

# Modern Warfare

How was new technology used in World War 1, and how did it increase casualties?

# Brainstarter

- What event made it possible to create new kinds of weapons that were much deadlier than previous wars?



# Trenches

- What is a trench?
- How did it change battles?





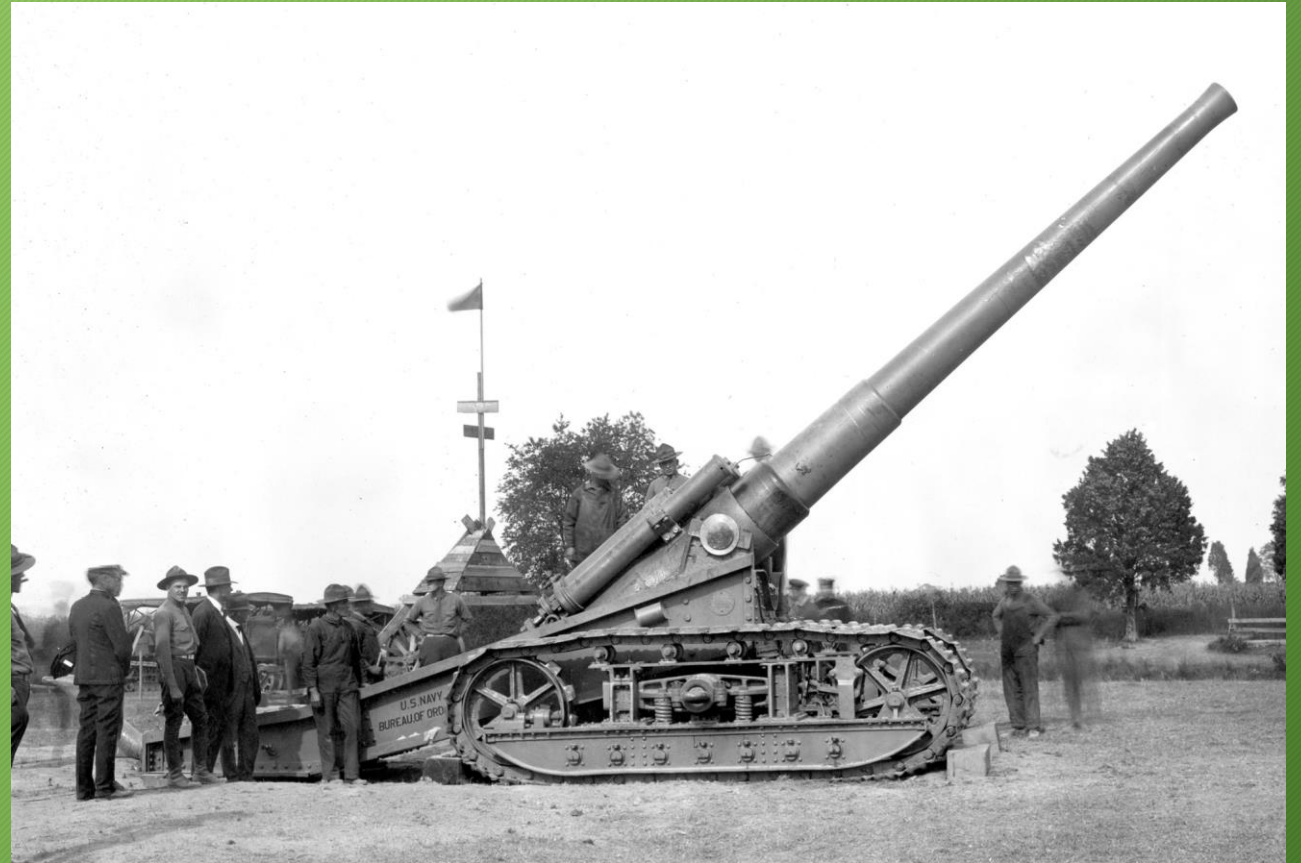
# Machine Guns

- What is a machine gun?
- How did it change battles?



# Artillery

- What is Artillery?
- How did change battles?





# Barbed Wire

- What is barbed wire?
- How did it change battles?



# New weapons of WW1

- Tanks
- How did this change battles?





