HOW DID ANTARCTIC EXPLORERS ENSURE THEY HAD ENOUGH ENERGY

CALCULATING HOW TO GET ENOUGH ENERGY TO SURVIVE ANTARCTIC CONDITIONS

POLAR SURVIVAL KS2

Curriculum mapping

History

Aims:

- **Know and understand how people's lives have shaped this nation and how Britain has influenced and been influenced by the wider world**
- **Understand the methods of historical enquiry, including how evidence is used rigorously to make historical claims, and discern how and why contrasting arguments and interpretations of the past have been constructed**

Mathematics

Aims:

- **Can solve problems by applying their mathematics to a variety of routine and non-routine problems with increasing sophistication, including breaking down problems into a series of simpler steps and persevering in seeking solutions**
- **They should also apply their mathematical knowledge to science and other subjects**

KS2

- **interpret and present data using bar charts, pictograms and tables**
- **solve comparison, sum and difference problems using information presented in bar charts, pictograms, tables and other graphs**
- **complete, read and interpret information in tables, including timetables**

Computing

Purpose of study:

- **Ensures that pupils become digitally literate – able to use, and express themselves and develop their ideas through, information and communication technology**

Aims:

- **are responsible, competent, confident and creative users of information and communication technology**

KS2: select, use and combine a variety of software (including internet services) on a range of digital devices to design and create a range of programs, systems and content that accomplish given goals, including collecting, analysing, evaluating and presenting data and information

Introduction activity

Look at the 'pemmican' resources located on page 41 of the Encyclopaedia of Artefacts: http://polar.lgfl.org.uk/encyclopaedia_of_artefacts.html#book/43

Explain that pemmican was a mixture of ground beef and lard and it provided the main food source in the field for the 1910–1913 Terra Nova Expedition. It was the main foodstuff for the sledging team. It was usually heated with water in a stew and eaten with biscuits crumbled into it. One box would provide a day's food supply for one man.

Watch the Pemmican video and discuss the issue that although it was a very substantial foodstuff, Robert Scott didn't realize that they were not eating quite enough to give them all the calories they would need to counteract the energy they were expending on the polar plateau.

Listen to the journal extract on page 4 of Journal Readings (http://polar.lgfl.org.uk/journal_readings.html#book/7) where Robert Falcon Scott's words can be heard talking about hoosh – the thick stew they made from pemmican and biscuits. Discuss how Scott talks about really looking forward to the hoosh, but that it was all too soon eaten and then the explorers knew they were in for a long cold night ahead.

Main part of lesson

The pemmican video explained that the sledging team had to carry all their rations with them for the complete journey. Look at the ration box video located on page 44 of the Encyclopaedia of Artefacts: http://polar.lgfl.org.uk/encyclopaedia_of_artefacts.html#book/47

As a class, look at the 'ration box' resource and explain that this is a standard-size sledge ration box. Up to ten of these crates containing food rations could be loaded onto a sledge to be pulled by ponies, dogs or men. Each of these lightweight, but robust, crates would contain enough pemmican rations to feed two men for ten days.

Discuss that for normal living and working today, the average man requires 2000-2500 calories.

For a man hauling sledges in the Antarctic, Scott's party had expected to need around 4500 calories and therefore they planned and packed rations for this amount.

However it was such hard work that the polar party actually used 6000-8000 calories a day and so were actually slowly starving daily, as they were using up more calories than they were eating.

Explain that in this lesson, the pupils are going to use the 'Antarctic sledging team daily rations' document (http://polar.lgfl.org.uk/Lessons/ks2_s2_l1.html#resources) to work out what the team should have been consuming each day to give them the required 6000 – 8000 calories.

This resource sets out the calorific value of the foodstuffs eaten on a typical sledging expedition.

Pupils should create a spreadsheet calculating how much of each item from the rations resource an individual would need and use a formula to work out a daily ration where the total calorie intake is as near to 8000 as possible.

C	D	E	F	G	H	I
	foodstuff	size of unit	calorie per unit	quantity eaten per day	total calorie	
	pemmican	225grammes	1500	4	6000	
	sugar	teaspoon	16	6	96	
	tea	cup	21	6	126	
	raisins	10 raisins	15	7	105	
	biscuits	per biscuit	120	15	1800	
				total calorie	8127	

Pupils could also look at using the graphing element of the spreadsheet to translate their calculations into a graphical representation.

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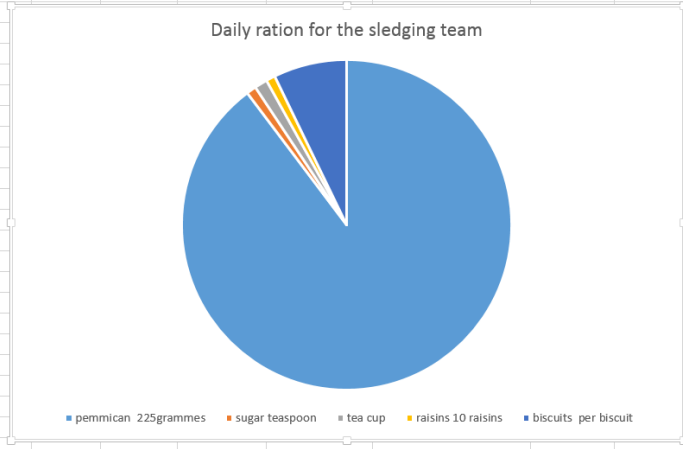

Plenary

On Shackleton's Endurance Expedition in 1914, the Endurance ship became trapped by ice and the crew had to spend a winter camped in huts on an ice floe. Having cocoa as a warming and comforting drink really boosted the morale of the team. As a class, look at the cocoa video on page 36 of the Encyclopaedia of Artefacts (http://polar.lgfl.org.uk/encyclopaedia_of_artefacts.html#book/39) and discuss whether the class think it is true that a mug of cocoa could make it all better?