploration

Curriculum For Excellence E&Os:

Health and Wellbeing

- HWB 2-12a
- HWB 2-16a
- HWB 2-17a
- HWB 2-18a
- HWB 2-19a

Literacy

- LIT 2-02a
- LIT 2-07a
- LIT 2-09a
- LIT 2-10a

Social Studies

- SOC 2-08a

Expressive Arts

- EXA 2-03a
- EXA 2-05a
- EXA 2-06a

Science and Technologies

- SCN 2-01a
- SCN 2-14a
- TCH 2-01a
- TCH 2-02a
- TCH 2-14a

Learning Objectives / Workshop Plan:

Learning Objectives:

- To explore what we find along our beach.
- Be able to identify what we have found and classify it; natural vs artificial etc.
- Discuss the human impact we have on our environment
- Express what they have found through making sand sculptures, potentially providing a theme or topic for them to explore.
- Share this artwork with the rest of the group.

Workshop Plan:

- Chat with the group what types of things we can find on the beach.
- Discuss whether those things should or should not be on the beach and explore how the waste we leave behind can have potentially harmful impacts on our wildlife and how we can reduce this impact.
- Chat about how the things found on the beach influence each other/depend on each other.
- Beach Scavenger hunt, in teams try to find interesting things along the beach, whilst also picking up anything that shouldn't be there.
- Make beach art and sand castles and share this artwork with the group, giving feedback and voting on the best one.

Rockpooling

Outdoor Rockpool Exploration and Identification

Curriculum For Excellence E&Os:

Health and Wellbeing

- HWB 2-12a
- HWB 2-16a
- HWB 2-17a
- HWB 2-18a
- HWB 2-19a

Literacy

- LIT 2-02a
- LIT 2-07a
- LIT 2-09a
- LIT 2-10a

Numeracy and Mathematics

- MNU 2-20a

Expressive Arts

- EXA 2-05a

Social Studies

- SOC 2-13b

Science and Technology

- SCN 2-01a
- SCN 2-02a
- SCN 2-14a

Learning Objectives / Workshop Plan:

Learning Objectives:

- To be able to identify the different species that live in on the rocky shore, and describe some of the challenges said species might face and how these species have adapted to survive despite those challenges.
- To understand safe handling of these species.
- To explore how this system as a whole interacts discussing food chains and energy transfer, as well as exploring the differences between tidal zones.
- Collect and display data on what species we find
- Discuss the impact we can have on this ecosystem.

Workshop Plan:

- Begin with a discussion about the potential species they might find and how to identify them.
- Head onto the rocky shore and discuss the potential challenges they think the species might face.
- Explore the rocky shore collecting samples and data of species and presented the data in appropriate formats
- Gather and share what they have found with the rest of the group and discuss the visible adaptations that the species have to survive in the environment.
- Start to discuss food chains / webs involving the species found in the rocky shore, commenting on energy transfer as well as introduce humans as a potential influence on the system.

Seals and Seabirds

Large Charismatic Animal Biology and Discovery Experience

Curriculum For Excellence E&Os:

Health and Wellbeing

- HWB 2-12a
- HWB 2-16a
- HWB 2-17a
- HWB 2-18a
- HWB 2-19a

Literacy

- LIT 2-02a
- LIT 2-07a
- LIT 2-09a
- LIT 2-10a

Numeracy and Mathematics

- MNU 2-20a

Expressive Arts

- EXA 2-05a

Social Studies

- SOC 2-08a
- SOC 2-12a

Science and Technology

- SCN 2-01a
- SCN 2-02a
- SCN 2-14a
- TCH 2-02a
- TCH 2-04a (if using DX)
- TCH 2-14a

Learning Objectives / Workshop Plan:

Learning Objectives:

- To be able describe the life cycles of significant species of seals and seabirds, being able to identify and name the life stages.
- To understand the potential threats these species face and how we can help prevent them.
- To design and create models of these creatures through crafts.

Workshop Plan:

- Begin with a discussion exploring what the group know about Seals and Seabirds.
- Introduce the group to species like the gannet, puffin and grey seal
- Discuss the life cycle comparing those of seals and seabirds with that of a species they know already.
- In Discovery Experience, the group will begin to explore the threats to our seals and seabird through the interactive exhibits as well as see some live footage of these species (season dependant) and begin to identify their behaviours.
- Finally, we'll discuss as a group what we have learned about seals and seabirds and have the chance to craft a sock seal or puffin mobile.

Islands

Island Habitats

Curriculum For Excellence E&Os:

Health and Wellbeing

- HWB 2-12a
- HWB 2-16a
- HWB 2-17a
- HWB 2-18a
- HWB 2-19a

Literacy

- LIT 2-02a
- LIT 2-07a
- LIT 2-09a
- LIT 2-10a

Social Studies

- SOC 2-07a
- SOC 2-13b

Expressive Arts

- EXA 2-03a
- EXA 2-05a
- EXA 2-06a

Science and Technologies

- SCN 2-01a
- SCN 2-02a
- TCH 2-02a
- TCH 2-14a

Learning Objectives / Workshop Plan:

Learning Objectives:

- To understand how species adapt to better survive in their environment.
- To be able to describe some adaptations found in charismatic species
- To understand the unique pressure that living on an island present, and how disrupting the balance of said ecosystem can have detrimental effects.
- Discuss how different factors affect the diversity of life on an island, distance, size, topography etc.

