

Edexcel IGCSE History

Option C8: The Changing Nature of Warfare c1936-c2003

Student Notes
By Steve Waugh, Chief Examiner

Chapter 1: Warfare at the end of the First World War

The First World War brought about important changes in land and sea warfare as well as the start of air warfare.

Land warfare

The failure of the German Schlieffen Plan in 1914 led to trench warfare on the Western Front which lasted for over three years. This was a period of static warfare as offensives by both sides failed to achieve a breakthrough because defences were too strong. Nevertheless, this stalemate encouraged the development of new weapons which it was hoped would achieve a breakthrough.

New weapon	Development and use	How effective
Artillery	Huge field guns had been developed before the First World War. During the war they were used to bombard the enemy trenches, often as a softening up process before an attack. One example was the Somme, 1916, when the British bombarded the German trenches before they launched their offensive.	The bombardment was not always accurate, often failed to destroy the barbed wire protecting the trenches, created huge craters in no-man's land, and warned the enemy of an imminent attack. During the Somme, the British developed a new tactic, the creeping barrage, which combined an artillery and infantry attack.
Gas	Poisonous chlorine gas was first used by the Germans against the British at the Second Battle of Ypres, April 1915. In 1917, the Germans used an even more deadly gas, mustard gas, which had a perfumed smell and burned, blinded and slowly killed the victim over four or five weeks.	The main effect was psychological because soldiers on both sides lived in fear of a gas attack. In fact only 3,000 British troops actually died from the effects of gas. It was less effective because both sides developed gas masks whilst, in the last year of the war, the Germans ran short of the chemicals needed to manufacture the gas.
Tanks	These were developed by the British to try to achieve a breakthrough. They were first used during the Battle of the Somme, 1916, when they crashed their way through the German trenches. However, they were very slow and many broke down. They were used to much greater effect at Cambrai, November 1917, when they achieved a breakthrough and as a battering ram for the Allied offensives of 1918.	The most significant new weapon which was to have long lasting significance for land warfare. They provided a psychological boost for British troops and were able to blast their way through enemy lines. However they had a limited impact on the First World War. Only in 1918 were they used correctly as a battering ram supported by the infantry. Moreover, by 1918 the Germans had developed armour-piercing machine-gun bullets and had adapted field-guns to fire at tanks which were easy targets.

Sea warfare

During the First World War the British navy imposed a long-range blockade of Germany and the German navy. The only major surface sea battle took place at Jutland in May 1916 when the German fleet tried to break the British blockade. Although the British suffered heavier losses, the German fleet fled the battle and remained in port for the rest of the war.

U-boats

British control on the surface, forced the Germans to use a different method of sea warfare, the submarine or U-boat. Submarines had been developed before the First World War but were used in a different way by the Germans: to try to starve Britain out the war by unrestricted warfare, sinking as many ships as possible trading with Britain. They almost succeeded. By June 1917, Britain had lost 500,000 tons of shipping to the U-boats and, at one point, it was estimated that London had only six week's supply of food left.

Anti-U-boat measures

The British used a variety of methods to deal with the U-boat threat

Method	Key features	Effectiveness
Q-boats	These were first used in 1915. It looked like a harmless merchant ship but it carried powerful but hidden guns. When a U-boat surfaced to search the ship, the guns would shell the submarine.	By 1918, 200 Q ships had sank 14 U-boats at a cost of 27 Q ships. U-boats eventually stopped surfacing.
Convoy system	Introduced in May 1917. Merchant ships would travel in large numbers under the protection of naval destroyers fitted with hydrophones and depth charges.	By June 1918, 16,539 ships had sailed in convoys and only 154 were torpedoed. In addition many more U-boats were sunk attacking convoys.
Raids on U-boat bases	In early 1918 the British attempted to block off the U-boat bases at Ostend and Zeebrugge by sinking block ships at the harbour entrances.	These two attacks had very limited success and did not completely block off the two ports.
Hydrophones	Some ships, especially destroyers, were fitted with hydrophones or listening devices. An operator with headphones could hear a nearby submarine engine.	Very effective in convoy system although not always successful in detecting U-boats.

Air warfare

This saw the greatest changes in warfare. When war broke out in 1914, aeroplanes were still undeveloped. Aircraft were mainly used for reconnaissance. By 1918 different aircraft had been developed including fighter planes and bombers. However, air warfare was still seen as a side show to land and sea warfare.

Zeppelins

These were huge airships used by the Germans as bombers. The first raids hit British towns in early 1915 and had a psychological effect on British civilians who no longer felt safe from the enemy. For the first time, civilians were directly under threat from the enemy. However, the Zeppelins had limited impact:

- They could not carry enough bombs to cause serious damage.
- The British government pulled back fighter planes to defend Britain against these attacks whilst explosive bullets were used to set the hydrogen on fire.
- Of the 130 Zeppelins used by the Germans, 7 were lost to bad weather, 38 were lost in accidents and 39 were shot down by the British.

Bomber planes

The development of bomber aeroplanes was of much greater significance. By 1917, the Germans had developed the first effective bomber, the Gotha, which carried out a few raids on Britain, especially London. The biggest Gotha raid was on the night of 19 May 1918, when 38 Gothas bombed London. However, the Germans suffered heavy losses with six Gothas shot down by interceptors and anti-aircraft fire. After this raid, Gothas were restricted to tactical raids along the Western Front.

Similarly, Britain developed the huge Handley Page which was capable of bombing Berlin but never got the chance to do so. Although of little importance in the outcome of the First World War, the Germans had shown the potential for using aircraft to bomb enemy civilians and cause psychological as well as physical damage.

Fighter planes

The Germans made the first advances when they developed an aircraft in which machine guns could fire between the propeller blades. This turned the aircraft into a fighting machine. Fighter planes were used to attack enemy trenches and support offensives by both sides. Moreover, the fighter aces on both sides took part in aerial combat above the trenches with the most famous being Baron von Richthofen or the Red Baron.

Chapter 2: Changing methods of land warfare

There were considerable changes in land warfare during and after the Second World War, as the tank made warfare become more mobile whilst the conflict in Vietnam highlighted the effectiveness of guerrilla tactics.

Developments during the Second World War

The static warfare on the Western Front, 1914-18, gave way to much more mobile tactics known as Blitzkrieg.

Blitzkrieg

This was a new method of warfare which was developed by Hitler. It meant 'lightning war' and was devised to achieve a quick victory and avoid the deadlock experienced on the Western Front during the First World War. Blitzkrieg used shock tactics with the aim being to paralyse the enemy by a devastating use of the most up-to-date technology.

Airpower was used to bomb enemy airfields and communications and slow down their reactions to Blitzkrieg



The Germans deliberately attacked a weak spot in the enemy defences



This attack was carried out with maximum force and speed by motorised vehicles, tanks and air power, especially dive bombers known as Stukas



The attack was co-ordinated by radio communications as they pushed deep into enemy territory



Reinforcements would then follow the advance forces and take secure hold of the territory which had been captured

The success of Blitzkrieg 1939-40

Event	Key features	Reason for success
Poland September 1939	On 1 September 1939, Germany invaded Poland using Blitzkrieg tactics. Polish air fields were bombed and the air force was destroyed before it could get off the ground. Within two days the first lines of Polish defences had been breached and five days later Danzig was captured. Warsaw surrendered on 28 September after several days of severe bombing. More than 200,000 Polish troops were captured.	<ul style="list-style-type: none"> • Poland was also invaded from the East on the 17 September by the Soviet Union. • The Poles received no help from Britain and France who felt it was too far away. • They were taken surprise by tactics which had never been used before. • The Poles had to defend a long frontier of 500 miles and it was easy for the Germans to identify and attack weak spots.
Low Countries and France May 1940	On 10 May the Germans attacked Belgium and Holland. Both countries were no match for the Germans. It took five days to defeat Holland, who surrendered after a huge bombing raid on Rotterdam. On 12 May German armies invaded France through the wooded area known as the Ardennes. German armies quickly crossed the River Meuse and outflanked the British and French armies. By 20 May, huge numbers of British and French soldiers found themselves cut off from the rest of their forces. Fighting continued in France for another four weeks until, on 21 June, the French surrendered.	<ul style="list-style-type: none"> • The British and French had made no preparations to deal with Maginot despite the lessons of Poland. Indeed during the so-called 'Phoney War' period of September 1939-April 1940, they remained on the defensive. • The French did not expect the Germans to attack through the Ardennes because this was a heavily wooded area which they believed was unsuitable for tanks. This area was weakly defended. • The speed of the Blitzkrieg attack took the British and French by surprise and enabled the Germans to outflank the British and French armies.
Dunkirk May-June 1940	British and French forces retreated to the port of Dunkirk where they were surrounded by the German armed forces. The Royal Navy and a host of vessels ranging from yachts to pleasure boats and paddle steamers crossed the Channel to rescue the stranded troops. The evacuation began on 27 May and lasted until 4 June. Eventually 338,226 British and French troops were rescued, although much needed equipment including tanks and field guns, had to be left behind.	<ul style="list-style-type: none"> • On 20 May Hitler gave the order to halt the tanks outside of Dunkirk. He expected the Luftwaffe to complete the destruction of the Allied forces. This allowed the British a breathing space. • The RAF gave some protection to the troops on the beaches before and during the evacuation and inflicted heavy losses on the Luftwaffe. • The bravery of the many ships and pleasure boats that carried out the evacuation.

