Staying in Port: Navigation
NAVIGATION is the process of finding your way around.

Ships like *Intrepid* used tools like charts, compasses, and sextants to NAVIGATE.

Do you or any of the adults you know use anything to help find your way around?
Nautical Charts

Nautical charts are a lot like maps.

Maps help you NAVIGATE on land by showing mountains, streets, or buildings.

Nautical charts help you NAVIGATE on water by showing big rocks, shipwrecks, and shorelines.

Sailors NAVIGATING with charts on board Intrepid.
Investigation: Google Earth

Today, we can use tools like Google Earth to explore both the land and the sea.

Click here or the link below and press the button: Launch Earth to begin your own NAVIGATION around the globe!

https://www.google.com/earth/

*B works best on Google Chrome

⭐⭐⭐ BONUS Challenge!

Find the dice button on the left side of the screen.

Press the dice button to learn about a new place on the globe. Find 5 new places you have never been!
Sextants and Celestial Navigation

Sailors can use the alignment of the stars to help them NAVIGATE.

A sextant is a tool that helps you find where you are based on the Sun or the stars.

Sailor using a sextant on *Intrepid* to find their location.
Investigation: Stellarium

Explore the stars like a sailor, no matter the time or the place.

Click [here](https://stellarium-web.org/) or the link below to explore the Stellarium online planetarium.

BONUS Challenge!

Sailors often used sextants to locate the North Star.

Can you find the North Star at the very end of the constellation Ursa Minor?
Constellation Viewer

Now that you have explored the stars and constellations, make your own constellation viewer at home!

To make your own constellation viewer, you will need: one toilet paper tube, a toothpick, a paper circle, markers and glue.

First, trace a circle on the paper with a pencil using your tube.

Then, carefully cut out your circle using scissors.

Next, you will need to glue your circle onto one end of your tube. Apply glue to the rim of the tube, then press the circle down firmly.
While you wait for the glue to dry, you can decorate your viewer with markers.

To make your constellation, stick the toothpick* through your paper circle where you would like your stars to be. You can either use a star pattern you noticed on Stellarium or make your own.

Your viewer is ready! Look through the other end to see your constellation.

*If you don’t have a toothpick, you can use the end of a paper clip, the tip of a sharp pencil or anything else that can poke holes in paper. Always use care when holding sharp objects.
Compasses

A compass is a tool that can help you NAVIGATE.

A compass can help you find north, south, east, and west directions.

A compass does not use batteries! Instead, compasses usually use magnets to work.

Did you know the Earth is a big magnet?

The magnets inside the compass are attracted to the Earth’s magnetic field.

That’s why compasses work without electricity!

Do you have anything that uses magnets in your home?
Compass Creation
Make a compass of your own using household materials!

For this activity, you will need a container of water, a paper clip, a piece of wax paper, and a magnet.

This is a magnet. Yours may look different.

Start with a paper clip*. Straighten the paper clip if it is not straight already.

*If you do not have a paper clip, you can use a needle with adult permission.
Run the magnet over one half of the paper clip.

When you reach the end, take the magnet off and place it back on the paper clip where you started. Repeat the process.

Make sure to pick the magnet up off the paper clip, and not slide the magnet back and forth!
Run the magnet over the paper clip for one minute to magnetize it!

You can use a kitchen timer, a watch, or a phone timer to help you count down.

Cut out a piece of wax paper*. Use a marker to put two dots on the paper, about an inch apart.

*If you do not have wax paper, you can use a leaf or another piece of paper.

Slide your paper clip through the two dots on the square of wax paper.

Your paper clip needs the wax paper to float!
Gently place your paper clip device on the surface of the bin of water.

Count to ten, carefully watching the paper clip. It should move to point in a particular direction.

Be patient and watch carefully! If your paper clip compass doesn’t seem to move, try running the magnet over your device again.

Now your paper clip can line up with Earth’s magnetic field, pointing north and helping you find your way.
Hi Al!

Al is an Intrepid volunteer and Coast Guard veteran.

In the Coast Guard, Al served as a quartermaster or navigator.

Al says that in order to be a good navigator, you must be willing to practice, try again, and work as a team.

Al says the coolest part of his job was being the first to know where his ship was located.
The Island

The Island is the part of *Intrepid* that sticks up from the flat flight deck.

The Island is the ship’s command center. NAVIGATION, steering, and other decision-making happened here.

*Intrepid* sailors, focusing on steering and navigating inside the Island.
The Bridge

One of the spaces inside the Island is called the Captain’s Bridge.

Click here or the link below to learn more about the Captain’s Bridge from Intrepid volunteer Tom Fisher.

https://www.youtube.com/watch?v=awiNO5Hnt2I

Click here or the link below to take a 360° view of another space in the Island, Intrepid’s Navigation Bridge, by using Google Arts & Culture.

https://artsandculture.google.com/streetview/aircraft-carrier-intrepid-navigation-bridge/0gF-Cf38B-R0hg

BONUS Challenge!
Thank you from the Intrepid Sea, Air & Space Museum!

Explore the Museum at home using Google Arts and Culture