# New Weapons of WWII

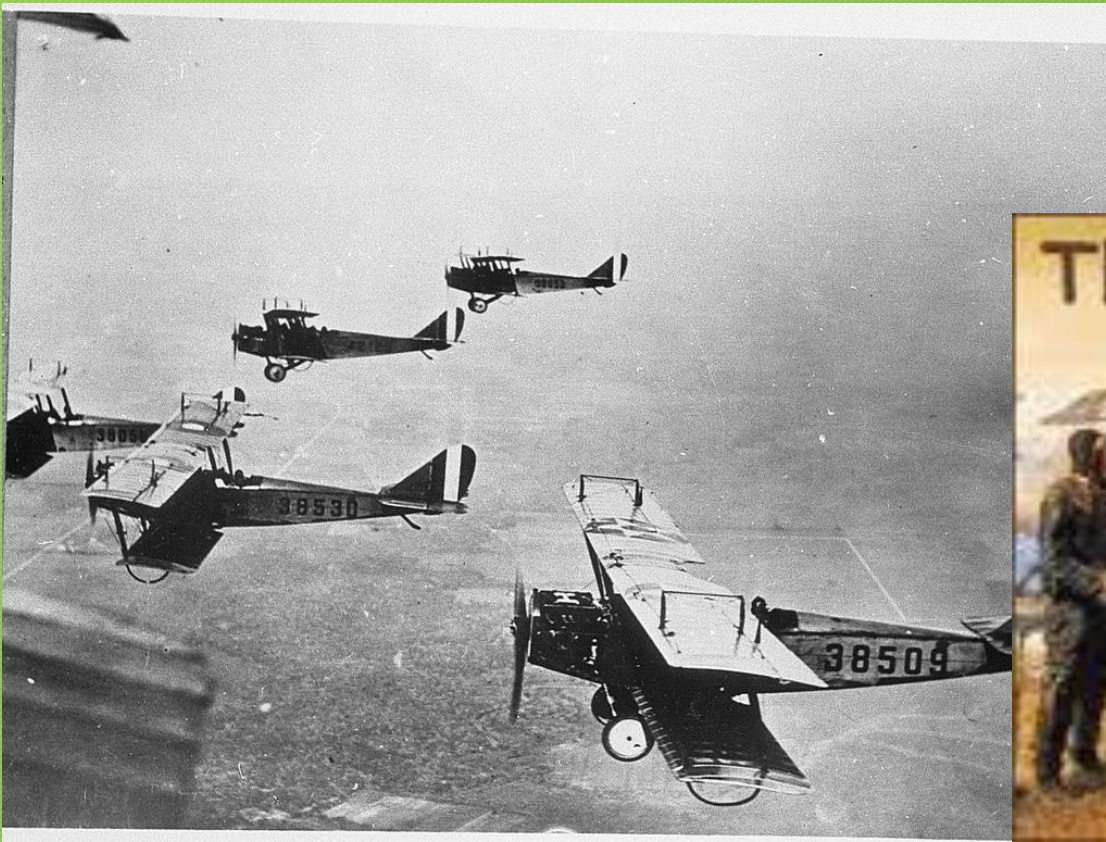
- Tanks - Although tanks were first used in World War I, it was during World War II that tanks became a major military force. Hitler utilized tanks in his fast moving Panzer divisions. They enabled him to quickly take over much of Europe using a tactic called Blitzkrieg, meaning "lightning war." Some of the most famous tanks from World War II include Germany's Tiger tank, the Soviet Union's T-34 tank, and the United States' Sherman tank.





# Airplanes

- How could early airplanes change battles?





# New Weapons of WWII- Airplanes





# New Weapons of WWII- Radar

- Radar was a new technology developed right before the war. It used radio waves to detect enemy aircraft. The British were the first to employ radar and it helped them to fight off the Germans in the Battle of Britain.



# New Weapons of WWII- Communications

- Secret Codes - In order to keep communications secret, both sides developed their own secret codes. The Germans used a machine called the Enigma Machine to code and decode their messages. However, the Allied scientists were able to crack the code giving them an advantage in battle.