Workshop Plan:

- Begin with a discussion on how animals adapt to their ecosystem with examples, tiger, polar bears, penguins etc.
- Head onto the beach and begin to describe some of the habitats we can see, pointing out in particular any of the island we can see.
- Discuss broadly about what do animals look for in a habitat, and then play the habitat species matching games. Firstly looking at global species and habitat and then specifically at the habitats on the islands.
- Discuss how the animals on the island can interact and comment on how certain species get to the islands.
- Introduce food chains and food webs commenting on how energy flows from producer to consumer, using the case studies of the islands.

Seabird Survival

Adaptions and Evolutions

Curriculum For Excellence E&Os:

Health and Wellbeing

- HWB 2-12a
- HWB 2-16a
- HWB 2-17a
- HWB 2-18a
- HWB 2-19a

Literacy

- LIT 2-02a
- LIT 2-07a
- LIT 2-09a
- LIT 2-10a

Numeracy and Mathematics

- MNU 2-11a

Social Studies

- SOC 2-08a

Expressive Arts

- EXA 2-01a
- EXA 2-05a
- EXA 2-06a
- EXA 2-07a

Science and Technologies

- SCN 2-01a
- SCN 2-08b
- TCH 2-01a
- TCH 2-13a
- TCH 2-14a
- TCH 2-14b

Learning Objectives / Workshop Plan:

Learning Objectives:

- To understand the pressures that influence evolution.
- To be able to name and identify a few species of local seabirds.
- To be able to identify the challenges seabirds face and how they have adapted to them to tackle them
- To problem solves a series of challenges representing those found in seabirds
- To understand the impact we have on these creatures

Workshop Plan:

- Introduce the concept of evolution and adaptions, in a broad global concept.
- Present the challenges a gannet faces through, the gannet dress up game. This will introduce selection pressures and adaptations through a fun interactive game.
- Describe other challenges through a series of activities such as, hollow bones vs dense bones for diving, waterproof feathers vs non-waterproof feathers.
- Have the group describe some beak shapes they have observed in the species we've explored so far and describe how they have adapted to tackle a certain challenge.
- Present the groups with a unique challenge which they will have to design a beak which can address it
- Finally, explore human impact by staging an "oil spill" in the classroom with the group have to work together to try and fix.

Variety of Life

Biodiversity and Classification

Curriculum For Excellence E&Os:

Health and Wellbeing

- HWB 2-12a
- HWB 2-16a
- HWB 2-17a
- HWB 2-18a
- HWB 2-19a

Literacy

- LIT 2-02a
- LIT 2-07a
- LIT 2-09a
- LIT 2-10a

Social Studies

- SOC 2-08a

Expressive Arts

- EXA 2-01a
- EXA 2-05a
- EXA 2-06a
- EXA 2-07a

Science and Technologies

- SCN 2-01a
- SCN 2-02a
- SCN 2-14a
- TCH 2-02a
- TCH 2-14a
- TCH 2-14b

Learning Objectives / Workshop Plan:

Learning Objectives:

- To understand the variety of life that live on the globe as a whole and the diversity we have locally
- To be able to group organisms based on logical defining features.
- To create a food chain / web of energy flow of the organisms we've found.
- To map any other interactions there could be between the organisms.
- To understand the impact humanity can have on this ecosystem and biodiversity.

Workshop Plan:

- Chat with the group about the variety of life that exists globally and locally in our coastal waters.
- Have the group begin to create a set of rules in which we can classify organisms. Begin with an activity introduce the concept of classification through classifying inorganic object that the group has.
- Have the group head out onto the beach and begin to put their classification rules into practise.
- Explore the interactions between the organisms the group has found address not just predator/prey but also interspecific competition, mutualism etc.
- Introduce humanity as a factor into their system and explore the impacts it could have on diversity as a whole.

Seabirds in Crisis

Renewables and Climate Change

Curriculum For Excellence E&Os:

Health and Wellbeing

- HWB 2-12a
- HWB 2-16a
- HWB 2-17a
- HWB 2-18a
- HWB 2-19a

Literacy

- LIT 2-02a
- LIT 2-07a
- LIT 2-09a
- LIT 2-10a

Numeracy and Mathematics

- MNU 2-03a
- MNU 2-09a
- MNU 2-09c

Expressive Arts

- EXA 2-01a
- EXA 2-03a
- EXA 2-05a
- EXA 2-06a

Social Studies

- SOC 2-08a
- SOC 2-08b
- SOC 2-13a

Science and Technologies

- SCN 2-04a
- SCN 2-04b
- SCN 2-20b
- TCH 2-02b
- TCH 2-14a

Learning Objectives / Workshop Plan:

Learning Objectives:

- To understand the impact we have on the planet.
- To explore the effect of burning fossil fuels and green house gases on climate change.
- To understand the impact climate change will have on the environment as a whole.
- To explore budgets and plans on how we can live more sustainably.

