# HONORING VETERAN LEGACIES

★ THE ETERNAL SALUTE ★

**SCAN ME TO VIEW LESSON**

HVL LESSON TITLE:

# HOW FAST IS FAST?

DEVELOPED BY:  KATHY HIGHTOWER

## HOW FAST IS FAST?
### GUIDING QUESTION:

How did the equipment and physical fitness of soldiers impact survival on days like D-Day?

### OVERVIEW

Many veterans can recount being involved in several major battles in war. America's involvement was launched at Pearl Harbor and led the Allies in winning the battle that would initiate the end of the war. Sherwin Callander played an important role in both events.

**Subject(s):**
Math
Science

**WWII Veteran(s):**
Sherwin Callander

**Duration:**
1 to 2 classes
(55-70 min.)

# HOW FAST IS FAST?

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> "We were told not to try and help anybody. Don't bring anybody back to the ship. Get back here as fast as you can to get another load. We've got to get manpower on the beach."
>
> **SHERWIN CALLANDER** - WWII VETERAN

## OVERVIEW

Many veterans can recount being involved in several major battles in war. America's involvement was launched at Pearl Harbor and led the Allies in winning the battle that would initiate the end of the war. Sherwin Callander played an important role in both events.

## HISTORICAL CONTEXT

June 6, 1944 launched Operation Overlord on the beaches of Normandy, France. The US, Great Britain, and Canada pushed the Germans and broke down their defenses over a month of heavy fighting and casualties to precipitate the beginning of the end of WWII and defeat for the Axis Powers.

## OBJECTIVES

By the end of the lesson, students will :
• Understand the critical importance of high physical fitness for soldiers and how additional weight of backpacks impact speed and endurance;
• Students will prioritize the combat load of an infantry soldier;
• Students will learn how strides per minute and gender, height and leg length are related and can differ between men and women.

## STANDARDS

**9-12.A-CED.12**
Create equations and inequalities in one variable and use them to solve problems.

**9-12.N-Q.4**
Use units as a way to understand problems and to guide the solution of multi-step problems choose and interpret units consistently in formulas; choose and interpret the scale and the origin in graphs and data displays.

**Science H.S.-LS1-3**
Plan and conduct an investigation to provide evidence that feedback mechanisms maintain homeostasis.

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## MATERIALS & DOCUMENTS

### SHERWIN CALLANDER VIDEO:

*Veteran Recounts the Horror of D-Day*
https://www.youtube.com/watch?v=Z5dB6Vlp-BY

### DOCUMENT B:

Combat Load of Average Infantry Soldier

### DOCUMENT C:

How Fast Is Fast? Modes of Movement

### FOR SCIENCE ONLY:

Stopwatch (one per group), measured distance of 200 feet, weighted backpack (one per group) and bathroom scales

### DOCUMENT D: Calculating Cadence *(science only)*

## PROCEDURES

### MATH LESSON: ACTIVITY 01 (15 minutes)

· Remind students that soldiers in the field of conflict deal with weather, geography, and other limitations. Knowledge regarding communication, weather science, and modes of transportation were more primitive than the equipment the military has access to today.

· Have students watch the video: *Sherwin Callander. Veteran Recalls the Horror of D Day*

· Consider the age of American troops on D-Day. Most had only been out of high school about two years. Consider the physical and mental toughness that was required to fight and win. · Brainstorm a list of what students think soldiers carried in their backpacks. Have students consider how heavy the packs were.

### ACTIVITY 02 (10 minutes)

Use and distribute Document B, Combat Load of Average Infantry Soldier to complete math activities. Students will complete a table for assessment

### ACTIVITY 03 (30 minutes)

Use and distribute Document C, How Fast Is Fast? to complete science and fitness activities. Students will complete a table for assessment.

### SCIENCE LESSON: ACTIVITY 01

· Designate each of the members of the group as time keeper, recorder, and walker.

· Each walker should weigh without a backpack. Then, a walker should record weight with a backpack carried on the back. Subtract the two values to determine the weight of the pack. Have a recorder document the weight of the backpack.

· Time the walker moving at a "casual pace" for 100 feet. Repeat the exercise carrying the backpack. Record the time. Time and record the pulse rate of the walker after 15 seconds.

· Repeat step 3 with a moderate increase in pace. Record the values.

· Repeat Step 4 at a rapid pace. Record the values.

· Subtract the values from each step.

· Students should discuss the outcomes. Use these questions as starters: How did the walker feel as each step was completed? How would the additional weight impact soldiers on the field of battle? What else would the soldier need to be aware of in traveling under a combat situation? Consider what it would have been like to leave the safety of a Higgins boat to jump into the the water instead of landing on the beach?

· Discuss data differences between groups.