# New Technology of WWII- Propaganda

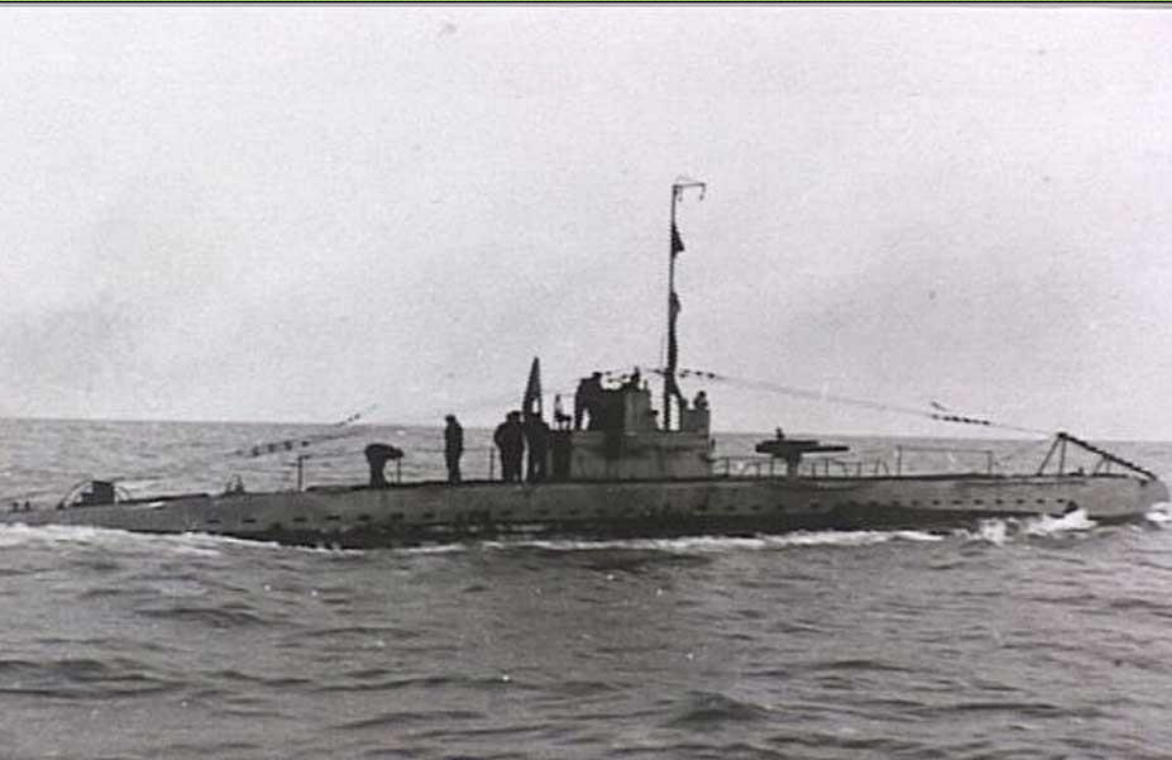
- New technology was also used to disperse propaganda. Inventions like motion pictures, the radio, and the microphone were all used by governments to broadcast their messages to the people.





# Submarines

- What is a submarine?
- How did it change sea travel during a war?





# New Weapons of WWII-

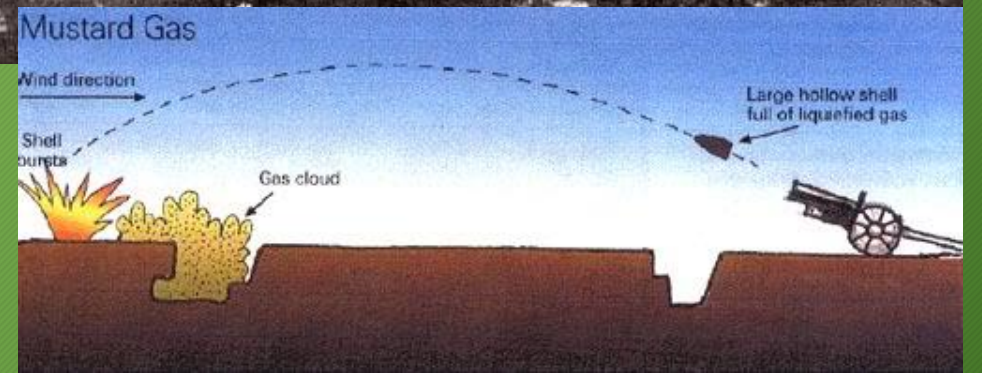


- By the end of World War II, the aircraft carrier became the most feared and important part of any country's navy.



