

# Berth Deck Area Activity

Name \_\_\_\_\_

Date \_\_\_\_\_

How big was the berth deck on board *Constitution* and how many sailors could sleep on it at one time? In this activity, calculate the surface area of *Constitution's* berth deck, and use the size of a hammock and how much room a sailor was allotted to sleep to find out how many sailors could sleep at the same time.

The Dimensions of Berth Deck, with space available for sailors to sleep was 87 feet (length), and 39 feet (width, maximum beam).

(Note: These dimensions are only the space for sailors and marines to sleep. These dimensions do not include the Wardroom (where the officers slept) or Midshipmen's steerage quarters aft, or Sickbay forward. These dimensions also do not include hatchways or other intrusions. In reality, the Berth Deck was much larger than 87 by 39 feet.)

**What is the surface area of *Constitution's* berth deck in feet?**

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Hammocks were sailor's beds. They are made of canvas, and while when they are laid out flat are about 6 feet long by 3.8 feet wide, they take up less space when hung with a body in them, approximately 3 feet long by 1.2 feet wide. However, the clews (lines which suspended the hammocks from the beams) might add another foot on each end, making the hammock about 5 feet long in total when hanging with a body in it.

**What is the surface area of a single occupied hanging hammock, with and without its clews?**

On American ships during the War of 1812, the width between hammocks when hung tended to be 18 inches (meaning that a single sailor had about 9 inches on either side of his hammock).

In the British Royal Navy, it was commonly stated that each sailor was "allowed a space 14 inches broad for his hammock" (Brian Lavery, *The arming and fitting of English ship's of war, 1600-1815*, P. 181). In David Steel's 1794 Hammock Plan (provided below), the diagram shows a British Royal Navy ship of the line with a "full complement". These ships crammed many more sailors into almost the same size space than American naval ships did.

**Calculate the width (in feet) that an occupied hammock would take up, including the space on either side**

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**Now calculate the square footage that a single occupied hammock would take up on the deck:**

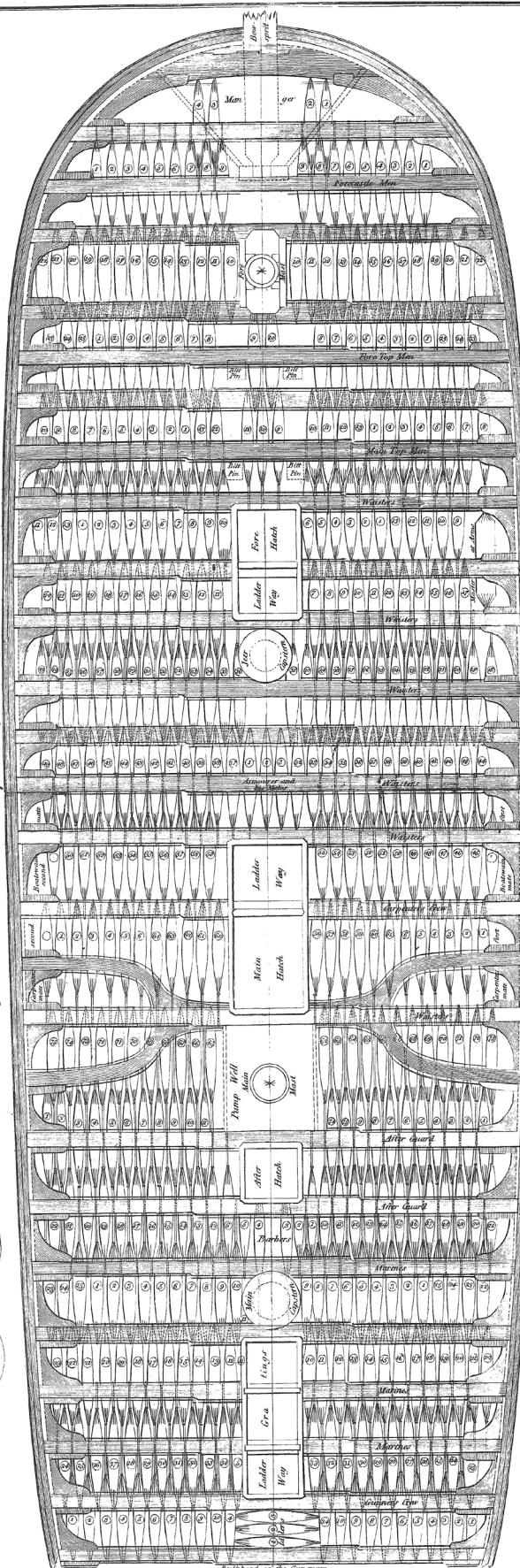
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**Now, how many hammocks, and therefore sailors, could hang and sleep at the same time on *Constitution's* berth deck?**

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# A PLAN OF THE UPPER DECK OF A SEVENTY-FOUR GUN SHIP, from the Manger forward to the Bulk head of the Gun-Room aft, delineating an Arrangement of the HAMMOCKS for the CREW. By which all other Ships may be regulated.



