



ENGLISH HERITAGE
EDUCATION

KS1-2

KS3

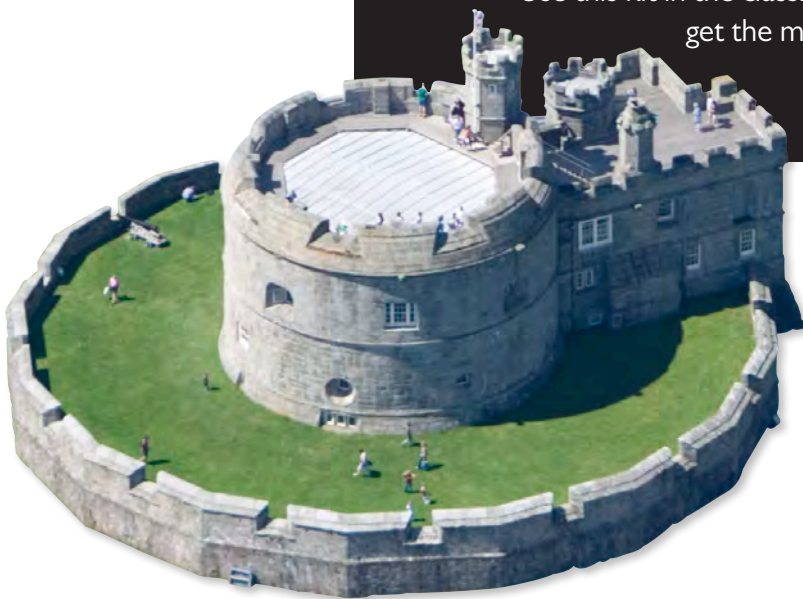
KS4+

TEACHERS' KIT

Pendennis Castle and St Mawes Castle

This kit has been designed to help teachers plan a visit to Pendennis Castle and St Mawes Castle which offer fascinating insight into the history of coastal artillery forts from the Tudor period to the Second World War.

Use this kit in the classroom to help students get the most out of their learning.



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Step into England's story

WELCOME

This Teachers' Kit for Pendennis Castle and St Mawes Castle has been designed for teachers and group leaders to support a free self-led visit to the site. It includes a variety of materials suited to teaching a wide range of subjects and key stages, with practical information, activities for use on site and ideas to support follow-up learning.

We know that each class and study group is different, so we have collated our resources into one pack allowing you to decide what materials are best suited to your needs. Please use the contents page, which has been colour coded to help you easily locate what you need and download individual sections. All of our activities have clear guidance on the intended use for study so you can adapt them for your desired learning outcomes.

To further aid your planning, we have created Hazard Information guidance, which you can download from the Pendennis Castle **Schools page**. Here you can also find information on our expert-led Discovery Visits and an overview of what your class can experience. You can find more practical information about your booked visit to Pendennis Castle and St Mawes Castle in the Education Visit Permit and the Site Information Pack which have been sent to you.

We hope you enjoy your visit and find this Teachers' Kit useful. If you have any queries please don't hesitate to get in touch with a member of our team either via bookeducation@english-heritage.org.uk or on 0370 333 0606.

English Heritage Learning Team

ICON KEY

The icons below will help you quickly identify the types of activities and information presented.