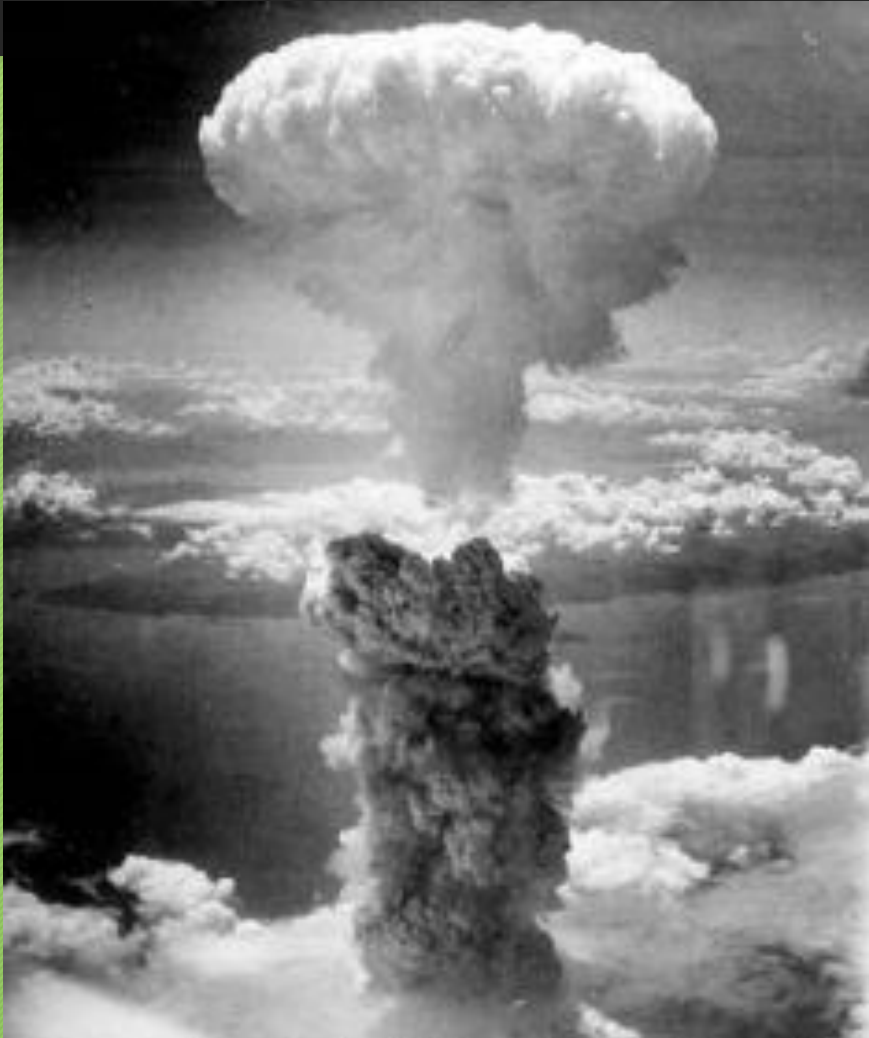
# Poison Gas

- How could poison gas change the way battles were fought?





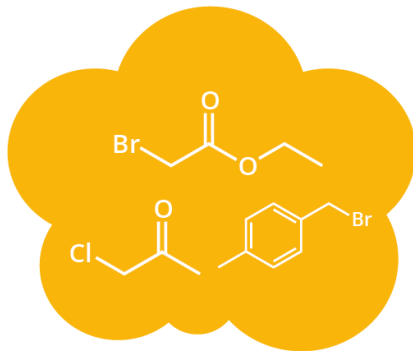
# New Weapons of WWII- Explosives



- By the end of World War II, the aircraft carrier became the most feared and important part of any country's navy.

# CHEMICAL WARFARE WORLD WAR I

WORLD WAR I IS SEEN AS THE DAWN OF MODERN CHEMICAL WARFARE, WITH A VARIETY OF DIFFERENT CHEMICAL AGENTS BEING EMPLOYED ON A LARGE SCALE, RESULTING IN APPROXIMATELY 1,240,000 NON-FATAL CASUALTIES, AND 91,000 FATALITIES. A VARIETY OF POISONOUS GASES WERE USED THROUGHOUT THE CONFLICT, WITH EACH HAVING DIFFERING EFFECTS UPON VICTIMS.



## TEAR GASES

(ethyl bromoacetate, chloroacetone & xylyl bromide)

### SMELL & APPEARANCE

Both ethyl bromoacetate and chloroacetone are colourless to light yellow liquids with fruity, pungent odours. Xylyl bromide is a colourless liquid with a pleasant, aromatic odour.