**FOR MORE INFORMATION:**
email: **info@honoringveteranlegacies.org**

# How Fast is Fast? Activity Sheet

Document B

## Combat Load of Average Infantry Soldier
## Winter 1944-45

| CLOTHING | WEIGHT IN POUNDS |
|---|---|
| Underwear | 0.43 |
| Socks | 0.19 |
| Long John's | 2.24 |
| Pants and Shirt (wool) | 2.82 |
| Pants Belt with buckle | 0.19 |
| Knit Cap | 0.13 |
| Boots (with side buckle) | 4.38 |
| Field Trousers | 2.00 |
| Sweater (wool) | 1.12 |
| Field Jacket (1943) | 3.30 |
| Parka | 2.81 |
| Scarf (wool) | 0.41 |
| Gloves (wool) | 0.13 |
| Socks, extra | 0.19 |
| Blanket (wool) | 3.69 |
| Shelter, canvas | 4.50 |
| Personal Items (include toilet items) | 1.90 |
| **TOTAL WEIGHT** | **30.52** |

How Fast is Fast?  Activity Sheet

# Combat Load of Average Infantry Soldier
# Winter 1944–45

Document B

| COMMON EQUIPMENT | WEIGHT IN POUNDS |
|---|---|
| Helmet, with liner, net | 3.19 |
| First Aid pouch, M1942 | 0.40 |
| Canteen M1910 (cup and cover x2) | 7.38 (filled) 3.69 each |
| Entrenching tool, with carrier | 2.94 |
| Suspenders M1936 | 0.95 |
| Field Bag, M1936 | 1.81 |
| K-ration, 3-meals | 2.31 |
| **TOTAL WEIGHT** | **18.98** |

| UNIQUE ITEMS | WEIGHT IN POUNDS |
|---|---|
| Radio, SCR 300 | 38.23 |
| Transceiver | 13.00 |
| Battery Pack (BA-70) | 15.00 |
| Misc. Items (cables, frames, etc.) | 8.43 |
| Handset | 1.80 |
| Radio, SRC 511 (battery) | 16.00 |
| Radio, BC 6111 Handie Talkie | 6.00 |
| Binoculars with case | 3.50 |
| Gas Mask, M9 with carrier | 4.00 |
| **TOTAL WEIGHT** | **105.96** |

How Fast is Fast?  Activity Sheet

# Combat Load of Average Infantry Soldier
# Winter 1944–45

Document B

| **Bar Gunner's Load (total)** | **98.69** |
|---|---|
| **Rifleman's Load (total)** | **82.02** |

*SOURCE: LTC Hugh F. Foster III (RET)*

**Activity Questions**

Using the charts, complete the following math activities.

_____

1. For a 150lb soldier, what percent of his body weight would be clothing gear?

_____

2. Since D-Day was in the summer, eliminate gear that was wool. Replace the wool blanket with one that is half the weight. Replace the wool pants and wool shirt with ones half the weight. What is the new weight of the backpack and the percent of decrease of weight the soldier must carry?

_____

3. What is the sum of the clothing backpack and the common equipment? What is the percent of change in the load the soldier must carry?

_____

4. Do you think being a soldier would be more difficult in the winter months or in the summer months? What specific thoughts contribute to your answer?

_____

5. What would be the most important personal item you would carry?

# How Fast is Fast?   Activity Sheet

Document C

A cadence is the equivalent of 120 SPM. (Steps Per Minute). At the average male height of 67 inches, the average step length is 30 inches. For women of the same height, the average step length is 27.5 inches.

On average, people move at a rate of 1.39m/s or 5 kph. (At 5kph, that is an average of 100 SPM.) The difference between walking and marching is speed. For those serving in the US Military, it is known as "quick time." Cadence is at 120SPM which is 1.5 m/s or 5.5kph.

Forced march is at a rate of 1.8 m/s or 6.4 kph. At this rate, movement is at a rate of 140 SPM.

At 160spm, soldiers usually abandon the walking to jogging and then running. This is moving at a rate of 2m/s, which is also 7.19 kmp.

## TABLE A: Mode of Movement Rates

| MODE OF MOVEMENT | AVERAGE STP (Steps/Minute) x30 | METERS/ SECOND | KILOMETERS/ HOUR | MILES/HOUR | MINUTES/ MILES |
|---|---|---|---|---|---|
| Normal Walking | 100 | 1.39 | 5 | | |
| Quick Time | 120 | 1.5 | 5.5 | | |
| Forced March | 140 | 1.8 | 6.4 | | |
| Walk to Jog/Run | 160 | 2 | 7.19 | | |

### Activity Questions

Using the chart, complete the following math activities:

1. Convert meters/second or kilometers/hour to miles/hour. 1Meter (m) = 0.00062 miles (mi).

2. In each of these modes of movement, calculate the average number of minutes/miles.

# How Fast is Fast?   Activity Sheet

Document D

## CALCULATING CADENCE

1.  Designate each of the members of the group as time keeper, recorder, and walker.

2.  Each walker should weigh without a backpack. Then, a walker should record weight with a backpack carried on the back. Subtract the two values to determine the weight of the pack. Have a recorder document the weight of the backpack.

3.  Time the walker moving at a "casual pace" for 100 feet. Repeat the exercise carrying the backpack. Record the time. Time and record the pulse rate of the walker after 15 seconds.

4.  Repeat step 3 with a moderate increase in pace. Record the values.

5.  Repeat Step 4 at a rapid pace. Record the values.

6.  Subtract the values from each step.

| | Without Backpack | With Backpack | Time Difference | Pulse Rate without Backpack | Pulse Rate with Backpack | Pulse Rate Difference |
|---|---|---|---|---|---|---|
| Casual Pace | | | | | | |
| Moderate Pace | | | | | | |
| Rapid Pace | | | | | | |
| | | | | | | |

**Weight of Backpack** _____