Blitzkrieg in the Soviet Union, 1941-42

In June 1941, German forces invaded the Soviet Union. Although successful at first, Blitzkrieg eventually failed in Russia. It was a three pronged invasion with the aim of capturing Leningrad in the North, Moscow in the centre and Stalingrad and the rich oil area of the Caucasus to the South. The German armies advanced rapidly with Soviet troops everywhere in retreat. By September they were near to Leningrad in the North and Moscow in the centre. This early success was due to several factors:

- The speed of the German attacks took Russia by surprise.
- Stalin, the Soviet leader, had made few preparations for such an invasion. He had seriously weakened the leadership of his armed forces by removing senior officers during his purges of the late 1930s.
- The Luftwaffe established control of the air and was able to support the German advances.

However, by late November the German advance had halted, their armies had not achieved the capture of their principal targets, Leningrad, Moscow and Stalingrad and the Soviet armed forces had not been defeated. Blitzkrieg did not succeed in the Soviet Union for several reasons:

- The invasion had been sanctioned too late, June. There was not enough time to achieve its objectives before the onset of winter. The delay was due to events in the Balkans where Hitler had to prop up his Italian ally, Mussolini. Moreover, Operation Barbarossa was too ambitious with its three-pronged attack dividing the German forces.
- Stalin provided firm leadership and ordered the Soviet armies to retreat so they could fight another day. During this retreat, they carried out the scorched earth policy by which they destroyed all resources which could be used by the advancing German armies.
- The most important reason was the change in the weather conditions in November 1941. Heavy rain destroyed the already poor Russian road system and slowed down the advancing German armies. It was followed by the severe Russian winter with temperatures falling below -30 degrees centigrade. The German armed forces were not equipped for such severe weather conditions and many died of frostbite.

D-Day and after

This took place in June 1944, and was the largest ever amphibious operation. It involved all three armed forces - the air force, army and navy.

Preparations	The landings
<p>The British and Americans had been preparing for D-Day for two years.</p> <ul style="list-style-type: none">• The Allies took countless aerial photographs of the Normandy area before deciding on the most suitable five beaches.• Thousands of US troops arrived in Britain and were trained, together with British troops, in landing on defended beaches.• The Allies ensured air superiority by attacking Luftwaffe bases and the German aircraft industry.• To ensure that they could supply the thousands of troops that landed, floating harbours, called Mulberries, were constructed and an underwater pipeline nicknamed PLUTO was created to ensure a rapid supply of oil.	<p>D-Day began on the night of the 5-6 June when paratroopers and soldiers in gliders landed in Normandy to destroy communications and secure vital bridges.</p> <p>Almost 7,000 naval vessels assembled crossed the Channel carrying troops which landed on five beaches as early as 6.30 am:</p> <ul style="list-style-type: none">• British and Canadian troops on Gold, Juno and Sword.• American troops on Utah and Omaha. <p>By the end of the day the Allies had landed 156,000 troops with supporting mechanised vehicles. All the landings were straightforward and faced little opposition with the exception of Omaha, where the Americans came up against a top division of the German army, there on a training exercise. Although the beach was secured, it was at a cost of 3,000 American casualties.</p>

D-Day Landings: Reasons for success	D-Day Landings: Follow-up/importance
<p>There were several reasons for the success of the landings:</p> <ul style="list-style-type: none"> • The Germans were slow to react to the landings and send reinforcements because they were convinced that it was a decoy and the real landings would take place near Calais. • The invasion was well led by the overall commander-in-chief, Eisenhower who, although American, welded all the Allied troops into an effective team. • Allied bombing of the Calais area in the months before hand fooled the Germans into believing this was where the Allies intended to land. • The German defences in the Normandy area were not strong because they had such a long coastline, the whole of Northern France, to protect. 	<p>The landings were important because they gave the Allies a much needed foothold on the continent. The Mulberreries were quickly erected as make shift harbours until the Allies captured Cherbourg on 25 June, which meant they had a deep water port. Further advances were made in Normandy in July with the capture of Caen, St. Lo and Avranches.</p> <p>A major breakthrough came at Falaise where the Allies surrounded the German Seventh Army and Fifth Panzer Army. In the space of eight days at Falaise, the Germans lost more than 10,000 men whilst 50,000 were taken prisoner.</p> <p>After Falaise, the Allies made rapid advances through Northern France, reaching Paris which was officially liberated on 25 August.</p>

The Allied advance, 1944-45

Two events slowed down the allied advance to Germany and meant that Soviet troops reached Berlin first.

1. The Arnhem Operation of September 1944 was an attempt by the Allies to achieve a rapid advance through Holland. It was the brainchild of the British General Montgomery to use paratroopers behind German lines to secure the Rhine bridges whilst ground troops rapidly advanced to the river. The Operation began on 17 September with early successes. However, British troops failed to take the key bridge at Arnhem whilst advancing Allied land troops were held up by bad weather and the presence of strong German troops. Eisenhower had never been keen on the plan and reverted to a slow, careful advance on a broad front.
2. The Battle of the Bulge, December 1944, further delayed the advancing Allied armies. Hitler decided on one last desperate attempt to defeat the Allies, choosing the Ardennes, the area of success for Blitzkrieg in 1940. The attack was launched on 16 December and took the American troops completely by surprise. They were surrounded in the Bastogne area. Reinforcements secured Bastogne as the German advance, short of fuel, ground to a halt. The Germans, who suffered 100,000 casualties, had used up their final reserves of troops, planes and tanks and were now defeated. However it took the Allies several weeks to recapture the areas initially lost to the Germans. Although in March 1945, the Allies finally crossed the River Rhine and advanced on Berlin, it was Soviet troops who, in April, reached the German capital first.

Developments 1945-2003

There were further developments in land warfare in the years after 1945, more especially during the Arab-Israeli conflicts of the 1960s and 1970s and the First Gulf War of 1991. The creation of the state of Israel in 1948 was not accepted by its Arab neighbours and led to a series of conflicts.

Arab-Israeli Wars

Conflict	Key events	Reasons for Israeli success
The Six Day War, 1967	<p>Within six days, 10-15 June 1967, the Israelis had defeated their Arab neighbours using the Blitzkrieg tactics of the Second World War, with more up-to-date tanks and aircraft.</p> <ul style="list-style-type: none"> • On 5 June Israeli planes destroyed the Egyptian air force before it could get off the ground. • Israeli tanks, supported by the air force, destroyed Egyptian forces in the Sinai. • The Israeli air force also destroyed the air power of Syria and Jordan, captured the Golan Heights and the Syrian army. 	<ul style="list-style-type: none"> • The Israelis used speed and surprise, attacking without warning. • They were equipped with the most up to date planes and tanks supplied by the USA. • They had one unified command which acted quickly and decisively. • They used carefully planned tactics which ensured control of the air and the effective use of tank warfare which was ideal in the desert areas of the Sinai and Golan Heights.
The War of Yom Kippur, 1973	<p>During this conflict the Arab states were, at first successful, but were later defeated by Israel.</p> <ul style="list-style-type: none"> • Their early success was due to the element of surprise. Egyptian and Syrian forces attacked Israeli forces in the Sinai and on the Golan Heights on the Jewish Holy Day of Yom Kippur. They inflicted heavy losses on the Israelis. • However, Israel recovered and drove the enemy back in both areas. In the largest tank battle since the Second World War, Israel defeated the Egyptians and almost surrounded the Egyptian Third Army. The USA and the Soviet Union then intervened and arranged a ceasefire. 	<ul style="list-style-type: none"> • Israel had well trained and disciplined armed forces which quickly recovered from the surprise attack. • Superior tanks and aircraft proved decisive during the Sinai tank battle against Egypt. • Egypt and Syria lacked a unified command. • Effective use of tanks with air cover by the Israelis.

