

Between 600-1200 AD, the northern people of Scandinavia, called Vikings, had set up a spectacular civilization that was known, and feared, over much of Europe and as far east as Byzantium (Constantinople). Their sagas, which told of their many exploits and discoveries, were written using symbols called Runes. The greatest of these saga writers and story tellers was Snorri Sturluson who lived from 1179 to 1241 A.D.

The Vikings knew about the Northern Lights. In their mythology, the colorful auroral archways were identified as the Bifrost Bridge, which was a trembling and fiery path that fallen warriors could travel to Valhalla. The beautiful auroral rays were also imagined to be the lights that were carried by the Valkyries as they rode across the sky in search of Vikings who had been honorably killed in battle. The aurora have also been regarded in ancient folklore as the bringer of harsh weather, or that they are the celestial dance by the souls of dead maidens.

In this activity, students will use the accompanying decoder stone to translate a runic sentence into English. Please note that the sentence is written with English words and is not an authentic Old Icelandic quotation! Some liberty has also been taken with word spellings when no equivalent letters are available (e.g. 'kolor' = color, 'inwisible' = invisible and 'energie' = energy). Also, there was no symbol to represent a question mark.



Students will use the alphabet stone (called the Futhark), to assign an English letter to each of the symbols in the string of runes. They will then uncover a message in the form of a question, which they will have to answer. For added difficulty, suggest that the student answer the question in terms that a Viking could understand avoiding anachronistic terms. You may also suggest that the answer be written in Runes. Here is the translation of the Viking's question:

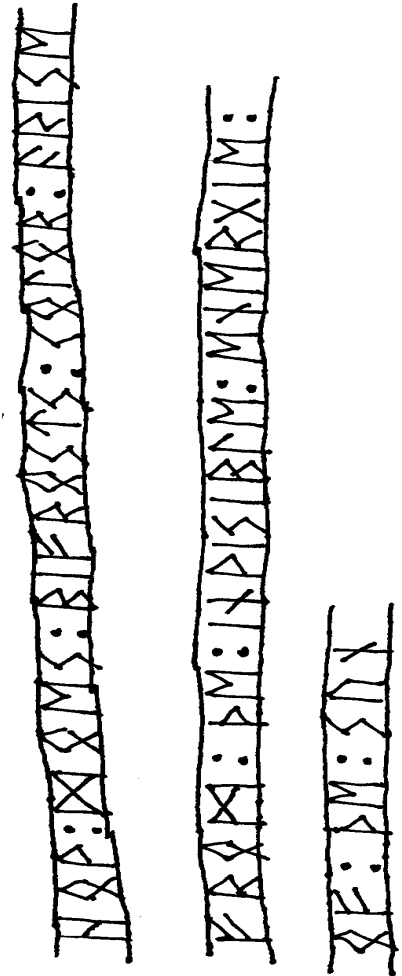
How does Bifrost's kolor arise from the inwisible energie of the sun

To learn more about the history of the Swedish runes, visit:

<http://www.tarahill.com/runes/runehist.html>



While visiting your Aunt Birgit in Sweden, you happen to be digging in the backyard and uncover a stone with old Viking runes written over it in a spiral. You show it to your Aunt and she looks at it carefully, "Oh, how lucky you are to have found one of those messages from our ancestors!" Your Old Icelandic is pretty rusty, but you use one of your Aunt's books to translate the message on the stone that was inscribed nearly 1200 years ago. Can you answer the Viking's question? Write a short essay that summarizes what you have learned about aurora in this booklet.



Useful Web Resources

Exploratorium "Auroras:Paintings in the Sky"

http://www.exploratorium.edu/learning_studio/auroras/

Archive of aurora photos by Jan Curtis:

<http://www.geo.mtu.edu/weather/aurora/images/aurora/jan.curtis/>

Archive of aurora photos by Dick Hutchinson:

<http://www.ptialaska.net/~hutch/aurora.html>

Space Weather Today:

<http://www.spaceweather.com/>

IMAGE real-time aurora images from space:

<http://image.gsfc.nasa.gov/poetry/today/intro.html>

<http://www.sec.noaa.gov/IMAGE/>

<http://sprg.ssl.berkeley.edu/image/>

NOAA Auroral Activity monitor:

<http://www.sec.noaa.gov/pmap/index.html>

CANOPUS real-time auroral monitor:

<http://www.dan.sp-agency.ca/www/rtoval.htm#TOPOFPAGE>

Current solar activity report:

<http://www.dxlc.com/solar/>

Alaska Science Aurora page for kids:

<http://www.alaskascience.com/aurora.htm>

Human Impacts of Space Weather:

<http://image.gsfc.nasa.gov/poetry/weather01.html>

Ask the Space Scientist:

<http://image.gsfc.nasa.gov/poetry/ask/askmag.html>

More classroom activities:

<http://image.gsfc.nasa.gov/poetry/activities.html>

The Northern Lights Essay Competition:

<http://image.gsfc.nasa.gov/poetry/alaska/alaska.html>