### EFFECTS

Tear gases are what is known as 'lachrymatory agents' - they irritate mucous membranes in the eyes, mouth, throat & lungs, leading to crying, coughing, breathing difficulties, and temporary blindness.

### FIRST USED

**1914** In August 1914, the French forces used tear gas grenades against the German army, to little effect.

### ESTIMATED CASUALTIES

**0** fatal These gases were used to incapacitate enemies rather than to kill; symptoms commonly resolved within 30 minutes of leaving the affected area.



## CHLORINE

### SMELL & APPEARANCE

Chlorine is a yellow-green gas with a strong, bleach-like odour. Soldiers described its smell as 'a distinct mix of pepper and pineapple'.

### EFFECTS

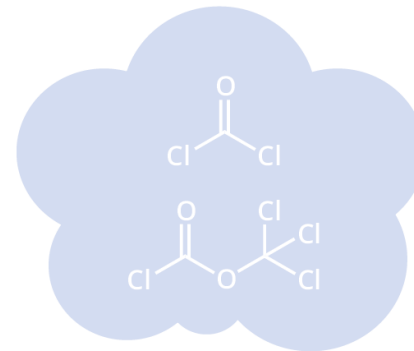
Chlorine reacts with water in the lungs, forming hydrochloric acid. It can cause coughing, vomiting, and irritation to the eyes at low concentrations, and rapid death at concentrations of 1000 parts per million.

### FIRST USED

**1915** Used by German forces at Ypres in April 1915. British forces used it for the first time at Loos in September.

### ESTIMATED CASUALTIES

**>1,100** number of fatalities in first use of chlorine at Ypres Chlorine was devastating as troops were initially unequipped to deal with it. Later, gas masks limited its effectiveness.



## PHOSGENE & DIPHOSGENE

(carbonyl dichloride & trichloromethane chloroformate)

### SMELL & APPEARANCE

Phosgene is a colourless gas with a musty odour comparable to that of newly mown hay or grass. Diposgene is a colourless, oily liquid.

### EFFECTS

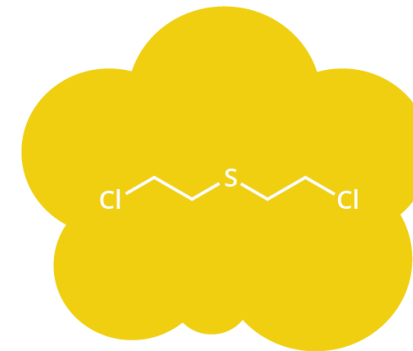
React with proteins in lung alveoli, causing suffocation. Cause coughing, difficulty breathing and irritation to the throat & eyes. Can cause delayed effects, not evident for 48hrs, including fluid in the lungs & death.

### FIRST USED

**1915** In December 1915, the German forces used phosgene against the British at Ypres.

### ESTIMATED CASUALTIES

**85%** of all gas-related fatalities in WWI It's estimated 85% of all gas-related fatalities in World War I resulted from phosgene and diposgene, which were both used to fill artillery shells.



## MUSTARD GAS

(bis(2-chloroethyl) sulfide)

### SMELL & APPEARANCE

When pure, mustard gas is a colourless and odourless liquid, but it's used as a chemical agent in impure form. These are yellow-brown in colour and have an odour resembling garlic or horseradish.

### EFFECTS

Powerful irritant and vesicant (blistering agent) that can damage the eyes, skin, & respiratory tract. Causes chemical burns on contact with skin. Forms intermediates that react with DNA leading to cell death.

### FIRST USED

**1917** On 12<sup>th</sup> July 1917, German forces used mustard gas against the British at Ypres.

### ESTIMATED CASUALTIES

**2-3%** mortality rate of mustard gas casualties The mortality rate of mustard gas casualties was low, but its effects were debilitating, and patients required elaborate care.





# Essential Question

- What was a World War 1 battle like?
- Create an American character who will write a first-hand account about their experience.

# Rules

- No hitting with anything but your ammunition.
- You must stay on your side of the trenches. You can't cross "No Man's Land."
- If you are hit, you must simulate a death, then move to the reading area until the next round.
- No sore sports, aka have a good attitude. This is just for fun.
- Everyone will help pick up trash after our game is over.



# Reflection

- Think about your experience and write one paragraph from the point of view of your soldier. You are writing home to a family member.
- What emotions are they experiencing?
- What details about battle can they tell their family?

## Socrative Exit Ticket

- How was new technology used in World War 1, and how did it increase casualties?