Workshop Plan:

- Students will begin the session by discussing what they understand about climate change and the impact it will have on biodiversity.
- They explore the beach discussing how human impact the environment through waste, development, energy etc. using examples of the wind turbines and oil rigs, and waste on the beach.
- The group will then be allocated a budget and have them redesign the “Scottish Seabird Centre” bringing practises they view as environmentally friendly, such as recycling, investing in conservation projects, renewable energy etc.
- Additionally, they will have the chance to create their own wind turbines to take away with them

Seaweed and Seagrass

Aquatic Plant Life

Curriculum For Excellence E&Os:

Health and Wellbeing

- HWB 2-12a
- HWB 2-16a
- HWB 2-17a
- HWB 2-18a
- HWB 2-19a

Literacy

- LIT 2-02a
- LIT 2-07a
- LIT 2-09a
- LIT 2-10a

Expressive Arts

- EXA 2-02a
- EXA 2-03a
- EXA 2-05a

Social Studies

- SOC 2-08a
- SOC 2-08b

Science and Technologies

- SCN 2-01a
- SCN 2-02a
- SCN 2-02b
- SCN 2-08b
- SCN 2-14a
- TCH 2-02b
- TCH 2-14a

Learning Objectives / Workshop Plan:

Learning Objectives:

- To understand what seaweed and seagrass are, and be able to identify their differences.
- To understand the roles of these flora as producers in marine ecosystems.
- To be able to describe the habitats that these flora create and recognise their importance to the marine ecosystem.
- To understand the human impacts that can damage these plants and the impact this could have on the ecosystem as a whole.

Workshop Plan:

- Students will begin with an exploration along our shoreline identifying the different species of algae.
- We will discuss the structure and differences between the algae they have found and seagrass.
- We will explore the role of seagrass and seaweed in the ecosystem, primarily as producers but also have the student explore other potential roles the flora have e.g. as a nursery habitat.
- Finally, we will explore the impact that humans have on these species and as a result the wider impact this can have on marine ecosystems

This workshop can also be delivered at Tynninghame Beach, where the students will be able to observe a seagrass meadow during the summer months.

Level 3



Rockpooling

Outdoor Rockpool Exploration, Identification and Survey Methods

Curriculum For Excellence E&Os:

Health and Wellbeing

- HWB 3-12a
- HWB 3-16a
- HWB 3-17a
- HWB 3-18a
- HWB 3-19a

Literacy

- LIT 3-02a
- LIT 3-09a
- LIT 3-10a

Numeracy and Mathematics

- MNU 3-20a
- MNU 3-20b

Social Studies

- SOC 3-08a
- SOC 3-10a

Science and Technology

- SCN 3-01a
- SCN 3-05b
- TCH 3-02a

Learning Objectives / Workshop Plan:

Learning Objectives:

- To be able to identify the different species that live in on the rocky shore, and describe some of the challenges said species might face and how these species have adapted to survive despite those challenges.
- To be able to describe the intertidal zone and recognise how species distribution changes across the zone.
- To explore how this system as a whole interacts discussing food chains and energy transfer, as well as exploring the different tidal zones.
- Collect and display data on what species we find, and begin to discuss how different species might be found in different spaces as well as discussing impact we can have on this ecosystem.

Workshop Plan:

- Begin with a discussion about the potential species they might find and how to identify them.
- Head onto the rocky shore and discuss the potential challenges they think the species might face.
- Explore the rocky shore collecting samples and data of species and presented the data in appropriate formats
- Gather and share what they have found with the rest of the group and discuss the visible adaptations that the species have to survive in the environment.
- Start to discuss food chains / webs involving the species found in the rocky shore, commenting on energy transfer as well as introduce humans as a potential influence on the system.

Islands

Island Biogeography

Curriculum For Excellence E&Os:

Health and Wellbeing

- HWB 3-12a
- HWB 3-16a
- HWB 3-17a
- HWB 3-18a
- HWB 3-19a

Literacy

- LIT 3-02a
- LIT 3-09a
- LIT 3-10a

Numeracy and Mathematics

- MNU 3-08a
- MTH 3-17b

Social Studies

- SOC 3-08a
- SOC 3-10a

Science and Technology

- SCN 3-01a
- SCN 3-05b
- TCH 3-02a
- TCH 3-15a

Learning Objectives / Workshop Plan:

Learning Objectives:

- To understand how species evolve in response to their environmental pressures.
- To understand the unique nature that island present and how this can result in unique species and adaptations.
- Explore how species get to islands, and discuss the threat of potential invaders to the species found
- To use our knowledge to understand the unique nature of our local island and to design our own islands and the species that live upon it

Workshop Plan:

- Begin with a brief discussion on evolution to understand how and why a species evolves over time.
- Discuss the differences between the challenges that the mainland present compared to islands.
- Explore the different method in which species can get to islands using examples from local islands, look at the live cameras to discuss the seasonality of birds on the island and potential impact this could have.
- Have the group explore why unique species originate on islands as a result of the factors discussed previously, having them design and create an island and the species that evolve upon it.
- Finally, we'll introduce the ideas of invasive species and the significant effect these can have especially on islands, using the examples of Rats on the Lamb, Tree mallow and Humans Dodos

Adaptations and Evolution

Seabird Adaptations and Evolution

Curriculum For Excellence E&Os:

Health and Wellbeing

- HWB 3-12a
- HWB 3-16a
- HWB 3-17a
- HWB 3-18a
- HWB 3-19a

Literacy

- LIT 3-02a
- LIT 3-09a
- LIT 3-10a
- LIT 3-28a

Expressive Arts

- EXA 3-02a
- EXA 3-06a
- EXA 3-07a

Numeracy and Mathematics

- MNU 3-11a

Social Studies

- SOC 3-08a
- SOC 3-10a

Science and Technologies

- SCN 3-01a
- TCH 3-01a
- TCH 3-14a

Learning Objectives / Workshop Plan:

Learning Objectives:

- To understand what evolution it is and how environmental pressures influence it.
- To be able to name and identify a few species of local seabirds.
- To be able to identify the challenges seabirds face and how they have adapted to them to tackle them
- To problem solves a series of challenges representing those found in seabirds
- To understand the impact we have on these creatures

Workshop Plan:

- Introduce the concept of evolution and adaptations, in a broad global concept.
- Present the challenges a gannet faces through, the gannet dress up game. This will introduce selection pressures and adaptations through a fun interactive game.
- Describe other challenges through a series of activities such as, hollow bones vs dense bones for diving, waterproof feathers vs non-waterproof feathers.
- Have the group describe some beak shapes they have observed in the species we've explored so far and describe how they have adapted to tackle a certain challenge.
- Present the groups with a unique challenge which they will have to design a beak which can address it.
- Finally, explore human impact by staging an "oil spill" in the classroom with the group have to work together to try and fix.

Variety of Life

Biodiversity and Classification

Curriculum For Excellence E&Os:

Health and Wellbeing

- HWB 3-12a
- HWB 3-16a
- HWB 3-17a
- HWB 3-18a
- HWB 3-19a

Literacy

- LIT 3-02a
- LIT 3-09a
- LIT 3-10a
- LIT 3-28a

Expressive Arts

- EXA 3-02a
- EXA 3-07a

Social Studies

- SOC 3-08a
- SOC 3-10a

Science and Technologies

- SCN 3-01a
- SCN 3-05a
- TCH 3-02a

Learning Objectives / Workshop Plan:

Learning Objectives:

- To understand the variety of life that live on the globe as a whole and the diversity we have locally
- To be able to group organisms based on logical defining features.
- To create a food web of energy flow of the organisms we've found.
- To map any other interactions there could be between the organisms
- To understand the impact humanity can have on this ecosystem and biodiversity

Workshop Plan:

- Chat with the group about the variety of life that exists globally and locally in our coastal waters.
- Have the group begin to create a set of rules in which we can classify organisms. Begin with an activity introduce the concept of classification through classifying objects that the group has.
- Have the group head out onto the beach and begin to put their classification rules into practise.
- Explore the interactions between the organisms the group has found address not just predator/prey but also interspecific competition, mutualism etc.
- Introduce humanity as a factor into their system and explore the impacts it could have on diversity as a whole.

Seabirds in Crisis

Conservation, Renewables and Climate Change

Curriculum For Excellence E&Os:

Health and Wellbeing

- HWB 3-12a
- HWB 3-16a
- HWB 3-17a
- HWB 3-18a
- HWB 3-19a

Literacy

- LIT 3-02a
- LIT 3-09a
- LIT 3-10a
- LIT 3-28a
- LIT 3-29a

Expressive Arts

- EXA 3-07a

Numeracy and Mathematics

- MNU 3-03a
- MNU 3-04a
- MNU 3-09b

Social Studies

- SOC 3-08a
- SOC 3-10a
- SOC 3-13a
- SOC 3-20a

Science and Technologies

- SCN 3-04b
- TCH 3-02a
- TCH 3-12a

Learning Objectives / Workshop Plan:

Learning Objectives:

- To understand climate change, its causes and impacts on the planet.
- To understand human impact on ecosystems through process such as waste, agriculture, development, tourism etc.
- To begin to strategise possible mitigation methods and what would be required to implement them.
- To plan how they can reduce their impact on the planet and encourage others to do the same.

Workshop Plan:

- Begin with a discussion on climate change, its causes and impacts. To create a map of other human impacts we can have on the planet.
- Take a brief walk along our shore line for inspiration and evidence of human impacts on the environment.
- Reconvene in the learning hub and split into group, each assigned an issue to research.
- Plan out a theoretical town with each group being assigned a budget based off on their issue.
- Have the groups mix so one member from each group is present have assign them a collective budget to plan an entire town. They will have to debate on what they view the most important area they would need to spend their budget on.
- Assign groups specific scenarios such as an island where all waste as to be shipped off, or there's an abundance of coal etc.
- Share the towns with the cohort and share their decisions.

Seaweed and Seagrass

Aquatic Plant Life

Curriculum For Excellence E&Os:

Health and Wellbeing

- HWB 3-12a
- HWB 3-16a
- HWB 3-17a
- HWB 3-18a
- HWB 3-19a

Literacy

- LIT 3-02a
- LIT 3-09a
- LIT 3-10a

Expressive Arts

- EXA 3-03a
- EXA 3-06a

Social Studies

- SOC 3-08a
- SCN 3-10a

Science and Technologies

- SCN 3-01a
- SCN 3-02a
- SCN 3-05b
- TCH 3-02a
- TCH 3-14a

Learning Objectives / Workshop Plan:

Learning Objectives:

- To understand what seaweed and seagrass are, and be able to identify the different types and the difference between them.
- To understand the roles of these flora as producers in marine ecosystems, introducing their place in the carbon cycle and nitrogen cycles.
- To be able to describe the habitats that these flora create and recognise their importance to the marine ecosystem.
- To understand the human impacts that can damage these plants and the impact this could have on the ecosystem as a whole.