The First Gulf War

The Arab-Israeli Wars had confirmed the importance of control of the air. The First Gulf War was the first time that the land campaign supported the air offensive, however it still highlighted the continued importance of land forces in directly defeating the enemy.

In August 1990 Saddam Hussein, the dictator of Iraq, invaded the oil rich state of Kuwait. Having been a former ally of the USA, Saddam did not expect the Americans to object to the invasion.

However the USA supported by Britain and other countries, launched Operation Desert Shield to force Saddam out of Kuwait. The Coalition forces were led by an American, General Norman Schwarzkopf, who carried out the campaign in two stages:

- Stage 1 was an air offensive against Iraq which was launched on 16 January 1991 and lasted for nearly a month. In a short time, a variety of aircraft, including Stealth aircraft, cruise missiles and precision-guided weapons seriously damaged Iraq's military and economic infrastructure.
- Stage 2 was Operation Desert Saber which was launched on 23 February 1991. Land forces advanced into Kuwait and, within four days, had liberated the country.

Guerrilla warfare

Guerrilla warfare was to play a significant role in several conflicts during the twentieth century more especially the war in Vietnam in the 1960s and Afghanistan twenty years later. It showed that smaller forces with fewer resources could inflict defeat on superpowers such as the USA and the Soviet Union.

Meaning

The term 'guerrilla' is a Spanish word which dates back to the Napoleonic Wars of the early nineteenth century and, more especially, the Peninsular Campaign in Spain and Portugal. The Spanish 'guerrillas' took advantage of the mountainous terrain to carry out 'hit-and-run' tactics against the much larger occupying French army. They frequently ambushed French troops and then disappeared into the countryside, often supported and hidden by the local population.

Such tactics were also employed by Mao Zedong, the leader of the Chinese Communist Party, against occupying Japanese forces and the Chinese Nationalists during the 1930s and 1940s. Hit and run raids and ambushes proved very effective. Moreover, Mao stressed the importance of winning the support of the local peasantry to ensure the success of guerrilla tactics. His soldiers had to follow a strict code of conduct which included helping the peasants in their daily work.

Vietnam

The Vietcong mainly used guerrilla tactics to fight the war in the South because of the strength of US resources and equipment. The NVA and Vietcong were no match for the USA and ARVN in open warfare.

Ho Chi Minh had studied the guerrilla tactics used by Mao Zedong in the 1930s and 1940s in his successful struggle against the Chinese Nationalist Party. Minh had used these tactics against the Japanese during the Second World War and the French in the years that followed. However such tactics were dependent on the support of the local peasantry, who would be expected to hide the Vietcong. The Vietcong fighters were expected to be courteous and respectful to the villagers. Indeed they often helped the peasants in the fields during busy periods.

On the other hand, the Vietcong could be ruthless when necessary. They were quite prepared to kill peasants who opposed them or who co-operated with the enemies. They also killed police, tax collectors, teachers and other employees of the government of South Vietnam. Between 1966 and 1971, the Vietcong killed an estimated 27,000 civilians.

The aim of the tactics was to wear down enemy soldiers and wreck their morale. This was very effective, as the US soldiers lived in constant fear of ambushes and booby traps. In fact, eleven per cent of deaths were caused by booby traps. These were cheap, easy to make and very effective. Sharpened bamboo stakes, hidden in shallow pits under sticks and leaves, could easily pierce a boot.

The Vietcong were almost impossible to identify. They did not wear uniforms and had no known base camp or headquarters. They worked in small groups and were hard to distinguish from the peasants in the villages. They attacked and then disappeared into the jungle, into the villages or into their tunnels. These tunnels were self-contained and booby-trapped and provided not only refuge from the bombing, but also a safe haven for the guerrilla fighters. They were also generally a death trap for US and ARVN forces. Over 250 kilometres of tunnels were built in Vietnam, some of which passed under US military bases.

Guerrilla tactics proved decisive in forcing the eventual withdrawal of American troops. This was because of several factors:

- Support from the peasants in Vietnam who had been alienated by different American policies including Strategic Hamlet and Search and Destroy tactics. Many of the Vietcong were recruited from the local villages.
- Essential supplies from the North coming to the South via the Ho Chi Minh Trail. Up to 40,000 Vietnamese worked to keep the trail open. Many of these supplies were provided by the Soviet Union and China.
- Knowledge and understanding of the jungles of South Vietnam. US attempts to destroy the jungles through the use of chemicals further alienated the local population.
- The inexperience of the US troops. The USA had no experience or knowledge of guerrilla/jungle warfare carried out by the Vietcong. This inexperience was worsened by the fact that most of the US troops, especially after 1967, were not full combat troops but men (nineteen was the average age) who were drafted into the armed forces and generally served only one year in Vietnam.

Afghanistan

Guerrilla tactics were also successful in Afghanistan in the 1980s. The Soviet Union invaded Afghanistan in December 1979 and set up a puppet government which was propped up by a Soviet army of occupation of 100,000. This occupation faced opposition from a Muslim fundamentalist organisation known as the mujahideen. These were essentially Afghan tribesmen trying to defeat one of the superpowers by using guerrilla tactics.

The guerrillas concentrated on both civilian and military targets, knocking out bridges, closing major roads, attacking convoys, disrupting the electric power system and industrial production, and attacking police stations and Soviet military installations and air bases. They assassinated government officials and laid siege to small rural outposts.

The Soviet Union spent a fortune in trying, unsuccessfully, to deal with this threat. In 1988, they withdrew from Afghanistan having suffered casualties of over 20,000 with most of the country in the control of the mujahideen. Once again guerrilla tactics had been successful against an enemy with far greater resources and manpower.

- The mujahideen were recruited from and supported by the local population many of whom hated the Soviet invaders. There were at least 4,000 bases from which mujahideen units operated.
- They used hit-and-run tactics, attacking Soviet troops and supply lines and then disappearing into the local countryside. The mujahideen favoured sabotage operations. The more common types of sabotage included damaging power lines, knocking out pipelines and radio stations, blowing up government office buildings, air terminals, hotels, cinemas, and so on.
- The terrain was ideal - a mountainous area tailor made for ambushes.
- Pakistan provided much needed supplies as well as training bases for the activities of the Afghan guerrillas.

Question guidance for Section C

Question (a)

Part (a) questions will ask you to get **three** points from the source. This is a comprehension question, worth three marks, so spend about 5 minutes on this question.

Source A: From a history textbook, published in 1996

Late in 1941, the German advance was halted by the heavy rains of November which made many roads impassable. This was followed by the severe Russian winter, with many German troops unable to cope with the often sub -30 degree centigrade temperatures. Stalin used this time used this time to strengthen the Red Army giving it greater freedom and independence to act.

(a) What does Source A tell us about the reasons for the failure of Blitzkrieg tactics in the Soviet Union in 1941?

(3 marks)

- Ensure you understand the focus of the question. Highlight or underline key words or phrases in the question.
- As you read the source highlight at least three points in the source.
- Describe these points. You could signpost your answer by telling the examiner each time you get a point from the source.
- You do not need to include your own knowledge, in other words knowledge from outside the source. Own knowledge will not be credited and will waste valuable time.

Possible answer

This source tells me that German Blitzkrieg tactics failed because the German advance was slowed down by heavy rain in November which badly affected the roads whilst many German troops could not cope with the severe cold. In addition, Stalin improved the Red Army by giving it greater freedom and independence.

Have a go at this next question.

Source B: From a history of the Second World War, published in 2006

The D-Day landings took place on five different beaches and were supported by paratroopers dropped from planes or landed in gliders. The Allies only suffered 11,000 casualties during the landings - remarkable in an operation that had brought 130,000 men across the Channel by sea and 23,000 by air.

What does Source B tell you about the D-Day landings of June 1944?

(3 marks)

Chapter 3: Changing methods of sea warfare

There were two important changes in sea warfare in the years after 1939:

- Developments in submarines including new U-boat tactics and the development of nuclear submarines.
- The emergence of the aircraft carrier during the War in the Pacific and its development in the years after.

Developments in submarines

The Germans had used U-boats during the years 1915-18 to try to starve Britain out of the war. These tactics had failed mainly due to the use of the convoy system. However, during the Second World War, U-Boats posed an even greater threat.

