

Handout B: Key Terms of the Age of Sail

Background:

From the earliest times, water has provided human beings with sources of food and served as a highway for trade. In ancient times, ships were lightly built and tended to remain close to land to navigate by landmarks and have a ready supply of fresh food and water. Historians speculate that humans learned to use the stars as navigational guides as early as 3000 B.C.E. As they created and modified technologies, humans found ways to take longer and longer voyages across the waves. With longer voyages came an increase in challenges and dangers. Sails allowed sailors to use the wind to propel the ship forward, but relying on the wind can be limiting because its direction and strength cannot be controlled. Sailing far away from land means a ship needs to be self-reliant, but larger and heavier ships are harder to control.

Ocean currents, storms, and sudden calms all threaten the survival of mariners. How were the mariners of the Age of Sail able to overcome these challenges? Your task is to find out. In understanding how people approached these problems, we can better appreciate how these advancements allowed for the exploration and colonization of new worlds. We can also better understand how these technological advancements and limitations affected their choices and lives.

Instructions:

Below you'll find a list of terms that identify various types of ships and navigational tools used during the Age of Sail. Match these terms with the images on your table. Once matched, organize the ship designs so they are in chronological order from oldest design to most recent. For each ship design, identify which advancements were made in their designs, what these advancements enabled, and how these changes would have affected the lives of men and women during the Age of Exploration. Identify the same for the various navigational tools.

Carrack (c. fifteenth century): These square-rigged ships carried some of the first European explorers across the vast Atlantic Ocean. Their sturdy construction meant they could withstand the violent waves and currents of the open ocean. Their large size also meant they could carry enough stores to reliably make it across the ocean without running out of food and water. However, their square sails meant that sailing into the wind was difficult.

Astrolabe (c. 200 B.C.E.): This tool was used by mariners to identify stars in the night sky. Once identified, a ship's relative position could be triangulated on the basis of the stars' location. This is known as celestial navigation.

Trireme (c. seventh century B.C.E.): These ships were dominant in the Mediterranean Sea during the time of the ancient Greeks and Romans. Lightly built and powered by a combination of oars and sails, they were not well suited to sailing on the Atlantic Ocean.

Caravel (c. fifteenth century): These sturdy ships were less bulky than other European ships of the period and took advantage of "lateen sails." These triangular sails allowed them to more easily sail into the wind, an essential ability that improved the reliability of Atlantic crossings.

Chronometer (c. 1728): This time-keeping device allowed sailors to determine their longitude. The time of midday changes the farther east or west one travels. By comparing the time the sun reaches a fixed location, for example, Greenwich, England (location of the Prime Meridian or 0° longitude), and the time at the current location, sailors could approximate their east-west location across the ocean.

Galley (c. thirteenth to fourteenth century): These sleek vessels were first used in the Mediterranean Sea and combined advancements in sailing technology with the steady power of oars. They were commonly used as war ships in the Middle Ages and were still in use as late as the eighteenth century in the Baltic Sea.

East Indiaman (c. seventeenth to nineteenth centuries): This cargo vessel was the primary cargo ship for the Dutch and British East India companies in the eighteenth century. It combined elements of the square-rig sails and lateen sails with a large hold that provided ample room for cargo and supplies.

Compass (c. 300–200 B.C.E.): This magnetic tool allowed mariners to have a reliable sense of their direction when they were on the open sea, far from any landmarks or geographic indicators of direction.

Sextant (c. 1757): This tool was used to measure the sun's distance to the horizon so sailors could know when the day had reached noon. When this noon was compared with the time on the Prime Meridian (0° longitude), a sailor could accurately determine latitude.