Workshop Plan:

- Students will begin with an exploration along our shoreline identifying the different species of algae, classifying them into the primary 3 groups.
- We will discuss the structure and differences between the algae they have found and seagrass.
- We will explore the role of seagrass and seaweed in the ecosystem, primarily as producers but also have the student explore other potential roles the flora have e.g. as a nursery habitat.
- Finally, we will explore the impact that humans have on these species and as a result the wider impact this can have on marine ecosystems

This workshop can also be delivered at Tynninghame Beach, where the students will be able to observe a seagrass meadow during the summer months.

The Cycles

Water, Nitrogen and Carbon Cycles

Curriculum For Excellence E&Os:

Health and Wellbeing

- HWB 3-12a
- HWB 3-16a
- HWB 3-17a
- HWB 3-18a
- HWB 3-19a

Literacy

- LIT 3-02a
- LIT 3-09a
- LIT 3-10a
- LIT 3-28a

Expressive Arts

- EXA 3-02a
- EXA 3-03a
- EXA 3-07a

Social Studies

- SOC 3-08a
- SOC 3-10a

Science and Technologies

- SCN 3-02a
- SCN 3-03a
- SCN 3-05a
- SCN 3-05b
- SCN 3-19b

Learning Objectives / Workshop Plan:

Learning Objectives:

- Be able to describe the water cycle and the importance of water for all life.
- To be able to understand the nitrogen and carbon cycle, and describe how they work in a terrestrial and aquatic environment.
- Describe how we can impact these cycles and what that impact would have on the environment in general, such as fertiliser runoff, deforestation.

Workshop Plan:

- Explore how minerals and nutrients move through the environment.
- Describe how water can take forms in multiple states of matter, its importance in sustaining life and how it cycles through the environment. Students will create a model of the cycle, and observe how water assumes the different states.
- Whilst taking a walk along the beach we will discuss the nitrogen cycle using the example of bass rock (or use the live cameras on days with bad weather).
- Additionally, we will explore the carbon cycle in the context of an aquatic environment looking at the algae present on the beach front.
- Finally we will reconvene in the learning hub and map out these cycles and start to discuss how humans can influence them, causing potential damage to the environment.

Marine Research Introduction / Survey Skills

(Full Day Workshops)

Curriculum For Excellence E&Os:

Health and Wellbeing

- HWB 3-12a
- HWB 3-16a
- HWB 3-17a
- HWB 3-18a
- HWB 3-19a

Literacy

- LIT 3-02a
- LIT 3-09a
- LIT 3-10a
- LIT 3-13a
- LIT 3-14a
- LIT 3-16a
- LIT 3-28a

Numeracy and Mathematics

- MNU 3-03a
- MNU 3-21a

Expressive Arts

- EXA 3-04a
- EXA 3-07a

Social Studies

- SOC 3-08a
- SOC 3-10a

Science and Technologies

- SCN 3-01a

Learning Objectives / Workshop Plan:

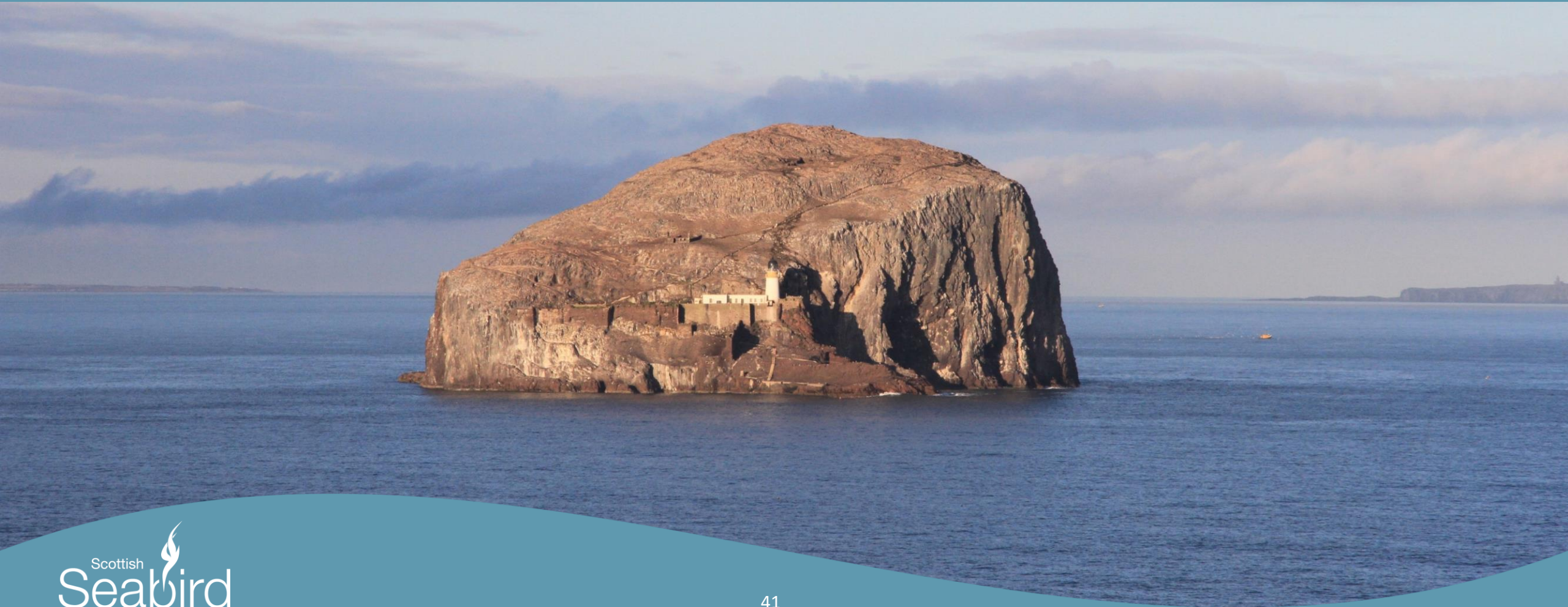
Learning Objectives:

- To explore how research is conducted, from experiment conception and design, to data collection, to analysis and drawing conclusions
- To learn how to collect quantitative and qualitative data on biotic and abiotic factors using a variety of field skills such as quadrats, transects and random sampling methods.
- To understand the advantages and disadvantages of qualitative and quantitative methods, as well as comparing the use of different survey methods.

Workshop Plan:

- Students will arrive at the workshop with a research plan already created. At the SSC we will pilot their study and learn how to collect data through different survey methods and then collect data for their study.
- We will discuss the difference between the survey methods and the data they collect, describing the advantages and disadvantages of each method as well as they types of data they collect.
- A discussion on validity and reliability and their importance in research.
- The group will also see how data can present the wrong information, especially when looking at correlation versus causation.
- The group will leave with their data to analyse and draw conclusions in a following session.
- Alternatively this session can lead students through field research skills, allowing for all students to gain experience of proper field techniques, along with the discussions mentioned higher.

Level 4



Rockpooling

Outdoor Rockpool Exploration, Identification and Survey Methods

Curriculum For Excellence E&Os:

Health and Wellbeing

- HWB 4-12a
- HWB 4-16a
- HWB 4-17a
- HWB 4-18a

Literacy

- LIT 4-02a
- LIT 4-09a
- LIT 4-10a

Numeracy and Mathematics

- MTH 4-12a
- MNU 4-20a
- MTH 4-21a

Social Studies

- SOC 4-08a
- SOC 4-10a
- SOC 4-12a
- SOC 4-12b

Science and Technology

- SCN 4-01a
- SCN 4-12b
- TCH 4-02a

Learning Objectives / Workshop Plan:

Learning Objectives:

- To be able to identify the different species that live in on the rocky shore, and describe some of the challenges said species might face and how these species have adapted to survive despite those challenges.
- To be able to describe the intertidal zone and recognise how species distribution changes across the zone.
- To explore how this system as a whole interacts discussing food chains and energy transfer, as well as exploring the different tidal zones.
- Collect and display data on what species we find, and begin to discuss how different species might be found in different spaces as well as discussing impact we can have on this ecosystem.

Workshop Plan:

- Begin with a discussion about the potential species they might find and how to identify them.
- Head onto the rocky shore and discuss the potential challenges they think the species might face.
- Explore the rocky shore collecting samples and data of species and presented the data in appropriate formats
- Gather and share what they have found with the rest of the group and discuss the visible adaptations that the species have to survive in the environment.
- Start to discuss food chains / webs involving the species found in the rocky shore, commenting on energy transfer as well as introduce humans as a potential influence on the system.

Islands

Island Biogeography

Curriculum For Excellence E&Os:

Health and Wellbeing

- HWB 4-12a
- HWB 4-16a
- HWB 4-17a
- HWB 4-18a

Literacy

- LIT 4-02a
- LIT 4-09a
- LIT 4-10a

Numeracy and Mathematics

- MTH 4-12a
- MNU 4-20a
- MNU 4-22a

Social Studies

- SOC 4-08a
- SOC 4-10a

Science and Technology

- SCN 4-01a
- SCN 4-12b
- TCH 4-02a

Learning Objectives / Workshop Plan:

Learning Objectives:

- To understand how species evolve in response to their environmental pressures.
- To understand the unique nature that island present and how this can result in unique species and adaptations.
- Explore how species get to islands, and discuss the threat of potential invaders to the species found
- To use our knowledge to understand the unique nature of our local island and to design our own islands and the species that live upon it

Workshop Plan:

- Begin with a brief discussion on evolution to understand how and why a species evolves over time.
- Discuss the differences between the challenges that the mainland present compared to islands.
- Explore the different method in which species can get to islands using examples from local islands, look at the live cameras to discuss the seasonality of birds on the island and potential impact this could have.
- Have the group explore why unique species originate on islands as a result of the factors discussed previously, having them design and create an island and the species that evolve upon it.
- Finally, we'll introduce the ideas of invasive species and the significant effect these can have especially on islands, using the examples of Rats on the Lamb, Tree mallow and Humans Dodos

