

# Applicable standards

## The national curriculum in England

KS1 - KS2 Science	Lessons				
	1	2	3	4	5
<b>Element of the curriculum</b>					
<b>KS1</b>					
• Identify and name a variety of common animals that are carnivores, herbivores and omnivores	✓				
• Describe how animals obtain their food from plants and other animals, using the idea of a simple food chain	✓				
• Describe basic needs of animals and the importance of exercise			✓		
• Describe the importance for humans to eat the right amounts of different types of food			✓		
• Describe the simple physical properties and uses of a variety of everyday materials				✓	
• Identify that most living things live in habitats to which they are suited				✓	
<b>KS2</b>					
• Describe how animals obtain their food from plants and other animals, using the idea of a simple food chain	✓				
• Recognise the impact of exercise and lifestyle on body function			✓		
• Describe the importance for humans to eat the right amounts of different types of food			✓		
• Give reasons, based on evidence from comparative and fair tests, for the particular uses of everyday materials				✓	
• Identify how animals are adapted to suit their environment in different ways				✓	
• Impact of changing environments					✓
• Changes of state					✓
<b>Working Scientifically</b>					
• Observing over time		✓		✓	✓
• Pattern seeking					✓
• Identifying, classifying and grouping				✓	
• Comparative and fair testing (controlled investigations)				✓	
• Researching using secondary source	✓		✓		
• Presenting data	✓			✓	

# Applicable standards

## The national curriculum in England

### KS1 - KS2 Geography

#### Element of the curriculum

Lessons				
1	2	3	4	5

- Develop contextual knowledge of globally significant marine places
- Physical geography: describe and understand key aspects of polar biomes

✓  
✓

### Literacy & Numeracy

#### Element of the curriculum

Lessons				
1	2	3	4	5

- Write a narrative using a creative writing storyboard
- Compare calories and weights to develop numeracy and mathematical reasoning

✓  
✓

# SCHEME OF WORK

## Lesson 1: What organisms live in the Arctic?

### Overview

Students develop their understanding of simple food chains or webs and scientific vocabulary through making an Arctic life mobile.

They will also be introduced to the work of marine scientist, Dr Ceri Lewis, who has worked in the Arctic investigating the impact of environmental change on this fragile ecosystem.

### Learning outcomes

- Name five Arctic organisms
- Use scientific vocabulary correctly
- Draw simple food chains
- Draw a food chain with the correct arrows
- Construct a food web

### Resources



**Slideshow 1:**  
What organisms live in the Arctic?



**Activity Overview 1:**  
Arctic life mobiles



**Student Sheet 1a:**  
Researching Arctic organisms

**Student Sheet 1b:**  
Arctic organism cards

**Student Sheet 1c:**  
Arctic life mobiles



**Thinglink:**  
What animals live in the Arctic?



**Gallery:**  
What creatures live in the Arctic?

## Lesson 2: How do you train like an Arctic explorer?

### Overview

In this lesson students simulate the training of Arctic explorers to learn how lifestyles can affect physical and mental health.

The lesson is introduced by Ann Daniels, a record-breaking polar explorer as the first woman in history, along with expedition teammate Caroline Hamilton, to reach the North and South Poles as part of all women teams.

### Learning outcomes

- Describe conditions in the Arctic
- Describe some of the challenges of surviving in the Arctic
- Explain why physical training is needed for Arctic explorers
- Explain why mental training is needed for Arctic explorers

### Resources



**Slideshow 2:**  
How do you train like an Arctic explorer?



**Activity Overview 2a:**  
Tyre dragging relay

**Activity Overview 2b:**  
Sleeping bag relay



**Student Sheet 2a:**  
Training storyboard



**Video:**  
Training for the Arctic in Devon

**Video:**  
How do you sleep in the Arctic?



**Subject Update:**  
What fitness training do Arctic explorers need?

# SCHEME OF WORK

## Lesson 3: How do you eat like an Arctic explorer?

### Overview

Students learn about diet and the importance of a balanced diet through the experiences of polar explorers. Using creativity and scientific research skills, students will create a menu suitable for an Arctic expedition.

The lesson is introduced by Fran Orio, a specialist polar cook, who can make amazing meals in the most extreme circumstances.

### Learning outcomes

- Link calories to the energy in food
- Use scientific vocabulary correctly
- Describe the role of carbohydrate, fat and protein in the body
- Describe the conditions in the Arctic
- Describe some of the difficulties of surviving in the Arctic
- Design a diet for a polar explorer
- Explain the differences between your diet and a polar explorer's diet

### Resources



#### Slideshow 3:

How do you eat like an Arctic explorer?



#### Activity Overview 3:

Make your own pemmican



#### Student Sheet 3a:

Researching food

#### Student Sheet 3b:

Polar menu



#### Video:

How many calories does a polar explorer need a day?

#### Video:

What are the challenges of cooking in an Arctic Ice Base?



#### Subject Update:

What do polar explorers eat?

## Lesson 4: How do humans and animals keep warm in the Arctic?

### Overview

In this lesson students investigate the insulating properties of materials and consider how the adaptations of Arctic organisms help develop these.

The context of the lesson is helping to develop new clothing for Tyler Fish, one of the Catlin Arctic Survey explorers.

### Learning outcomes

- Describe the conditions in the Arctic
- Make a prediction
- Investigate the insulating properties of three different materials
- Demonstrate learning by producing a poster with a graph and conclusion

### Resources



#### Slideshow 4:

How do humans and animals keep warm in the Arctic?



#### Activity Overview 4a:

Investigating insulating materials



#### Student Sheet 4a:

Investigating insulating materials

#### Student Sheet 4b:

Scientific poster template

#### Student Sheet 4c:

Scientific poster template (Advanced)



#### Subject Update:

What equipment and clothing do polar explorers need?

## Lesson 5: How is the Arctic changing?

### Overview

In this lesson students learn about the impacts of ice in the Arctic melting by watching a series of demonstrations.

The context of the lesson is the work of Dr Helen Findlay who was investigating the effect of environmental change on the Arctic ecosystem.

### Learning outcomes

- Describe the conditions in the Arctic
- Describe how the Arctic is changing
- Explain the cause and possible outcome of one problem facing the Arctic

### Resources

**Slideshow 5:**

How is the Arctic changing?

**Activity Overview 5a:**

The albedo effect

**Activity Overview 5b:**

Sea level rise

**Activity Overview 5c:**

Ocean circulation

**Student Sheet 5a:**

Sentence card sort

**Student Sheet 5b:**

Storyboard

**Video:**

What trends are there in sea ice coverage?

**Subject Update:**

What are ice caps and how are they formed?

**Subject Update:**

Why is the Arctic melting and why is that a problem?

**Subject Update:**

How does ocean circulation affect the climate of the UK?