



Yorkshire
Wildlife Trust

Educator resources

MARINE LIFE

This package has been designed to give a brief introduction to the most common species you are likely to find in the rockpools of Yorkshire and other rocky shores of the UK.

For your use we have attached some related further topics to allow for you to expand on any specific areas or to help tailor any learning or activities to the aptitude of the student.

We have also included suggested subjects which can be linked to this topic.

Topics within the key stages which relate to this topic:

[Key stage 1/2](#)

Year 1

Animals, including humans

- Identify and name a variety of common animals including fish, amphibians, reptiles, birds and mammals
- Identify and name a variety of common animals that are carnivores, herbivores and omnivores
- describe and compare the structure of a variety of common animals (fish, amphibians, reptiles, birds and mammals, including pets)

Everyday materials

- Identify and name a variety of everyday materials, including wood, plastic, glass, metal, water, and rock

Year 2

Living things and their habitat

- Identify that most living things live in habitats to which they are suited and describe how different habitats provide for the basic needs of different kinds of animals and plants, and how they depend on each other
- Identify and name a variety of plants and animals in their habitats, including microhabitats
- Describe how animals obtain their food from plants and other animals, using the idea of a simple food chain, and identify and name different sources of food

Animals, including humans

- Notice that animals, including humans, have offspring which grow into adults
- Find out about and describe the basic needs of animals, including humans, for survival (water, food and air)

Year 3

Animals, including humans

- Identify that humans and some other animals have skeletons and muscles for support, protection and movement

Rocks

- Compare and group together different kinds of rocks on the basis of their appearance and simple physical properties
- Describe in simple terms how fossils are formed when things that have lived are trapped within rock

Year 4

Living things and their habitats

- Recognise that living things can be grouped in a variety of ways
- Explore and use classification keys to help group, identify and name a variety of living things in their local and wider environment
- Recognise that environments can change and that this can sometimes pose dangers to living things

Animals, including humans

- Construct and interpret a variety of food chains, identifying producers, predators and prey

Year 5

Living things and their habitats

- Describe the differences in the life cycles of a mammal, an amphibian, an insect and a bird
- Describe the life process of reproduction in some plants and animals

Earth and space – in relation to tides

- Describe the movement of the Earth, and other planets, relative to the Sun in the solar system
- Describe the movement of the Moon relative to the Earth
- Describe the Sun, Earth and Moon as approximately spherical bodies
- Use the idea of the Earth's rotation to explain day and night and the apparent movement of the sun across the sky

Year 6

Living things and their habitats

- Describe how living things are classified into broad groups according to common observable characteristics and based on similarities and differences, including microorganisms, plants and animals
- Give reasons for classifying plants and animals based on specific characteristics

Evolution and inheritance

- Recognise that living things produce offspring of the same kind, but normally offspring vary and are not identical to their parents

- Identify how animals and plants are adapted to suit their environment in different ways and that adaptation may lead to evolution

Geography – Place Knowledge – in relation to Yorkshire

- Understand geographical similarities and differences through the human and physical geography of a small area of the UK, and of a small area of a non-European country
- Use basic geographical vocabulary to identify key physical features such as beach/cliff/coast/forest/hill/mountain/sea/ocean/river/soil/valley/vegetation/season/weather
- Use basic geographical vocabulary to identify key human features such as city/town/village/factory/farm/house/office/port/harbour/shop

Human and physical geography – in relation to Yorkshire

- Describe and understand key aspects of physical geography, including: climate zones/ biomes and vegetation belts/ rivers/mountains/ volcanoes and earthquakes/ and the water cycle
- Describe and understand key aspects of human geography, including types of settlement and land use, economic activity including trade links, and the distribution of natural resources including energy, food, minerals and water

English

- Introducing new terminology (see following glossary) associated with marine biology and zoology
- Read words of more than one syllable that contain taught GPC's

Key stage 3/4

Photosynthesis

- The reactants in, and products of, photosynthesis, and a word summary for photosynthesis
- The dependence of almost all life on Earth on the ability of photosynthetic organisms, such as plants and algae, to use sunlight in photosynthesis to build organic molecules that are an essential energy store and to maintain levels of oxygen and carbon dioxide in the atmosphere
- The adaptations of leaves for photosynthesis

Relationships in an ecosystem

- The interdependence of organisms in an ecosystem, including food webs and insect pollinated crops
- How organisms affect, and are affected by, their environment, including the accumulation of toxic materials

Genetics and inheritance

- Differences between species
- The variation between individuals within a species being continuous or discontinuous, to include measurement and graphical representation of variation