Adaptations and Evolution

Seabird Adaptations and Evolution

Curriculum For Excellence E&Os:

Health and Wellbeing

- HWB 4-12a
- HWB 4-16a
- HWB 4-17a
- HWB 4-18a

Literacy

- LIT 4-02a
- LIT 4-09a
- LIT 4-10a

Expressive Arts

- EXA 4-02a
- EXA 4-06a
- EXA 4-07a

Numeracy and Mathematics

- MNU 4-11a

Social Studies

- SOC 4-08a
- SOC 4-10a
- SOC 4-12a

Science and Technologies

- SCN 4-01a
- SCN 4-12b
- TCH 4-02a
- TCH 4-14a
- TCH 4-14b

Learning Objectives / Workshop Plan:

Learning Objectives:

- To understand what evolution it is and how environmental pressures influence it.
- To be able to name and identify a few species of local seabirds.
- To be able to identify the challenges seabirds face and how they have adapted to them to tackle them
- To problem solves a series of challenges representing those found in seabirds
- To understand the impact we have on these creatures

Workshop Plan:

- Introduce the concept of evolution and adaptations, in a broad global concept.
- Present the challenges a gannet faces through, the gannet dress up game. This will introduce selection pressures and adaptations through a fun interactive game.
- Describe other challenges through a series of activities such as, hollow bones vs dense bones for diving, waterproof feathers vs non-waterproof feathers.
- Have the group describe some beak shapes they have observed in the species we've explored so far and describe how they have adapted to tackle a certain challenge.
- Present the groups with a unique challenge which they will have to design a beak which can address it.
- Finally, explore human impact by staging an "oil spill" in the classroom with the group have to work together to try and fix.

Variety of Life

Biodiversity and Classification

Curriculum For Excellence E&Os:

Health and Wellbeing

- HWB 4-12a
- HWB 4-16a
- HWB 4-17a
- HWB 4-18a

Literacy

- LIT 4-02a
- LIT 4-09a
- LIT 4-10a
- LIT 4-28a

Expressive Arts

- EXA 4-02a
- EXA 4-07a

Social Studies

- SOC 4-08a
- SOC 4-10a
- SOC 4-12a
- SOC 4-12b

Science and Technologies

- SCN 4-01a
- SCN 4-12b
- TCH 4-02a

Learning Objectives / Workshop Plan:

Learning Objectives:

- To understand the variety of life that live on the globe as a whole and the diversity we have locally
- To be able to group organisms based on logical defining features.
- To create a food web of energy flow of the organisms we've found.
- To map any other interactions there could be between the organisms
- To understand the impact humanity can have on this ecosystem and biodiversity

Workshop Plan:

- Chat with the group about the variety of life that exists globally and locally in our coastal waters.
- Have the group begin to create a set of rules in which we can classify organisms. Begin with an activity introduce the concept of classification through classifying objects that the group has.
- Have the group head out onto the beach and begin to put their classification rules into practise.
- Explore the interactions between the organisms the group has found address not just predator/prey but also interspecific competition, mutualism etc.
- Introduce humanity as a factor into their system and explore the impacts it could have on diversity as a whole.

Seabirds in Crisis

Conservation, Renewables and Climate Change

Curriculum For Excellence E&Os:

Health and Wellbeing

- HWB 4-12a
- HWB 4-16a
- HWB 4-17a
- HWB 4-18a

Literacy

- LIT 4-02a
- LIT 4-09a
- LIT 4-10a
- LIT 4-28a
- LIT 4-29a

Numeracy and Mathematics

- MNU 4-03a

Social Studies

- SOC 4-01a
- SOC 4-08a
- SOC 4-09a
- SOC 4-09b
- SOC 4-10a
- SOC 4-12a
- SOC 4-12b
- SOC 4-20a

Science and Technologies

- SCN 4-04a
- SCN 4-04b
- TCH 4-02a

Learning Objectives / Workshop Plan:

Learning Objectives:

- To understand climate change, its causes and impacts on the planet.
- To understand human impact on ecosystems through process such as waste, agriculture, development, tourism etc.
- To begin to strategise possible mitigation methods and what would be required to implement them.
- To plan how they can reduce their impact on the planet and encourage others to do the same.

Workshop Plan:

- Begin with a discussion on climate change, its causes and impacts. To create a map of other human impacts we can have on the planet.
- Take a brief walk along our shore line for inspiration and evidence of human impacts on the environment.
- Reconvene in the learning hub and split into group, each assigned an issue to research.
- Plan out a theoretical town with each group being assigned a budget based off on their issue.
- Have the groups mix so one member from each group is present have assign them a collective budget to plan an entire town. They will have to debate on what they view the most important area they would need to spend their budget on.
- Assign groups specific scenarios such as an island where all waste as to be shipped off, or there's an abundance of coal etc.
- Share the towns with the cohort and for the group to explain their decisions.