The Battle of the Atlantic

There were two main phases to the Battle of the Atlantic:

- German success in the years 1939-42
- Allied success against the U-boats, 1943-45

Phase	Key events	Reasons for success
German success 1939-42	The Germans knew that from the start of the war they had to cut off British supplies from the USA. For three years, German U-boats were very effective. For example they sank 1,000 ships, a quarter of Britain's merchant fleet, in 1940. By 1942 this number had reached 1,661 Allied ships and Britain was only able to import one-third of what it would normally import in peacetime. Moreover, by January 1943, the navy had only two months' supply of oil left. There was no doubt that the U-boats had the upper hand in this period. Churchill described this as the Battle of the Atlantic and said: 'The only thing that ever really frightened me was the Battle of the Atlantic.'	<ul style="list-style-type: none"> • The Germans used new 'wolf-pack' tactics. They had cracked the Allied codes which meant that U-boats could lie in wait for Atlantic convoys and attack in numbers. • The British anti-U-boat tactics were not very effective and they used out-of-date escort vessels. Air cover was effective but could only stretch so far across the Atlantic. This left a mid-Atlantic gap where many U-boat attacks took place. • By attacking from the surface and at night, U-boats were able to avoid detection by ASDIC, the British ant-submarine device which relied on sound waves travelling through the water. • The entry of the USA into the war in December 1941 gave many more targets for the U-boat commanders.

Phase	Key events	Reasons for success
Allied success 1943-45	From 1942 Churchill gave priority to defeating the U-boat threat. This resulted in the sinking of many more U-boats while, at the same time, reducing Allied shipping losses. For example, between June and December 1943 the Germans lost 141 U-boats whilst the Allies only lost 57 ships. Admiral Donitz, the German U-boat commander, was unable to replace the lost U-boats and, in March 1944, called off the Battle of the Atlantic.	<ul style="list-style-type: none"> • Long range aircraft such as the Liberator gave much needed protection to the convoys, assisted by the use of the Azores as allied air bases which closed the Atlantic gap. • The Allies were able to decode German radio messages and knew in advance the whereabouts of the U-boat packs. • Improved training for convoys and better escort vessels. These escort vessels were equipped with the Hedgehog depth charge, which fired clusters of bombs over a wide area. • The Allies, especially the Americans, were able to build ships faster than the U-boats could sink them.

Nuclear submarines

Submarines underwent major changes in the years after 1945, and the development of nuclear submarines played an important role in the Cold War between the USA and the Soviet Union.

The USA were the first to develop nuclear-powered submarines with the launching USS *Nautilus* on January 21, 1952. Within ten years, the Soviet Union had developed its own version. A nuclear submarine works on nuclear technology rather than conventional air-breathing diesel engines. These nuclear-powered submarines were subsequently armed with powerful nuclear weapons and the development of cruise missiles gave submarines a substantial and long-ranged ability to attack both land and sea targets with a variety of weapons ranging from cluster bombs to nuclear weapons.

The British developed their own nuclear submarines in the 1960s, with the launching of HMS *Resolution* in 1968 which carried Polaris missiles. This was changed to Trident with the launching of HMS *Vanguard* in 1994.

Nuclear submarines: Advantages	Nuclear submarines: Disadvantages
<p>Nuclear submarines have numerous advantages over conventional diesel submarines. They do not need to surface frequently as they are independent of air. Unlike conventional submarines, power generated by the nuclear reactor is huge and hence, they can run at high speeds for prolonged periods and don't need refuelling intervals as they can operate under water throughout their lifetime. Because of their stealth, they can force an enemy navy to waste resources searching large areas of ocean and protecting ships against attack. Moreover, they have played an important role in several conflicts including the Falklands War, 1982, when a British submarine sank an Argentine cruiser and the first Gulf War, when, in 1991, submarines were used to launch Tomahawk Cruise Missiles at strategic targets inside Iraq.</p>	<p>There have been several accidents involving nuclear submarines because of the dangers inherent in operating for long periods of time under the ocean.</p> <ul style="list-style-type: none"> • In 1963, the United States Navy suffered the loss of the USS Thresher with 16 officers, 96 enlisted men and 21 civilians onboard. While 220 miles east of Cape Cod, the Thresher reported problems through a garbled transmission, then went silent. • In 2000, the Soviet submarine Kursk sank during military training exercises, with the loss of 118 crew members. The ship is believed to have been destroyed by an explosion that led to the detonation of the onboard torpedoes.

The aircraft carrier

The development of the aircraft carrier was the most important development in sea warfare before and during the Second World War. The aircraft carrier was to play an important role in several conflicts in the second half of the twentieth century, especially the Falklands War, 1982, and the first Gulf War, 1991-91.

Timeline of key developments in the aircraft carrier

Date	Development
1912	Lieutenant Charles Santon flew a biplane off a platform constructed on a stationery battleship.
1914-18	<i>HMS Furious</i> was converted into an aircraft carrier with a small take-off deck. A small plane landed on the carrier but went over the side, killing the pilot. In 1918 <i>HMS Furious</i> successfully launched six aircraft.
1922	The Japanese designed the first aircraft carrier, <i>Hosho</i>
1923	The first specifically made British aircraft carrier, <i>Hermes</i>
1940	Aircraft carriers played an important role in the Battle of Taranto. Swordfish from the aircraft carrier, <i>HMS Illustrious</i> , attacked the Italian fleet which was in port in Taranto, 250 kilometres away. The Swordfish damaged or destroyed three Italian battleships and ended Italian naval power. The Japanese saw the success of this battle and employed similar tactics just over a year later at Pearl Harbor.
Later 1940s	The slanted deck was introduced which gave carriers two runways from which to conduct operations.
1961	The launching of the first nuclear-powered carrier, <i>USS Enterprise</i> . This had a crew of over 5,000 and carried over 100 jet aircraft.
1970s	The development of Nimitz-class aircraft carriers which are super carriers with an overall length of 333 metres and are the largest capital ships in the world.

Battle of the Pacific, 1941-45

This was the war between the USA and Japan which highlighted the importance of aircraft carriers in naval conflicts. Control of the vast Pacific area was dependent on air power which, in turn, was decided by whichever side made the more effective use of their aircraft carrier fleet. Indeed, aircraft carriers played a decisive role in several battles.

- Pearl Harbor, December 1941. On 7 December 1941, the Japanese launched a surprise attack on the US Pacific Fleet at Pearl Harbor. The Japanese strike force travelled 3,000 miles and launched 360 planes and bombers from aircraft carriers about 400 kilometres from the naval base. Although inflicting considerable damage and casualties on the US fleet, the attack was not decisive because America's four aircraft carriers were not in port on that day.
- The Battle of Coral Sea. This battle took place in early May 1942. US intelligence decoded Japanese messages and sent an aircraft carrier fleet to intercept the Japanese navy. During the subsequent battle, which was fought between aircraft launched from the aircraft carriers of the two sides, the Japanese lost two and the USA one aircraft carrier.
- The Battle of Midway. This was the most decisive naval battle of the Second World War. It was fought in June 1942 when the Japanese fleet decided to launch an attack on the Midway Islands. Once again, US intelligence knew of these plans and intercepted the Japanese carrier fleet. During the subsequent battle, US dive bombers sank three Japanese aircraft carriers and badly damaged a fourth. Although the USA lost one aircraft carrier, the battle was a decisive turning-point in the war in the Pacific. It gave the Americans control of the sea and the air, which enabled them to begin the tactic of island-hopping, to free islands of their Japanese invaders.

The Falklands War, 1982

This conflict illustrated the importance of sea power in deciding the outcome of a war and in particular the submarine and the aircraft carrier. In April 1982, Argentina invaded the Falkland Islands in the South Atlantic. These islands were thousands of miles away so the British sent a naval task force to regain the islands.

- This task force included two aircraft carriers, *Invincible* and *Hermes*, which were potential targets for Argentine submarines. Indeed, it was revealed after the war that the Argentines had fired six torpedoes, none of which had hit their targets. These aircraft carriers served as floating airfields, with Sea Harriers from both vessels taking part in air strikes on Port Stanley. Moreover, they protected the landings of British troops when they landed on the islands and eventually defeated the Argentine invaders.
- During the war, the British nuclear-powered submarine HMS *Conqueror* sank the Argentine cruiser *General Belgrano*. After the sinking the Argentine Navy recognised that they had no effective defence against submarine attack, and the Argentine surface fleet withdrew to port for the remainder of the war, though an Argentine submarine remained at sea.

Question guidance for Section C

Question (b)

Question (b) will give you a choice of two factors. You have to choose one of these and describe its **key features**. This question is worth 7 marks so spend about ten minutes writing your answer.

