EXPERIMENT WITH THE VIKINGS

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ROYAL SOCIETY OF CHEMISTRY

ACTIVITIES CLASSIFICATION

Activity Name	Biology	Chemistry	Physics	Technology	Maths	Demo
Which is the best cereal?	✓					
Growing cereal crops	✓					
What is the soil like in Scandinavia?	✓	✓				
Viking campsites	✓	✓				
What makes a longship long?			✓	✓	✓	✓
The Viking longship			✓	✓		
Longship shape			✓	✓		
Why do longships float?			✓	✓		
Which shape makes the best sail?			✓	✓	✓	
Can Viking longships tack?			✓			
How to find Polaris, the Pole or North Star			✓			
Show photos of star arcs around Polaris			✓			✓
Use the Pole Star to navigate			✓		✓	
Sun shadow board			✓		✓	
The sunstone			✓			
The shieldwall formation			✓			✓
Weapons – long vs. short cutting edge			✓	✓		
Armour			✓	✓		
Conical vs. round helmets			✓			
Padding under the helmet			✓			
Starting fires		✓				✓
Putting fires out		✓				
Cooking on fire		✓				✓
Making bread	✓	✓				
Growing yeast	✓	✓				✓
Extraction of salt from seawater		✓				
Extraction of salt from rock salt		✓				

ACTIVITIES CLASSIFICATION

Activity Name	Biology	Chemistry	Physics	Technology	Maths	Demo
Preserving cucumber with salt		✓				✓
Making butter		✓				
Making cheese		✓				
Spinning thread			✓	✓		
Which fabric keeps you warmest?			✓			
Which clothes keep you coolest?			✓			
Viking nappies		✓		✓		
Longship sails			✓	✓		
Dyeing with onion skins		✓				
Dyeing with mordants		✓				
Dyeing with red cabbage		✓				
Sheep	✓					
Identification of crops	✓					
Life cycles of domesticated animals	✓					
Life cycles of salmon or eels	✓					
Protection from snakes and elves	✓	✓				
Amber	✓	✓				
Furs and skins	✓					
Investigating (fake) Viking poo	✓					
How can items survive 1500 years or more in the ground?	✓	✓				

INTRODUCTION

Welcome to Experiment with the Vikings, a comprehensive resource to include STEM in your Vikings topic. People from Scandinavia (Denmark, Norway and Sweden) in the part of the Early Medieval Period from 793 to 1066, sometimes called the Viking Age, relied on their technology to survive. Many aspects of their lives can be investigated through STEM subjects. This resource contains over 40 activities that link directly to the Vikings, covering aspects of everyday life, weapons and warfare, travel and trade. It finishes with some activities linked to how archaeologists today use STEM to investigate life in Viking times.

Who were the Vikings?

"The Vikings" has become the name for people from Scandinavia who raided the British Isles, Northern and Central Europe, and into Russia between 793 and 1066. However, a Viking is not a race, but an occupation. Most people were farmers, fishermen, traders, craftsmen or warriors. Some of these people would sometimes take ships and raid coastal settlements or other ships, taking goods and slaves to be kept or sold elsewhere. Taking part in these activities was called going Viking. Just like people nowadays, people then identified themselves more as Dane, Norse or Svear.

Context: Our fictional hero, Leif Sigurdson, was one such person. The youngest son of a farmer from Borg in the Lofoten archipelago in Norway, Leif left home at the age of 14 to become a Viking. Rich from raiding in Scotland and Ireland, and with his own warship by the time he was just 20 years old, Leif settled in Copeland, on the west coast of Cumberland, in what is now England. A Norseman (Norwegian) by birth, Leif's was one of many Norse settlements in the area.

Leif Sigurdson | Terry Harvey-Chadwick

ACTIVITY STRUCTURE

All of the activities follow a similar structure featuring these sections:

Key words	Identifies some of the key words that can be used during this activity.
Context	A narrative to frame the activity.
Teachers' note	Information for you to be aware of.
What can we ask	Key questions that can be explored through the activity.
Equipment list	What you, and the class, need in order to do the activity.
Activity instructions	What you and your class do.
Explanation	A brief explanation of the science explored in the activity.
Health and safety	Where relevant, this is what you need to do to be safe. When doing any science experiment always do your own risk assessment.
Related activities	Other activities, including cross-curricular links, you and your class can do based on the learning from the activity.

GLOSSARY

Acid (adjective is acidic)	Sour things like vinegar and lemon juice are acids.
Acid rain	When rainwater has acids dissolved in it usually as a result of pollution.
Adaptation	Changes that allow living things to survive and breed as the environment changes.
Air pressure	The gases in air moving around and bouncing off things exert a pressure.
Alkali (adjective is alkaline)	Cleaning things are alkalis – soap, washing soda, cleaners. These are the opposite of acids.
Draught	How deep a ship sinks into the water.
Environment	Surroundings that affect living things eg temperature, water, light.
Evaporate	Liquid turning into a gas, usually when warmed.
Gas	Expands to fill the whole container.
Growing season	The period of time in a given year when the climate is suitable for the most plant growth.
Igneous rock	Rock formed from the cooling and solidification of lava or magma.
Indicator	Something that changes colour depending on whether it is in acid or alkali. Many plants do this. Red cabbage juice is a good example.
Irreversible reaction	A change that cannot be reversed – you cannot easily get the original materials back. Chemical reactions, cooking and burning are all examples of irreversible changes.
Keel	A beam running the length of a ship providing structural strength to the hull.
Liquid	Flows and takes the shape of the container.
Metamorphic rock	Rock that has been changed through high temperature and pressure.
Micro-organism	Tiny living things that you can only see with a microscope.
Momentum	A quantity of the motion of a moving body, the product of its mass and velocity. So a larger object moving at the same speed as a smaller object will have more momentum because of its greater mass.
Organic	Living or from things that were alive.
pH	A measure of how acidic or alkaline a substance is. A pH less than 7 is acidic, pH 7 is neutral, pH over 7 is alkaline.
Photosynthesis	The process in plants that uses energy from sunlight to convert carbon dioxide from the air and water from the soil into glucose.
Rennet	An enzyme used to curdle milk when making cheese.
Reversible reaction	A change that can be reversed – you can get the original materials back. Dissolving, evaporating, melting, condensing are all reversible.
Soapstone	A rock soft enough to carve easily, so used for jewellery and containers. Can feel soapy, hence the name.
Solid	Keeps its own shape.
Solvent	A substance, usually a liquid, that dissolves things.
Strake	A plank making up the hull of a ship.
Synthetic	Man-made material as opposed to natural fabric.