

Challenge Cards

Challenge: The gunpowder needed to fire the guns (or cannons) during a battle was stored in a cool dark place at the bottom of the ship called the magazine. During battle, it was the job of boys to pass bags of gunpowder from the magazine to the guns located at the top of the Ship. This was dangerous work! Build an invention that utilizes one or more simple machines to move gunpowder from the magazine to the spar deck.

Challenge: *Constitution* was often out to sea for many months at a time without stopping on any land. That means they needed to carry all the food and water that the sailors would need in barrels at the bottom of the Ship in an area called the Orlop deck. Barrels filled with water or food were very heavy and hard for a man to lift alone. Build an invention that utilizes one or more simple machines to move barrels from the orlop deck to the stove on the gun deck.

Challenge: Every sailor was assigned his own hammock to sleep in. In the morning, he was responsible for rolling up his hammock and storing it in the hammock netting. He only had a short amount of time to roll up his hammock before the officer in charge of him would get angry. If he could roll it up faster, he could sleep a little bit longer and still be on time to make his officer happy. Build an invention that utilizes one or more simple machines that rolls hammocks.

Challenge: Most sailors went to the bathroom at the front of the Ship in an area called the head where they balanced over holes open to the ocean below them. Officers had a little more privacy and went in chamber pots. These pots had to be carried from the back of the Ship to the front by a sailor to be emptied into the ocean, a very messy job! Build an invention utilizing one or more simple machines that carries full chamber pots to from the wardroom to the head, dumps them out, and returns them to the wardroom.

Challenge: One of the least enjoyed jobs on *Constitution* was that of holystoning, or scrubbing the decks with a big flat stone. Some holystones required many men to pull them across the deck. Build an invention utilizing one or more simple machines that makes it easier to pull a heavy holystone across the deck.

Challenge: On the top deck of *Constitution*, sailors kept a small chicken coop. It was the job of one of the sailors to collect the eggs that the chickens hatched to use in cooking for the officers. This could be a very stinky job! Build an invention utilizing one or more simple machines that could collect eggs from the chickens from a distance.

Challenge: The ropes around the masts of *Constitution* are called rigging and were used by sailors like ladders to reach the sails. They had to climb sometimes hundreds of feet into the air without anything but their hands and feet to keep them safe. Build an invention utilizing one or more simple machines that could lift a person safely into the air to set or trim sails.

Challenge: There was only one cook on board *Constitution* and he had to feed 450-500 men every day! That didn't give him a lot of time to cook a meal. One of the things he had to do was turn large pieces of meat around on the fire so that they would cook evenly. Build an invention utilizing one or more simple machines that would help the cook turn the meat over the fire faster.

Challenge: Sailors weren't always very good about keeping their clothes very clean. They didn't have a lot of time to do laundry, but officers often wanted to keep the crew looking clean. Build an invention utilizing one or more simple machines that would help sailors wash their clothes faster than doing it by hand.

Challenge: Long pieces of wood (like tree trunks) were kept on the Ship so that they could repair broken masts or yards when necessary. Moving these large pieces was hard work and required a lot of manpower. Build an invention utilizing one or more simple machines that would help sailors move these pieces of wood around the spar deck and up into the air to fix a mast or yard.