- The variation between species and between individuals of the same species means some organisms compete more successfully, which can drive natural selection
- Changes in the environment may leave individuals within a species, and some entire species, less well adapted to compete successfully and reproduce, which in turn may lead to extinction
- The importance of maintaining biodiversity and the use of gene banks to preserve hereditary material

Earth and the atmosphere – in relation to the rocks of the rock pools

- The composition of the Earth
- The structure of the Earth
- The rock cycle and the formation of igneous, sedimentary and metamorphic rocks
- Earth as a source of limited resources and the efficacy of recycling
- The carbon cycle
- The composition of the atmosphere
- The production of carbon dioxide by human activity and the impact on climate

Ecosystems

- Levels of organisation within an ecosystem
- Some abiotic and biotic factors which affect communities, the importance of interactions between organisms in a community
- How materials cycle through abiotic and biotic components of ecosystems
- The role of microorganisms (decomposers) in the cycling of materials through an ecosystem
- Organisms are interdependent and are adapted to their environment
- The importance of biodiversity
- Methods of identifying species and measuring distribution, frequency and abundance of species within a habitat
- Positive and negative human interactions with ecosystems

Evolution, inheritance and variation

- Genetic variation in populations of a species
- The process of natural selection leading to evolution
- The evidence for evolution
- Developments in biology affecting classification
- The importance of selective breeding of plants and animals in agriculture
- The uses of modern biotechnology including gene technology; some of the practical and ethical considerations of modern biotechnology

Earth and atmospheric science

- Evidence for composition and evolution of the Earth's atmosphere since its formation
- Evidence, and uncertainties in evidence, for additional anthropogenic causes of climate change
- Potential effects of, and mitigation of, increased levels of carbon dioxide and methane on the Earth's climate
- Common atmospheric pollutants: sulphur dioxide, oxides of nitrogen, particulates and their sources
- The Earth's water resources and obtaining potable water

Human and physical geography – in relation to Yorkshire

- Physical geography relating to geological timescale and plate tectonics; rocks, weathering and soils; weather and climate, including how the climate has changed since the last ice age; and glaciation, hydrology and coasts

English

- Pupils should continue to develop their knowledge of and skills in writing, refining their drafting skills and developing resilience to write at length. They should be taught to write formal and academic essays as well as writing imaginatively. They should be taught to write for a variety of purposes and audiences across a range of contexts. This requires an increasingly wide knowledge of vocabulary and grammar.

Citizenship – in relation to Yorkshire and SSI/SAC/MPA of Flamborough

- The roles played by public institutions and voluntary groups in society, and the ways in which citizens work together to improve their communities, including opportunities to participate in school-based activities
- Local, regional and international governance and the United Kingdom's relations with the rest of Europe, the Commonwealth, the United Nations and the wider world

Glossary

Arthropod = an invertebrate from the large family *Arthropoda* which includes insects, spiders and crustaceans

Camouflage = the natural form or colouring of an animal which enables it to blend with its surroundings

Crustaceans = an arthropod of the large, mainly aquatic group, Crustacea, such as crabs, lobsters, shrimps or barnacles

Echinoderm = a marine invertebrate from the family *Echinodermata* which includes starfish, sea urchin and sea cucumber

Ecosystem = a biological community of interacting organisms and their physical environment

Exoskeleton = a rigid external covering for the body in some invertebrate animals, like crabs

Habitat = the natural home or environment of an animal, plant or other organism

Hold-fast = a root-like structure that anchors aquatic plants to the substrate

Mollusc = an invertebrate which has a soft unsegmented body protected by an external shell. Most live in damp or aquatic environments. The family includes snail, slugs, muscles and octopuses

Reabsorb = to absorb again

Predator = an animal that naturally preys on others

Prey = an animal that is hunted and killed by another for food

Species = a group of living organisms consisting of similar individuals that are capable of exchanging genes or interbreeding

Submerged = underwater

Taking the subject further...

We have a range of printable resources on our website to assist you in your teaching and learning. Categories include:

- Colouring sheets
- Crafts
- Spotter ID sheets
- Quizzes
- Activity booklets

The activities have been developed to allow participants to be creative, allowing pupils to *produce creative work, exploring their ideas and recording their experiences* in-keeping with national curriculum guidelines.

There is also the opportunity to improve computer skills through research for completing the activity booklets.

To link specifically with this topic, we would recommend:

- The Fisheries work booklet – to help you understand what work we do alongside local fishermen to promote and adopt measures to help marine wildlife
- The Seashore wildlife quiz – to test your knowledge
- The Seashore spotter activity for the next time you adventure to the shore

The resources can be found following the link here:

<https://www.ywt.org.uk/living-seas-centre/printables>