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KSI-2

KS3

KS4+

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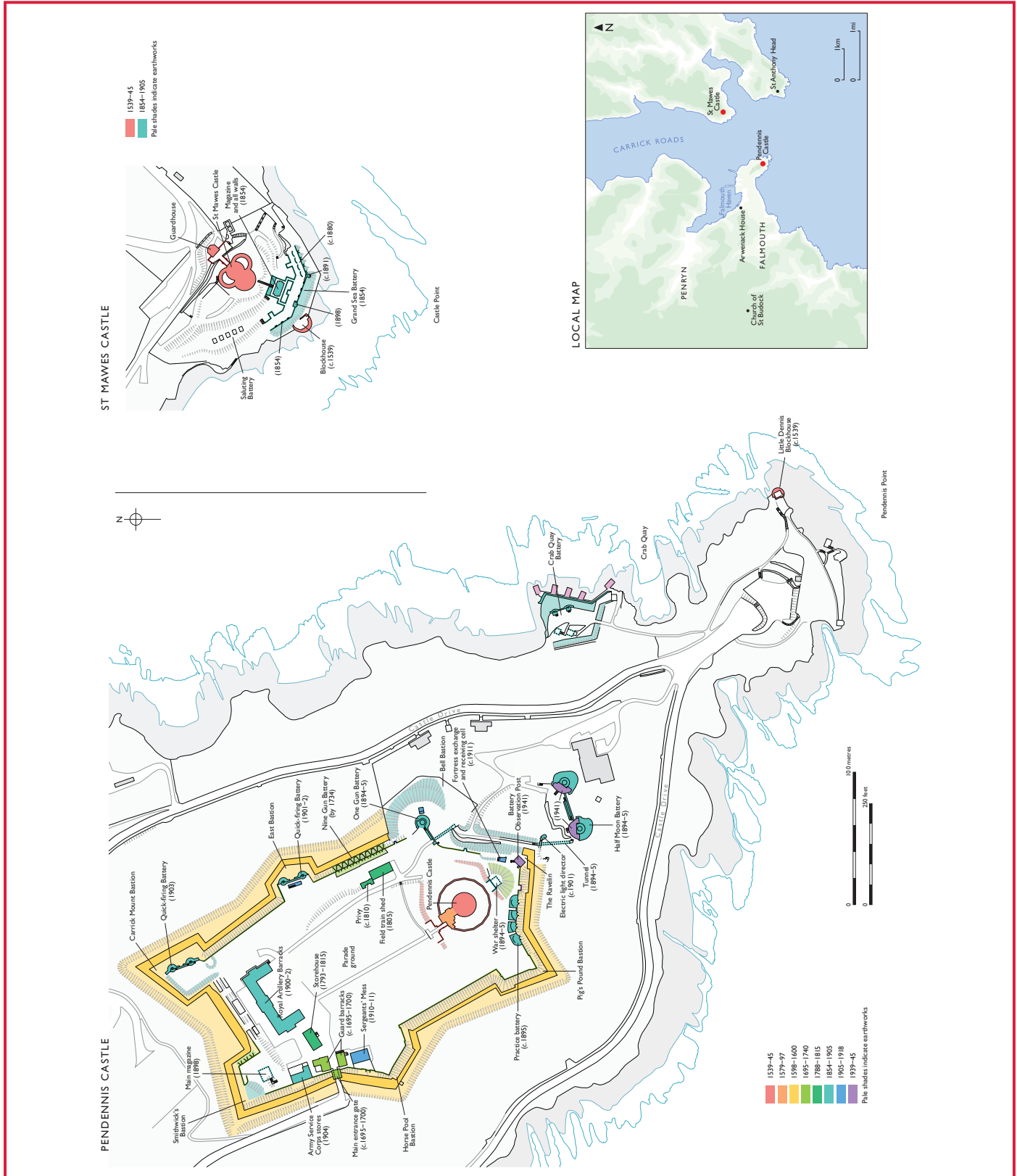


PRE-VISIT

Information and activities you can use in the classroom before your visit.

PENDENNIS CASTLE AND ST MAWES CASTLE

SITE PLAN



HISTORICAL INFORMATION

DISCOVER THE STORY OF
PENDENNIS CASTLE AND
ST MAWES CASTLE

Below is a short history of Pendennis Castle and St Mawes Castle. Use this information to learn how the sites have changed over time. You will find definitions of the key words in the Glossary.

CARRICK ROADS

The headland of Pendennis and the point of St Mawes are either side of the mouth of the River Fal, the entrance to Carrick Roads **estuary**.

The **peninsula** of Pendennis was an ideal place from which to defend the estuary. There may have been a fort built long before the Tudor period, as the Cornish name for Pendennis, 'Pen Dinas', means 'the fort on the headland'.

