



# Reloading Relay

## Overview & Major Themes

During battle, Marines (and other crewmembers of *Constitution*) were stationed approximately 85' to 90' above the spar deck on the Maintop, a platform attached to the main mast of the Ship. Keeping their feet on steady ground was a challenge as *Constitution* swayed in the sea. These men were responsible for loading and reloading their heavy firearms, firing upon the enemy, and dodging enemy fire. In this lesson plan, challenge your students to a relay, where they must use measurements and solve common denominator fraction math problems in crews to demonstrate Marines' responsibilities during the chaos of battle.

## Objectives

- Students will work together as a group to measure and solve problems while facing the complication of working together in a small space.
- Students will consider the skills needed as they work together and discover their effectiveness on a tactical scale to win the relay.
- Students will understand the challenges faced by Marines on the maintop during battle as they experience similar, but less tragic, challenges during the Relay.

## Outcomes

- Students will apply the formula to find surface area ( $SA=l * w$ ), and measure out a space equaling the surface area of the Maintop (20 feet wide by 15 feet long).
- Students will work together to calculate many common denominator fraction math problems (to simplify fractions).
- Students will use measuring techniques to add the correct amount of “gunpowder” (flour) in order to win an “engagement.”
- Students work together and competitively to develop strategic best practices to complete objective

## Materials & Resources

- 2 PVC Pipe (wide enough to fit whatever you choose as your “bullets”), they will serve as the barrel of a musket
- 2 sets of PVC pipe end caps
- 2 rolls of Duct Tape
- 2 Broom Sticks (representing your ramrod)
- Large amount of Flour for each crew (representing gunpowder)

- 2 sets of measuring cups, each crew will need a 1/2 cup and a 3/4 cup.
- Large liquid measuring vessel
- Spongy or Styrofoam (soft) balls (perhaps whiffle balls) to represent your “bullets”
- Measuring tape/yard sticks
- 2 protractors
- 2 “Arms Chests” (cardboard boxes to keep materials in)
- Paper and pencil for each crew
- “Maintop in Battle” illustration
- Outdoor space
- Field cones

## Instructional Activity

10 min.

Show students the illustration of “Maintop in Battle.” Have a classroom discussion to introduce the War of 1812 and the challenges of crewmembers on *Constitution*, especially those of Marines on the maintop during battle. (Example questions: What do you think it was like living at sea for months at a time in 1812? What type of responsibilities did a Navy sailor have at sea? What do you think it was like fighting a battle at sea in 1812?)

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2 min.

Explain to students they will work as a group (if you have enough students, 2 crews of 12) to “battle” one another in a Reloading Relay.

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5 min.

Educator breaks up students into groups of 12. In each group, there are 5 Marine Privates, 5 Seamen, 1 Master’s Mate, and 1 Marine Sergeant (if you don’t have enough students, take away some of the Marines/ Seamen). Supply each crew with an “arms box”, containing: a PVC Pipe, PVC pipe end caps, Duct Tape, a Broom Stick, Flour, measuring cups (a 1/2 cup & a 3/4 cup), Spongy or Styrofoam (soft) balls, a measuring tape/ yard stick, protractor, paper & pencil, and Field cones.

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2 min.

Crews move to an outdoors space (open field/court). Instruct the students to remember: all challenges from this point on are DURING BATTLE – therefore, they must create chaos for the other crew if they want to win (people are yelling and things are exploding, have the rest of the class generate noise while they are in direct conflict).

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10 min.

**Explain the Relay Rules:** 1) if any crew member steps out of bounds (outside their Maintop which they measure in the first challenge or “engagement”), they will “perish, be lost at sea” and are out of the relay; 2) no crew member can hold more than one item from the “arms box” at any time, if so they are out of the relay; 3) if the crew measures incorrectly, they lose a crew member; 4) if a crew loses an “engagement”, they lose a crew member; 5) when one crew finishes and announces they are ready, the other side must freeze. 6) each crew member must take turns, and 7) for the students that are “out” of the game: they are responsible for making this battle noisy for the surviving crews! (The opposing crew, or “winners of the engagement”, will choose the member of the opposing crew who must sit out of the game.)

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10 min.

**1st Engagement for the Crews:** Each crew must race to “build” their “maintop” (maintops will face one another, approximately 5 feet apart). Students work as a crew to assign duties to each crew member. They must measure a square with the dimensions of 20 feet long, by 15 feet wide, the actual dimensions of Constitution’s 1812 Maintop. Students mark the boundaries of their maintops with field cones. They must correctly find the surface area of the maintop before the relay can start (with their pen and paper). Whichever crew completes the activity correctly first, wins the “engagement”, and picks the opposing crew member to be eliminated.

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10 min.

**2nd Engagement for the Crews:** Build a “musket” from PVC Pipe, end caps, and duct tape. The “gun” must not leak any “gunpowder” (flour), otherwise it will backfire and the crew will lose a crew member. Whichever crew completes the activity correctly first, wins the “engagement”, and picks the opposing crew member to be eliminated.

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2 min.

Explain to students: in the following “engagements”, crew members must load their “musket”. The proper technique: first, load the proper measure of “gunpowder”; next, load your “shot”; and finally, “ram” your shot.

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5 min.

**3rd Engagement for the Crews:** They must load exactly 1 CUP of “gunpowder” (flour) and load their gun. Educator measures. Whichever crew completes the activity correctly first, wins the “engagement”, and picks the opposing crew member to be eliminated.

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5 min.

**4th Engagement for the Crews:** They must load exactly SIX 1/3 CUPS (equals 2 cups in the end) of flour and load their gun. Educator measures. Whichever crew completes the activity correctly first, wins the “engagement”, and picks the opposing crew member to be eliminated.

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5 min.

**5th Engagement for the Crews:** They must load exactly 2.75 CUPS (equals four  $\frac{1}{2}$  cups and  $1\frac{3}{4}$  cup) of flour and load their gun. Educator measures. The crews close enough to 1 cup of flour wins this relay. Whichever crew completes the activity correctly first, wins the “engagement”, and picks the opposing crew member to be eliminated.

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15-30 min.

Complete these “engagements” and practice more fractions and decimals with your students in other engagements until you are out of flour, or until the crew has lost the battle (they no longer have any crewmembers).

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20 min.

In a final concluding activity, students discuss or write a paragraph about working together and competitively, how they developed a strategy to complete the engagements effectively and successfully, and what challenges the crew assigned to the maintop during battle might have faced, and why.

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