Seaweed and Seagrass

Aquatic Plant Life

Curriculum For Excellence E&Os:

Health and Wellbeing

- HWB 4-12a
- HWB 4-16a
- HWB 4-17a
- HWB 4-18a
- HWB 4-19a

Literacy

- LIT 4-02a
- LIT 4-09a
- LIT 4-10a

Expressive Arts

- EXA 4-04a
- EXA 4-06a

Social Studies

- SOC 4-08a
- SCN 4-10a
- SCN 4-12b

Science and Technologies

- SCN 4-01a
- SCN 4-03a
- SCN 4-05b

Learning Objectives / Workshop Plan:

Learning Objectives:

- To understand what seaweed and seagrass are, and be able to identify the different types and the difference between them.
- To understand the roles of these flora as producers in marine ecosystems, introducing their place in the carbon cycle and nitrogen cycles.
- To be able to describe the habitats that these flora create and recognise their importance to the marine ecosystem.
- To understand the human impacts that can damage these plants and the impact this could have on the ecosystem as a whole.

Workshop Plan:

- Students will begin with an exploration along our shoreline identifying the different species of algae, classifying them into the primary 3 groups.
- We will discuss the structure and differences between the algae they have found and seagrass, discussing how and why these difference my exist.
- We will explore the role of seagrass and seaweed in the ecosystem, primarily as producers but also have the student explore other potential roles the flora have e.g. as a nursery habitat.
- Finally, we will explore the impact that humans have on these species and as a result the wider impact this can have on marine ecosystems

This workshop can also be delivered at Tynninghame Beach, where the students will be able to observe a seagrass meadow during the summer months.

The Cycles

Water, Nitrogen and Carbon Cycles

Curriculum For Excellence E&Os:

Health and Wellbeing

- HWB 4-12a
- HWB 4-16a
- HWB 4-17a
- HWB 4-18a

Literacy

- LIT 4-02a
- LIT 4-09a
- LIT 4-10a
- LIT 4-28a

Social Studies

- SOC 4-08a
- SOC 4-10a
- SOC 4-12b
- SOC 4-14a

Numeracy and Mathematics

- MNU 4-08a

Science and Technologies

- SCN 4-01a
- SCN 4-03a
- SCN 4-05b

Learning Objectives / Workshop Plan:

Learning Objectives:

- Be able to describe the water cycle and the importance of water for all life.
- To be able to understand the nitrogen and carbon cycle, and describe how they work in a terrestrial and aquatic environment.
- Describe how we can impact these cycles and what that impact would have on the environment in general, such as fertiliser runoff, deforestation, pollution.

Workshop Plan:

- Explore how minerals and nutrients move through the environment.
- Describe how water can take forms in multiple states of matter, its importance in sustaining life and how it cycles through the environment. Students will create a model of the cycle, and observe how water assumes the different states.
- Whilst taking a walk along the beach we will discuss the nitrogen cycle using the example of bass rock (or use the live cameras on days with bad weather).
- Additionally, we will explore the carbon cycle in the context of an aquatic environment looking at the algae present on the beach front.
- Finally we will reconvene in the learning hub and map out these cycles and start to discuss how humans can influence them, causing potential damage to the environment.

Marine Research Introduction / Survey Skills

Full Day Research Skills Workshops

Curriculum For Excellence E&Os:

Health and Wellbeing

- HWB 4-12a
- HWB 4-16a
- HWB 4-17a
- HWB 4-18a

Literacy

- LIT 4-02a
- LIT 4-09a
- LIT 4-10a
- LIT 4-13a
- LIT 4-14a
- LIT 4-16a
- LIT 4-28a

Expressive Arts

- EXA 4-04a

Numeracy and Mathematics

- MNU 4-03a
- MNU 4-21a

Social Studies

- SOC 4-08a
- SOC 4-10a
- SOC 4-14a

Science and Technologies

- SCN 4-01a
- SCN 4-18a
- SCN 4-20b

Learning Objectives / Workshop Plan:

Learning Objectives:

- To explore how research is conducted, from experiment conception and design, to data collection, to analysis and drawing conclusions
- To learn how to collect quantitative and qualitative data on biotic and abiotic factors using a variety of field skills such as quadrats, transects and random sampling methods.
- To understand the advantages and disadvantages of qualitative and quantitative methods, as well as comparing the use of different survey methods.

Workshop Plan:

- Students will pilot a study of their own design and learning how to collect data through different survey methods, evaluating the means to best suit their investigation.
- We will discuss the difference between the survey methods and the data they collect, describing the advantages and disadvantages of each method as well as they types of data they collect.
- A discussion on validity and reliability and their importance in research.
- The group will also see how data can present the wrong information, especially when looking at correlation versus causation.
- The group will begin to analyse their data and draw conclusion based upon what they have found.

This session work well with pre/post sessions which can be delivered at school by the SSC team or your teachers.

Alternatively this session can lead students through field research skills, allowing for all students to gain experience of proper field techniques, along with the discussions mentioned higher.

Contact Us



If you are interested in making a booking or would like any further information please contact our Education Officer, Jack Cuffley on either:

Email: education@seabird.org

Phone: 01620 890 202

Many of our sessions can be adjusted to suit an in-school delivery. Additionally, if there is a topic you are interested in covering that is not currently being offered in this pack please get in touch. We would be more than happy to discuss this further, and design something to meet your needs.