In the 15th and 16th centuries, traders in ships of many European nations entering and leaving the English Channel, and explorers crossing to the **New World** on long journeys across the Atlantic Ocean, used the Carrick Roads as an important, safe place for their ships to anchor on their way to, or returning from, their voyages. Pendennis and St Mawes became important strategic forts over the next 450 years. During this time, England was involved in many power struggles with other nations and was frequently at war. From the 16th century onwards, it was vital to protect the Carrick Roads from foreign invasion. If enemy forces captured the estuary, they would have a base from which they could invade the rest of England.



Carrick Roads estuary is wide and deep, ideal for large ships to enter and weigh anchor.

HENRY PROTECTS THE COAST

In 1533, **Henry VIII's** (1509–47) marriage to Catherine of Aragon was declared invalid and he was able to legally marry Anne Boleyn. A year later, the Act of Supremacy gave Henry absolute authority over the Church in England. **The Pope** was furious as this meant England rejected the authority of Rome. In response, in 1538, the Pope managed to convince France and Spain (who were often fighting each other) to form an alliance against Henry. This left England isolated, with no powerful allies, and under threat of invasion.

Beginning in 1539, Henry and his government began an extensive period of building coastal forts along the east and south coasts to protect against any attempt at invasion. In 1539, the plan was referred to as a **device by the king** – in other words, the king's plan.



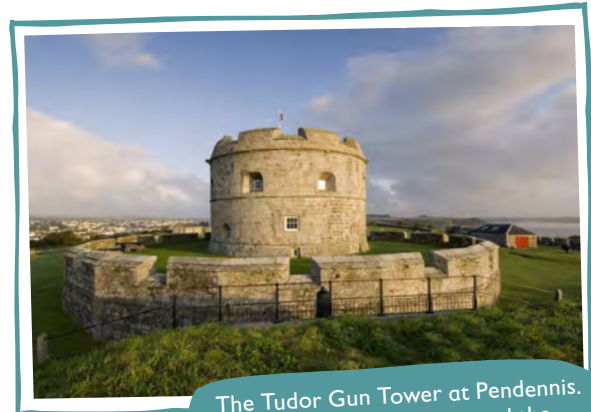
The Act of Parliament that made Henry VIII Supreme Head of the Church in England in 1534 angered much of Catholic Europe, in particular the Pope in Rome, and the important rulers of France and Spain.

DEVICE FORTS – 360° DEFENCE

By the 1540s, **gunpowder artillery** was a key weapon in warfare. Guns based on either side of the entrance to Carrick Roads could use **crossfire** to stop an enemy ship entering the estuary. Two small **blockhouses** at Pendennis and St Mawes were built close to the waterline as a low level additional line of artillery defence.

The main castles of Pendennis and St Mawes were **artillery forts** built between 1540 and 1545. They were designed to destroy enemy ships attempting to enter Carrick Roads. But they also had guns to defend themselves against a land attack. St Mawes Castle was a three-storey tower with three semi-circular **bastions**. Pendennis Castle was built as a three-storey gun tower, with guns on each level. During building, it was decided to build a **chemise** around the base of Pendennis's tower. This blocked the line of fire of the guns on the lowest level of the Castle, but guns were mounted on the chemise instead.

Once completed, the forts had small caretaker **garrisons**: they were only fully **garrisoned** and fully supplied when there was a real threat of attack.



The Tudor Gun Tower at Pendennis. Guns mounted in and around the circular perimeter could give gunfire around a full circle of 360°.

ELIZABETHAN UPGRADES

From 1569, religious and political differences between England and Spain gradually led to war. Pendennis and St Mawes were both garrisoned in preparation for an attack and earthwork defences were built on the headland of Pendennis. The **Spanish Armada** of 1588 was defeated but in 1596–7, another huge **fleet** gathered in Spain to launch an attack on Pendennis to gain access to the Carrick Roads estuary. It made two attempts to get to England but was also turned away by bad weather, but the threat was still real enough for Elizabeth I (r.1558–1603)'s government to plan for newer, better defences.