Here is an example:

Describe the key features of either the Battle of Midway (1942) or the U-boat successes, 1939-42.

(7 marks)

- Ensure you make the right choice. In other words the factor you can write most about.
- Stick to your choice. Some students write a paragraph about one factor, cross it out and write about the second factor. This wastes valuable time.
- Highlight or underline key words or phrases in the question. This should ensure that you focus on the question.
- Aim to write at least two key features or paragraphs.
- Key features can include causes, events and results.
- Try to make links between each of the key features. Use link words or phrases such as *however, consequently, therefore, as a result, this led to*.

Possible answer

The first key feature of the U-Boat successes of 1939-42 was the use of new tactics. The U-Boats used wolf-pack tactics to ensure that the Allied convoys were attacked by groups of U-boats. German intelligence decoded British messages and was able to pinpoint Allied convoys. Radio communications ensured that several U-boats could simultaneously attack the convoys.

As a result of these tactics, the U-boats enjoyed great success in the first three years of the Second World War. For example, in 1942 the Allies lost 1,300 ships and by 1942 were seriously short of supplies. Furthermore, the entry of the USA in December 1941 gave the U-boats even more opportunity to sink Allied shipping, more especially the American Eastern seaboard when many American ships, at least at first, sailed without escort.

Have a go at the other key feature of the Battle of Midway.

Chapter 4: Changing methods of air warfare

Air warfare experienced rapid changes during and after the Second World War and became far more important in deciding the outcome of conflicts.

During the Second World War

Airpower played an important role in:

- **Blitzkrieg** with the Luftwaffe targeting enemy aircraft and airfields and ensuring that the Germans had control of the air, especially during the invasions of Poland, the Low Countries and France. Dive bombers, the Stukas, were used to support the ground forces and tanks to create maximum terror.
- **Dunkirk** when the RAF did much to protect the troops on the beach awaiting evacuation and the vessels sent across the Channel to evacuate the Allied troops.
- **D-Day landings.** Allied aircraft had bombed the Normandy hinterland before the invasion in order to disrupt German communications and slow down the possibility of reinforcements. In addition, regular bombing of the Calais area had convinced Hitler that this was where the invasion would take place.
- **Bombing** had proved decisive in the early months of the war. The German bombing of Warsaw, in September 1939, brought the final surrender of Poland whilst the destruction of Rotterdam by the Luftwaffe, May 1940, had a similar effect on the Dutch government.

Battle of Britain

Air power was to prove decisive in preventing a German invasion of Britain. Following the defeat of France in June 1940, Hitler put together Operation Sealion which was the codename for the German invasion of Britain. However, before the invasion could take place, the Luftwaffe needed to establish control of the air space over the Channel and Southern Britain in order to protect the invasion barges and the subsequent landings. They needed to destroy the RAF together with British airfields. The Battle of Britain was not a single battle but a series of battles, day after day, during the summer of 1940. Waves of German bombers, escorted by fighter aircraft attacked key targets mainly in south-east England and were often intercepted by British fighter planes. Key events included:

- On the 13 August, the Germans began full scale raids on the South-East of England targeting radar and sector stations.
- Five days later the Luftwaffe targeted air fields in the South-East trying to destroy the British fighter planes.
- By early September, Britain had few reserves of fighter planes and pilots and was close to defeat. However on 7 September, Britain got lucky. On the verge of victory, Hitler gave Britain a breathing space by diverting the *Luftwaffe* to the bombing of London.
- On 15 September, the Luftwaffe tried to bomb London in daylight and lost 56 planes. Two days later Hitler decided to postpone the invasion of Britain.

The RAF success was due to several factors:

- The British had developed radar in the 1930s and by 1940 had a network of radar stations which could detect the whereabouts of German aircraft and ensure that the British fighter planes were in position and ready to attack. The Luftwaffe was generally unable to catch the British fighters on the ground and destroy them as they had with the Polish air force.
- In addition Britain had a series of sector stations which acted as the nerve centre of intelligence, gathering information from radar and directing the fighters to intercept the German bombers.
- The British fighter planes, Hurricanes and Spitfires, were more than a match for their German counterpart, the Messerschmitt 109.
- RAF pilots who bailed out over Britain could return to fighting but German pilots became prisoners of war.
- There were also weaknesses in the German aircraft. The Stuka was a dive bomber geared towards supporting ground troops but was not equipped to deal with enemy fighter planes. In addition, German fighter planes only had enough fuel for 30 minutes of flying which meant that German bombers often flew unescorted, easy targets for the British fighters.

The Battle of Britain was important because it prevented a German invasion, ensured British survival and provided a much needed morale booster for the British public.

Blitz

From September 1940, Hitler turned his attention on the Blitz, the name given to the German attempt to bomb Britain out of the war. The aim was to:

- Destroy the morale of the British people.
- Seriously disrupt British industrial production and communications.

Place	Key features
London	The main target was the East end of London especially the docks and factories. However most of inner London suffered. From 2 September to 2 November 1940 London was bombed every night. The House of Commons and Buckingham Palace were damaged. These raids continued right through until early May 1941. Over 15,000 were killed and 250,000 made homeless.
Coventry	Coventry suffered its worst attack on 14 November 1940, with the target being its aircraft factories. It was hit by 30,000 incendiary bombs. Much of the city, including the cathedral, was destroyed. However, despite the raids the aircraft factories resumed production within five days.
Liverpool	This city suffered its worst attack by 500 bombers on 3 May 1941. It lost some of its finest buildings and fires burned out of control.
Belfast	Belfast was badly bombed in April and May of 1940. At least 1,000 people were killed and 150,000 made homeless.
Glasgow	This city was attacked on the 13-14 March 1941 with the main target being the shipyards on the Clyde. Over two nights more than 500 people were killed, hundreds injured and the community destroyed by air raids. Out of over 12,000 houses only seven were left undamaged.
Plymouth	The royal dockyards at Devonport were the main target. In early 1941, five raids reduced much of the city to rubble. The last attack came on 30 April 1944. During the 59 bombing attacks, 1,172 civilians were killed and 4,448 injured.

Hitler called off the bombing campaign in May 1941. This was mainly because he needed to divert the Luftwaffe to support the impending invasion of the Soviet Union. The British people suffered a second blitz in the last year of the war, from the V-1 and V-2 missiles.

- The V-1 was a flying bomb powered by a rocket engine. It flew towards a target area and then came down whenever it ran out of fuel. 6,000 V-1 bombs actually reached British targets causing casualties of 20,000 and considerable damage to houses. However, the Allies used fighter planes to intercept these bombs and were able to capture the launch sites in Northern France and Belgium in the months after the Normandy landings.
- The V-2 was more dangerous because it was so fast that it could not be shot down or even seen. It was a genuine guided missile and flew at supersonic speeds of 4,000 kilometres an hour. About 500 V-2s hit London between September 1944 and March 1945, causing approximately 900 casualties. However, it was developed and used too late in the war to have a decisive impact.

What was the impact of the blitz?

Positive	Negative
In many respects the blitz was counter-productive. Rather than destroying the morale of the British people it made them even more determined to resist the Germans and support the war effort. Moreover, the V1 and V2 bombers were developed too late to have a significant impact on the war. It did not greatly reduce or disrupt production as damage to buildings and communications was quickly repaired. The German bombers were not big or accurate enough to cause major damage to British towns and cities.	<ul style="list-style-type: none">• Over three million homes were destroyed. In each week of September 1940, 40,000 to 50,000 people lost their homes.• About 60,000 civilians were killed.• There was evidence, especially in the East End of London, of serious effects on civilian morale.• The V-1 and V-2 threat came late in the war and did cause some alarm and damage.

Allied bombing of Germany

The Allied bombing of Germany was one of the most controversial aspects of the Second World War. The bombings were carried out:

- To disrupt German war production by targeting German industrial production and communications.
- To reduce the morale of the German civilian population by destroying their homes.
- Air Marshall Harris became Head of British Bomber Command in 1942. He firmly believed that air power alone could lead to the defeat of the Germans. The Germans could be bombed into submission.

In May 1942, the Allies launched the first 'thousand bomber raid' on the city of Cologne which killed about 40,000 people. In the following year, Hamburg was virtually destroyed by a firestorm which caused over 60,000 deaths and destroyed most of the city. Berlin was a regular target but the most controversial raid was on Dresden in February 1945. Here, the Allies used incendiary bombs which, in turn, created a firestorm. Dresden was not an industrial centre and, moreover, the city was full of refugees fleeing the Russian front. There may well have been over 100,000 casualties in Dresden.