## EXPLANATION

Cloze in on the starboard side, and abreast the fore hatch and ladder way is a cut for the master at arms.  
In midships between the main ladder way and fore capstan, are three Hammocks for the Armorer and Gunner.  
Close in on the starboard and larboard side, and abreast the main ladder way are two Hammocks for the two boatmen's mates.  
The Carpenter's crew is abreast the main hatch way on each side. The circles white with red figures, surrounded with the number, are for the armorer's mates, and the Carpenter's crew, are numbered as follows.  
The next ten on each side are for the gunner's crew. The circles to be red with white figures.  
There are about the ladder way in midships, three Hammocks for the two abreast of it on the larboard side.  
For the greater propriety, this plan is drawn allowing of twelve in width for every Hammock, but if the compass is more be full, only six inches for each Hammock can be allowed.

In the above Plan the beams of the upper deck are shown, to which the Hammocks are supposed to be suspended; for which purpose beams (which are long pieces of Oak one inch and a quarter thick and one inch and a half deep) are nailed along the lower edges of the upper deck beams, as represented by the lines in the Plan. These beams are kept three quarters of an inch from the beams by pieces of wood, and are fastened to the beams by two half bolts. The other beams are fastened to the beams on the other side of the beams, and the fore beams to those on the fore side of the beams; and thus the strain keeps the beams more firmly in their places.  
To avoid the confusion generally incident in removing & replacing of Hammocks, it is recommended that the men with figures in circles, that the guns, different divisions may be instantly discernible.  
The next 25 on each side are for the firemen's men. The circles to be black with white figures.  
The next 25 on each side are for the fire top men. The circles to be black with white figures.  
The next 25 on each side are for the main top men. The circles to be blue with white figures.  
The next 25 Hammocks numbered in succession on each side are for the weatherers. The circles to be yellow with white figures.

It may be satisfactory to add the Officers Berths

An Admiral when on board is under the poop on the quarter deck.  
A Captain under the quarter deck on the upper deck.  
Lieutenants, masters, and master Officers, are in the wardroom in large ships, and in the gun room in small ones, except the sixth Lieutenant and Gunner, who are in the gun room.  
The Surgeon and Purser are in the Cockpit or cabin room; large ships, the Purser in the Cockpit and the Surgeon in the cabin room; small ships, the Surgeon in the Cockpit and the Purser in the cabin room.  
The Carpenter on the starboard side; the Boatman on the larboard side.  
The Captain's cabin, join the gun room.  
Midshipmen, masters mates, and quarter masters in large ships are in the table bar. In small ships midshipmen and masters mates are on the lower deck, next to the warrant Officers cabins.

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## Teacher Answer Key

How big was the berth deck on board *Constitution* and how many sailors could sleep on it at one time? In this activity, calculate the surface area of *Constitution's* berth deck, and use the size of a hammock and how much room a sailor was allotted to sleep to find out how many sailors could sleep at the same time.

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**What is the surface area of *Constitution's* berth deck in feet?**

$$87 \times 39 = 3,393 \text{ ft}^2$$

Hammocks were sailor's beds. They are made of canvas, and while when they are laid out flat are about 6 feet long by 3.8 feet wide, they take up less space when hung with a body in them, approximately 3 feet long by 1.2 feet wide. However, the clews (lines which suspended the hammocks from the beams) might add another foot on each end, making the hammock about 5 feet long in total when hanging with a body in it.

**What is the surface area of a single occupied hanging hammock, with and without its clews?**

Without clews:  $3 \text{ ft (length hanging)} \times 1.2 \text{ ft (width hanging)} = 3.6 \text{ ft}^2 \text{ (area hanging)}$

With clews:  $5 \text{ ft (length hanging w/ clews)} \times 1.2 \text{ ft (width hanging)} = 6 \text{ ft}^2 \text{ (area hanging with clews)}$

On American ships during the War of 1812, the width between hammocks when hung tended to be 18 inches (meaning that a single sailor had about 9 inches on either side of his hammock).

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$$18 \text{ inches} = 1.5 \text{ ft}; 1.2 \text{ ft (width of hammock)} + 1.5 \text{ ft (width of space)} = 2.7 \text{ ft of width/hammock}$$

**Now calculate the square footage that a single occupied hammock would take up on the deck:**

Now calculate the square footage that a single occupied hammock would take up on the deck:

$$2.7 \text{ ft (total width)} \times 5 \text{ ft (length of hammock hanging space)} = 13.5 \text{ ft}^2$$

**Now, how many hammocks, and therefore sailors, could hang and sleep at the same time on *Constitution's* berth deck?**

$$3,393 \text{ ft}^2 \text{ (area of berth deck)} / 13.5 \text{ ft}^2 \text{ (surface area of hammock hanging area)} = 251 \text{ hammocks or } 251 \text{ sailors}$$