Constellations and Navigation
'Stars Have Dreams'

Learning objectives:

The book 'Stars have Dreams' is a fictional story about the origins of the Ursa Major and Ursa Minor Constellations. Students will learn about constellations, what they are and why they were important to navigation.

Explain why the stars were important to sailors for navigation.
(What is celestial navigation?)
Specifically the Big Dipper with the North Star, true North.
Ursa Major and Minor were catalogued as constellations by Greeks in the 2nd Century BE and 600 BE.
They reported that Phoenician sailors taught them.

Why was the North star so important to sailors to use for navigation?

What are latitude and longitude? Have your students find the latitude and longitude for where they live. Have them choose any city or place in the world and find the latitude and longitude using the website linked.

Why didn't they just use GPS?

Find:
Ursa Major/Ursa Minor
Big Dipper/Little Dipper
North Star

Have your learners map out the Big Dipper and the Little Dipper.
Have your learners map out Ursa Major and Ursa MInor.
Identify the North Star on each constellation.
For older students have them look up the names of the other stars that make up the constellations.

What are the common names of the North Star?
What is the official designation of the North Star?

Where are they in the sky where you live right now? Use the Sky Finders.
There are also applications available to see where specific stars and constellations are in the sky.

Make your own constellation using the glow in the dark stars or dots.

Fun facts: The Vikings used the stars but they also used a sun compass they invented as well as a transluscent stone called a stunstone which allowed them to see the sun on cloudy days. The Vikings were the masters of navigation and most likely made it to what is now the United States and Canada.

Depending on learning levels you can divide these topics into the different constellations. The stories behind the shapes.

Older learners can delve deeper into Viking navigation including DIY sundials and other hands on learning. Even the way they build their boats was strategic for sailing into the deeper oceans. A unit that encompasses these would utilize science, history, math and literature skills

Links to resources:
Celestial Navigation
https://seahistory.org/sea-history-for-kids/navigating-by-the-stars/

Latitude and Longitude
https://www.latlong.net/
https://howforkids.com/latitude-and-longitude-for-kids/

NASA Sky Map
https://www3.nasa.gov/skymap/full/
Ursa Major
https://science.nasa.gov/asset/hubble/constellation-ursa-major/
Ursa Minor
https://apod.nasa.gov/apod/ap110514.html
Facts about the Little and Big Dipper as well as Ursa Major and Minor.
https://www.constellation-guide.com/little-dipper/
This will let your class know which constellations are in the sky tonight. Click on map to view the constellations from the location where you live.
https://www.constellation-guide.com/

Secrets of Viking Navigation
https://www.historytools.org/stories/unraveling-the-secrets-of-viking-navigation-how-the-norsemen-conquered-the-seas
https://viking.style/the-norse-compass-navigating-the-viking-world/

Supplies:
Glow in the dark star stickers
Construction or craft paper
colored pencils/markers/crayons
Paper rotating Sky Finder https://tinyurl.com/bhz4xvzz
Paper world map from Amazon with latitude and longitude coordinates https://a.co/d/0iXK6NCC (to see equator) or Road Atlas books available on Amazon
Free worksheets off education websites that have latitude and longitude exercises

Lesson Inspired by the book ‘Stars Have Dreams’ by Tabitha Orr

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Information on sailors with differing abilities in the past.

James Holman, the “Blind Traveller” born in 1786 used ‘human echolocation’ (think bats) and tactile navigation. Rendered totally blind at 25 after illness, Holman served in the Royal Navy before embarking on a 1832 circumnavigation — the first by a blind person — and later visiting every inhabited continent https://explorersweb.com/legends-series-james-holman/

Blind and sailing the Baltic: Polish foundation breaking stereotypes at sea https://tvpworld.com/94413744/blind-sailors-steering-baltic-tall-ship-inside-polands-see-the-sea-project

There is no historical evidence that people born of differing abilities or who became disablied in some form during their lives were treated differently in Viking communities. We also have rarely recorded historical facts of the lives of individuals in communities that weren’t warriors or leaders or explorers (famous people, the Gods, the rich) Anyone whose stories would have been told over and over again then written down. Vikings did have a written language.

There is also no evidence of people who had disabilities saiied with them on voyages. Considering what was needed to sail the long distances and the size of the boats it is possible that they chose who they considered the strongest and best in their society. As it is none are written about in the historical sagas.

People who were blind, deaf or disabled could have become some sort of mystic in the community.

There is evidence in the archaeological records and that people with physical disabilities were living in the community.

Perfect for an entire history sidequest!