The Allied bombing only slightly reduced German war production but did prevent it from greatly expanding. It drew off German aircraft from the Russian front and it did affect the moral and everyday life of the German people.

However, there have been a number of criticisms of the Allied bombing:

- It was morally wrong to target civilians especially in cities such as Dresden which were of no military importance. The number of deaths increased due to the use of incendiary bombs.
- It was counter-productive. Far from reducing the moral of the German people, it made them even more determined to support the German policy of total war. Goebbels made effective use of the bombing for propaganda purposes, convincing many Germans that the Allies were evil.
- It had little effect on German industry. For example, it has been estimated that in 1944 German industrial output only fell by 10%. Most German industry adapted and moved underground.
- The cost in Allied lives, 140,000 airmen, and planes, 21,000, was too great.
- It showed that air power alone, especially bombing, could not bring about the defeat of a determined enemy. It was the advance of Allied troops from the West and Russian troops from the East which eventually brought about the German surrender.

1945-2003

The Cold War between the USA and the Soviet Union accelerated technological developments in aircraft in the years after 1945, as the sides competed in producing the most destructive military aircraft.

- Both sides developed jet aircraft which could travel at higher altitude and greater speed. These were used to carry newly developed nuclear weapons.
- This was followed by the emergence of the Inter-Continental Ballistic missile as well as high-altitude fighters that could intercept these missiles.
- Further change came with air-to-air guided missiles as well as attack aircraft that could fly 'under the radar', as low as a few hundred feet, as seen in the First Gulf War.

The importance and limitations of air power was to be highlighted in various conflicts during the second half of the twentieth century.

The Six Day War

Air power was to prove decisive to the outcome of the Six Day War. The eventual Israeli victory in the Six Day War of 1967, was due mainly to control of the air which, in turn, was due to the actions of the Israeli air force on the first day of the war, 5 June 1967. By nightfall, Israel had destroyed 416 Arab aircraft, while losing 26 of their own in the first two days of the war. Israel's first and most critical move was a surprise pre-emptive attack on the Egyptian Air Force. Egypt had by far the largest and the most modern of all the Arab air forces, consisting of about 420 combat aircraft, all of them Soviet built. Attacks were then carried out that afternoon against Jordanian, Syrian, and Iraqi air fields which wiped out most of those nations' air forces. By the evening of the first day, the Jordanian air force was wiped out. Subsequent Israeli blitzkrieg tanks, supported by air attack, were carried out without fear of enemy attacks from the air.

Vietnam War

This conflict highlighted the limitations of air power against a determined enemy using guerrilla tactics. The US employed air power in three different ways, to bomb North Vietnam, chemical weapons to destroy the jungles of South Vietnam and helicopters to support Search and destroy missions.

	How used	How effective
Bombing of North Vietnam	On 7 February 1965, the USA launched 'Operation Rolling Thunder'. This involved widespread bombing raids on military and industrial targets in North Vietnam. It was the beginning of an air offensive that was to last until 1968. Gradually the targets were extended to include cities in North and South Vietnam. The original intention was for an eight-week bombing offensive but it actually lasted for more than three and a half years. The USA dropped more bombs in Vietnam than were dropped by the Allies (the USA and Britain) during the whole of the Second World War.	It damaged North Vietnam's war effort and disrupted its supply routes and caused considerable damage to cities and towns in North Vietnam. However, North Vietnam had few factories to bomb. The countryside was mostly affected. It encouraged even greater support for the war from North Vietnam. Furthermore, it did not stop the supplies to the Vietcong from the North. Finally, the cost was horrendous. In 1967 the American magazine Life calculated that it cost the USA \$400,000 to kill one Vietcong fighter.
Chemical weapons	The USA could not force the Vietcong into battle. The decision was therefore made to use chemical weapons to destroy the jungle that hid the enemy and their food supplies. One such weapon was known as 'Agent Orange', a highly toxic weed killer used to destroy the jungle. The Americans used 82 million litres of Agent Orange to spray thousands of kilometres of jungle. Napalm was another chemical weapon widely used by the USA. It was a type of bomb that exploded and showered the surrounding victims with a burning petroleum jelly. Napalm sticks to the skin and burns at 800 degrees centigrade. In other words, it burned through the skin to the bone.	These defoliants or chemical weapons had little effect in terms of flushing out the Vietcong. Indeed, such methods were counterproductive because they increased support for the communists and made peasants more likely to hide Vietcong members. Many innocent civilians were injured or even killed by these weapons whilst the USA lost much world sympathy by the use of chemical weapons which caused long term damage to the countryside of South Vietnam.
Search and Destroy	The USA launched 'Search and Destroy' tactics using helicopters. They would descend on a village suspected of assisting the Vietcong forces and destroy it. The troops called these attacks 'Zippo' raids after the name of the lighters they used to set fire to the thatched houses of the villages.	These raids would kill a number of Vietcong guerrilla fighters and showed the effectiveness of helicopters in supporting ground troops. However, Civilian casualties were often very high with most having little or no connection with the Vietcong.

First Gulf War

Air power was also important in the eventual outcome of the First Gulf War, 1990-91. The Persian Gulf War started with an extensive aerial bombing campaign on 17 January 1991. The coalition flew over 100,000 sorties, dropping 88,500 tons of bombs, and widely destroying military and civilian infrastructure, especially the Iraqi air force and anti-aircraft facilities, command and communication facilities. The aircraft were launched mostly from Saudi Arabia and the six Coalition aircraft carrier battle groups in the Persian Gulf and Red Sea. About one-third of the air attacks also targeted the Iraqi Scud missile launchers.

The term 'stealth' is commonly applied to aircraft or missile systems that have been designed to produce as small a radar signature as is practicable. These were used by the USA during the First Gulf War, in particular the F-117 Blackhawk and the B-2 Bomber. The shape of these aircraft ensured that radio waves bounced off at odd angles and were not reflected back to the enemy radar stations. They were also coated with radar-absorbing material to reduce the intensity of radar being bounced back.

Question guidance for Section C

Question (c)

Question (c) is asking you to write an essay about change over a period of time. This means you must show change either by comparing the situation before and after the development or you must show how it developed during the period. The question will give you four points known as scaffolding to help you with your essay. Remember this is the highest-scoring question on the paper and requires a substantial and detailed response. It is about change. You must show change either by comparing the situation before and after the development or you must show how it developed during the period is worth 15 marks. You should allow 30 minutes for this question.

Here is an example:

In what ways did the use of air power change in the years 1939-73?

(15 marks)

You may use the following information to help you with your answer.

- The Blitz
- Allied bombing of Germany
- Arab-Israeli wars
- Vietnam War

- Focus on the question. It is about change so ensure you write about changes. Do not just tell the story.
- Use at least three of the scaffolding points. However, you may wish to use one of your own factors or add an additional factor to those mentioned in the question.
- Write a paragraph on each of the factors. At the beginning of each paragraph give the change and then fully explain it. Using the word 'because' often helps you to give a developed explanation.
- For the higher marks you also have to make links between each factor. This means explaining how one change led to the next. Link words or phrases often help to achieve this. Here are some examples: *this led to, as a result, moreover, furthermore, as a consequence, in addition.*
- Write a conclusion showing how the factors you have written about acted together to bring about change.

Part of a possible answer

The Blitz brought both change and continuity in the use of air power. Continuity with the First World War when the Germans had used Zeppelins and Gothas to bomb Britain, targeting civilian morale. Hitler had much the same aim during the Second World War but on a much greater scale. German bombers attacked most British towns and cities and caused considerable damage. Moreover, towards the end of the war, the Germans used even more advanced methods of air power, the V-1 and V-2 bombers which were the precursors of the later jet aircraft and missiles. On the other hand, because the Blitz failed in its objective of destroying the morale of the British people, it also highlighted the limitations of aerial bombing.

Now complete this answer by:

- Linking the first paragraph (bullet) to the next.
- Explaining the other three points in the scaffolding.
- Writing a conclusion.

Chapter 5: The development of atomic and nuclear weapons

The greatest change in warfare in the twentieth century was the development of nuclear weapons with the potential to destroy the world many times over. Conversely, fear of the destructive powers of these weapons, meant that all wars since 1945 have used conventional weapons.

The atomic bombs of 1945

In 1945, the US President, Truman, decided to use the atomic bombs on Japan. There were several military, political and economic reasons for this decision.

Military	Political	Economic
Japanese culture did not accept the concept of surrender. As a result the US tactic of island-hopping in the Pacific had resulted in very heavy casualties. It was estimated that it could cost at least half a million US casualties to invade the Japanese mainland and would prolong the war by up to a year.	Truman was very aware of the threat posed by the Soviet Union and was determined to prevent the spread of communism. The atomic bomb would be a timely reminder that the USA was ahead in any arms race that might develop in the early years of the subsequent Cold War.	The USA had spent a fortune on the Manhattan Project to develop the atomic bomb before any of its rivals. The use of the atomic bomb on Japan would provide some justification for all of this spending.

Effects of the atomic bombs

On the 6 August 1945 the first bomb was dropped on the Japanese city of Hiroshima. Three days later a second bomb was used against Nagasaki. Their use was to have significant immediate and long term consequences for twentieth century warfare.

Immediate	Long term
The bombs caused horrific damage to both cities. The explosions created winds of 800 kilometres an hour which crushed many people. Many people died from radiation - 80,000 immediately in Hiroshima, followed by a further 58,000. The Japanese did immediately surrender. However, the use of the atomic bomb annoyed Stalin and contributed significantly to the beginning of the Cold War.	<ul style="list-style-type: none"> It sparked off a nuclear arms race between the two superpowers, as they competed to produce ever more destructive weapons. However, the extent of the damage cause by the two atomic bombs, acted as a warning and meant that neither side was prepared to use such weapons in subsequent conflicts.

The nuclear arms race

The Cold War between the USA and the Soviet Union, which lasted from 1945 to 1991, featured a nuclear arms race during which each superpower developed more advanced weapons of mass destruction.

The arms race 1945-60

The nuclear arms race was central to the Cold War. Many feared where the Cold War was going with the belief that the more nuclear weapons you had, the more powerful you were. Both America and Russia massively built up their stockpiles of nuclear weapons.

- By 1949, the Soviet Union had successfully tested its own atomic bomb.
- President Truman then ordered a new, more powerful weapon to be built - the hydrogen bomb which was successfully tested in 1952. This one bomb was smaller in size than the Hiroshima atomic bomb but 2,500 times more powerful. The Russians produced their own H-bomb in 1953. H-bombs provided large explosions with smaller, lighter warheads. Weight had always been a problem and these new lighter missiles were much more accurate.
- USA produced a bomber - the B52 - that could fly 6,000 miles and deliver a nuclear pay-load.
- In October 1957, Sputnik was launched by the Soviet Union. This was to lead to Inter-continental ballistic missiles (ICBMs).
- By the end of the 1950s the United States overcame this problem by developing the Minuteman missile. This missile stored its fuel in its own engines. It was now possible to fire a missile in thirty seconds. These missiles were also fairly small (54 feet long and 10 feet in diameter) and could be stored in silos under the ground, protected from an enemy attack.
- In the 1950s the Soviet Union had been producing medium-range ballistic missiles (MRBMs) and intermediate-range ballistic missiles (IRBMs). The idea was to use these to support troops if a war broke out in Europe. If they were to be used against the United States, the Soviet Union needed a nuclear base in that area. At the end of the 1950s, American Intelligence estimated that in a Russian missile attack, 20 million Americans would die and 22 million would be injured.

Mutually Assured Destruction (MAD)

The MAD theory developed during the Cold War as both superpowers developed enough nuclear weapons to destroy the other. The theory was that the full-scale use of nuclear weapons by two opposing sides would effectively result in the destruction of both the attacker and the defender. In other words this theory had two very contrasting effects:

- It encouraged both superpowers to continue to develop ever more powerful nuclear weapons in order to maintain this idea of balance and threat.
- At the same time acting as a deterrent to the use of such weapons because of their destructive powers. No side would dare strike first when it knew that the attack would destroy itself as well.

The arms race 1960-91

By 1961, there were enough bombs to destroy the World. During the 1960s, the Soviet Union put their money into producing more missiles regardless of quality while America built fewer but better quality missiles - the Atlas could go 5,000 miles at a speed of 16,000 mph.

Despite this, great emphasis was put on new weapon systems - mobile missile launchers were built, missiles were housed underground in silos and in 1960 the first Polaris submarine was launched carrying 16 nuclear missiles. Each missile carried four warheads which could be targeted on different cities. One submarine effectively carried 64 nuclear warheads.

In 1967, China exploded an H-bomb. China was a communist country. In the west, NATO felt out-numbered as the table below shows and so had to place her faith in nuclear missiles. Other important developments included:

- Submarine-launched ballistic missiles (SLBMs) which had the advantage in that they could be launched from the sea.
- MIRVs - Multiple independently-targeted re-entry vehicles which was a missile with several warheads which could be fired at different targets.

By the early 1980s there was more or less parity between the two superpowers in the development of nuclear weapons. By 1981, USA had 8,000 ICBM's and USSR 7,000 ICBM's. By 1981, USA had 4,000 planes capable of delivering a nuclear bomb. Russia had 5,000.

	ICBMs	Planes capable of carrying nuclear weapons
USA	8,000	4,000
Soviet Union	7,000	5,000

However, the US President, Ronald Reagan, changed the whole balance of the nuclear arms race with the Strategic Defence Initiative of 1983. He was determined to win the Cold War and believed that they could be forced to disarm by his new initiative: SDI (Strategic Defence Initiative).

SDI, which became known as 'Star Wars', took the nuclear arms race to a new level. It proposed a 'nuclear umbrella', which would stop Soviet nuclear bombs from reaching American soil. Reagan's plan was to launch an army of satellites equipped with powerful lasers, which would intercept Soviet missiles in space and destroy them before they could do any harm to the USA. He believed that 'Star Wars' technology would make Soviet nuclear missiles useless and force the USSR to disarm.

SDI proved to be a turning point in the arms race. During *detente*, the superpowers had been evenly matched and had worked together to limit the growth of nuclear stockpiles. SDI was a complete break from this policy. Soviet leaders knew that they could not compete with Reagan's 'Star Wars' plan. They were behind the USA in space and computer technology whilst the Soviet economy was not producing enough wealth to fund even more defence spending.

Attempts at arms limitation

In the years after 1960 there were several attempts at arms limitation. This was for several reasons:

- During the 1950s there was much more awareness of the potential threat of nuclear warfare and the destruction of the world. The Campaign for Nuclear Disarmament (CND) organised protest marches and did much to publicise the dangers of nuclear warfare.
- During the Cuban Missiles Crisis, the superpowers came very close to nuclear warfare when the US President, Kennedy, ordered the blockade of Cuba to prevent the arrival of a Soviet convoy which was carrying missiles for the missile sites which had been constructed on the island. Fortunately, the Soviet leader, Khrushchev, ordered the convoy to turn around whilst the two leaders reached a compromise agreement. This led to the two leaders to set up the hotline in Washington and Moscow and begin arms limitation talks.
- The later 1960s and 1970s was a period of detente, or relaxation of relations, in the Cold, with both superpowers prepared to agree to arms limitations.
- The USA and the Soviet Union needed to find ways of cutting their excessive expenditure on the arms race. In the case of the Soviet Union, it was having crippling effects on their economy.

Attempts at arms limitation

Date	Agreement	Key features
1963	Partial Test Ban Treaty	This was signed by over 100 countries and banned all nuclear explosions except those underground. Over 100 countries signed.
1968	Non-proliferation Treaty	This was also signed by over 100 countries. Non-nuclear power nations agreed not to develop nuclear weapons whilst countries with nuclear weapons agreed to negotiate to reduce their number.
1972	SALT 1 (Strategic Arms Limitations Talks)	The superpowers agreed to limit certain types of missiles. However, there were no limits on delivery systems so the arms race continued.
1979	SALT 2	The superpowers agreed to limit certain types of missiles but not the delivery systems. However the USA refused to ratify the agreement after the Soviet invasion of Afghanistan in 1979.
1982-3	START Strategic Arms Limitation Talks	These took place between the superpowers at Geneva. However, this was a period of tension and the Soviet Union withdrew from the talks in 1983. Nothing was agreed.
1987	Intermediate Nuclear Forces Treaty (INF)	This abolished nuclear and conventional ground-launched ballistic and cruise missiles which had ranges of 500-5500 kilometres by 1 June 1991. In addition the superpowers were allowed to inspect each other's military installations.

Question practice

You now have the opportunity to practice all three types of questions in Section C.

Source A: From the memoirs of Harry S Truman, President of the United States from 1945 to 1953.

In all, it had been estimated that it would require until the late autumn of 1946 to bring Japan to its knees. All of us realised that the fighting would be fierce and the losses heavy. General Marshall told me that it might cost half a million American lives to force the enemy's surrender on its home ground. The atom bomb was a military weapon used on a military target to prevent such high casualties.

(a) What does Source A tell us about the reasons for the use of the atomic bombs against Japan in 1945?

(3 marks)

(b) Describe the key features of the MAD theory.

(7 marks)

(c) In what ways did the development of nuclear weapons bring changes to warfare in the years 1945-2000?

You may use the following information to help you with your answer.

- The use of the atomic bombs, 1945
- The nuclear arms race, 1945-60
- The nuclear arms race, 1960-90
- Arms limitations

(15 marks)

Chapter 6: Warfare at the beginning of the twenty-first century

The greatest change at the beginning of the twenty-first century was the impact of terrorism, especially the effects of the 9/11 attacks and the subsequent Second Gulf War.

Impact of terrorism

Terrorism, as an instrument of war, greatly increased in the second half of the twentieth century. It is the systematic use of terror especially as a means of coercion, or the use of violent acts which are intended to create fear (terror), and deliberately target or disregard the safety of civilians. There are several different types of terrorist activity.

Kidnappings and hostage-takings	Armed attacks and assassinations	Hijackings and skyjackings
Terrorists use kidnapping and hostage-taking to establish a bargaining position and to elicit publicity.	Armed attacks include raids and ambushes. Assassinations are the killing of a selected victim, usually by bombings or small arms.	Hijacking is the seizure by force of a surface vehicle, its passengers, and/or its cargo. Skyjacking is the taking of an aircraft, which creates a mobile, hostage barricade situation.

Some significant terrorist organisations of the second half of the twentieth century, mostly in the Middle East, were:

- The Popular Front for the Liberation of Palestine (PFLP). This was set up in 1968 in order to attack targets outside Israel through the use of the 'skyjack'. They found it easy to board planes and hijack them. The climax of their activities came in 1970 when they seized four airlines, three of which were flown to Dawson's Field in Jordan where they were blown up in front of the world's media.
- Black September. This was a terrorist organisation which carried out the attack at 1972 Munich Olympics which led to the death of Israeli hostages.
- Hezbollah ('Party of God') is an Islamic movement and political party founded in Lebanon shortly after that country's 1982 civil war. The group has kidnapped Israeli soldiers and carried out missile attacks and suicide bombings against Israeli military and civilian targets.
- Hamas meaning 'Islamic Resistance Movement' is an Islamic Palestinian group created Hamas in 1987. Beginning in 1993, Hamas launched numerous suicide bombings against Israel.
- The IRA. They used terrorist tactics against the British in Northern Ireland in the last thirty years of the twentieth century. This included numerous bomb outrages both in Northern Ireland and on the British mainland.

9/11

On September 11, 2001, there occurred the most significant terrorist attack to date, which had immediate and long term significance. On the morning of September 11, 2001, members of the Islamic terrorist organisation, al-Qaeda, hijacked four planes. Two of the airplanes were deliberately crashed into the World Trade Center in New York City. The third plane was crashed into the Pentagon in Washington, D.C. The last plane was going to crash into another building in Washington, D.C., but the passengers stopped the hijackers, and the plane crashed into a field instead. This had important consequences for the USA and the Middle East:

- There were no survivors from any of the flights.
- The USA launched a 'War on Terrorism' which included the invasion of Afghanistan to overthrow the Taliban, who had hidden al-Qaeda terrorists.
- The Second Gulf War - the invasion of Iraq to depose Saddam Hussein who allegedly was supporting terrorism, especially al-Qaeda.

The Second Gulf War, 2003

This began in March 2003 when mainly US forces, backed by Britain and other countries, invaded Iraq. It was partly due to Saddam's apparent involvement with terrorism, his alleged development of arms of mass destruction and to free the people of Iraq from his tyrannical rule.

Key events of war

Date	Key event
19 March	U.S. Stealth bombers and Tomahawk Cruise Missiles struck 'leadership targets' in and around the Iraqi capital of Baghdad.
20 March	U.S. and British ground forces advanced into southern Iraq, entering the port city of Umm Qasr, near the major Iraqi city of Basra, while a second wave of air attacks hit Baghdad.
23 March	Coalition forces seized airfields in western Iraq, and controlled parts of Umm Qasr, Basra and Nasiriyah. Armoured and mechanized forces advanced to within 100 miles of Baghdad and forced a crossing of the Euphrates River at Nasiriyah, where Iraqi forces put up a stiff fight. In northern Iraq, the U.S. launched an attack with 40 to 50 cruise missiles on forces of two Islamist parties opposed to the Pro-U.S. Patriotic Union of Kurdistan (PUK).
29 March	U.S. forces advanced as far north as Karbala, where large battles with Iraqi forces took place. Bombing raids on Baghdad and other Iraqi cities continued, as did Iraqi attempts to hit Kuwaiti-based targets with surface-to-surface missiles. One missile successfully hit Kuwait City on March 28, inflicting damage on a shopping mall and causing minor wounds to two Kuwaitis.
30 March	Six hundred British commandoes attacked near Basra, destroying Iraqi tanks and capturing nearly 300 prisoners.
5 April	U.S. armoured forces entered Baghdad, conducting a large raid. Such incursions would continue for several days.
7 April	British forces reached the centre of Basra and declared the city is under Coalition control.

Significance of the conflict

This conflict was important for several reasons:

- No evidence was found that Saddam was developing weapons of mass destruction.
- Saddam Hussein was overthrown and captured by the Coalition.
- Coalition forces undertook a prolonged occupation of Iraq in order to stabilise the economy and establish democratic government. However, primarily British and US forces faced determined opposition from various groups using guerrilla tactics.
- The Coalition victory in the war was due to the successful deployment of conventional forces and traditional tactics of the second half of the twentieth century. The Coalition used air attacks to soften up the Iraqi resistance and to support the invasion by land forces.

High-Tech warfare

The First Gulf War witnessed the use of high-tech warfare, or smart bombs. They were guided by laser beams, which were sometimes refracted or dissipated by smoke and dust, causing the weapon to veer off. Through the month long air campaign of Desert Storm, only 9 percent of the bombs dropped were smart bombs. However, the War was decided by conventional weapons and tactics. Towards the end, B-52s flew in and carpet-bombed Iraqi positions in the field with old-fashioned dumb bombs. Even then, the war was not won until about 500,000 ground troops, who had been mobilizing for months, pushed the Iraqi army back across the border.

Modern Day Warfare or High Tech Warfare consists of computerized and technical Weapons such as night vision, and electronic warfare and state of the art weapons including drones and unmanned vehicles. They include unmanned aerial vehicles – some call them ‘drones’ – armed with high-res cameras and extremely accurate missiles, guided, aimed, and fired by ‘joystick pilots’ watching screens and pushing buttons from ‘ground control stations’. Other examples include:

- The JDAM, or Joint Direct Attack Munition, is unlike a laser guided bomb, which can miss its target on a cloudy day. The JDAM is guided by a Global Positioning Satellite and hits its target in any weather.
- The JSOW, or Joint Standoff Weapon, is a ‘launch and leave’ missile that can be fired safely from 30,000 feet up and 40 miles from a target, and can be redirected in mid-flight to hit even mobile targets.
- The HPM or High Powered Microwave releases two billion watts of destructive electric energy, as much as the Hoover Dam generates in 24 hours. The impact of those microwaves will fry anything electrical within 1,000 feet.

Despite the development and deployment of such weapons in Iraq and Afghanistan, they have not substantially reduced the dependence on conventional weapons and ground troops to defeat a determined enemy, as was seen in the First and Second Gulf Wars.

Question practice

You have the opportunity to practice all three types of questions in Section C.

Source A: From two British journalists who were working in Beijing in 1989

As bodies crumpled to the ground, the crowd behind them scattered. The army delivered a finale of machine gun fire from armoured troop carriers. Then, for a moment, the avenue was still. A hundred yard length of corpses, abandoned bicycles and terrified survivors. That first drama would repeat itself many times during the day.

(a) What does Source A tell us about the Tiananmen Square Massacre? (3 marks)

(b) Describe the key features of the 9/11 terrorist attacks. (7 marks)

(c) In what ways warfare change in the years 1990-2003?

You may use the following information to help you with your answer.

- The First Gulf War, 1991
- Terrorism
- The Second Gulf War, 2003
- Hi-Tech warfare

(15 marks)