War with Spain under Elizabeth I led to improvements in the defences along the coast.

The circular plan of many **device forts** had a flaw – it left some blind spots of ground where an attacking enemy could not be fired on. Within five years of their building, the design was out of date and new low-lying forts with angular defences of Italian design were adopted.

The new defences at Pendennis were on a grander scale. A new fortress was built around the circular gun tower, in the Italian **angle bastion system**. It was built between 1597 and 1600 and used 400 local men in construction. There is written evidence that suggests St Mawes may also have had two angled bastions added.



The design of the fortress was shaped as an irregular pentagon, with one large triangular end and bastions on each angle and in its longest sides.

A few years after the costly Elizabethan fortress was finished, England made peace with France and Spain following the union of English and Scottish Crowns under King James I (r.1603–25). Garrisons all over the country were reduced. The garrison at St Mawes was just 14 men and those at Pendennis became impoverished through lack of pay, reportedly eating limpets and selling their bedding to buy food.

CIVIL WAR SIEGE AND ROYALS ON THE RUN

During the **English Civil Wars** (1642–51) between the king (**Charles I** until 1649 (r.1625–49)) and **Parliament**, Falmouth became an important supply point for the king's army. Military equipment came into the port from elsewhere in England and abroad, paid for in part by the sale of Cornish tin exports. Fifteen Royalist warships used the Carrick Roads as a base to attack Parliament's ships in the English Channel, guarded by the guns of Pendennis and St Mawes.

Pendennis was one of the last **Royalist** garrisons as the **Parliamentarians** forced the king's army further into the south-west of England. The king's wife, Queen Henrietta Maria, stayed at Pendennis Castle before leaving for France in July 1644. Her son, Prince Charles (the future King Charles II) spent several weeks at the castle early in 1646, before he sailed to the Isles of Scilly.

On 15 March 1646, the Royalist army in the south-west of England surrendered to the Parliamentary commander **Lord Fairfax** at Truro. With some support from abroad, a Royalist force quickly prepared for a defence of Pendennis; 800 troops gathered within the earth **ramparts**, ready to face a **siege** by Fairfax's army. The tiny garrison at St Mawes, with no hope against Fairfax's large army, surrendered.

At Pendennis, Fairfax's troops dug earthworks inland of the peninsula and began bombardment. The garrison at Pendennis responded with the fortress's guns, helped by 40 guns on a warship beached north of the fortress. After three months of fighting, the Royalist garrison (800 men and 200 women and children) began to run out of supplies. The commander, **John Arundell** was forced to negotiate with Fairfax. On 15 August, the Royalist army gave up their guns and, two days later, marched out to an honourable surrender.



Charles I fought against Parliament during the English Civil Wars. Both his wife and his son took refuge at Pendennis before leaving England.

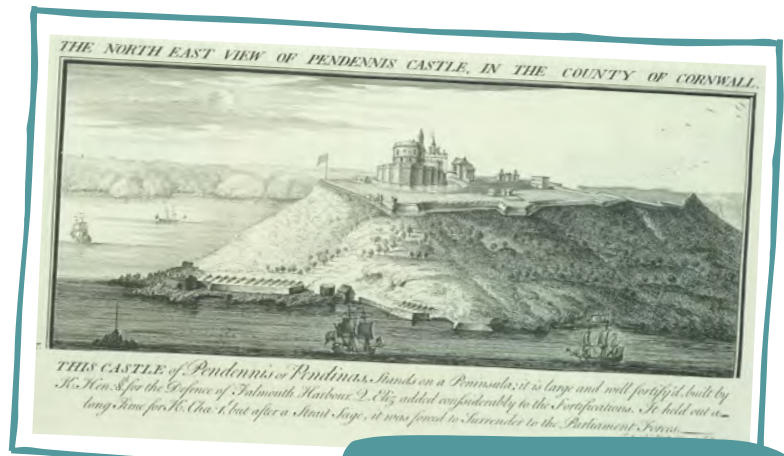


A reconstruction of the surrender of the Royalist garrison at Pendennis in August 1646.

18TH CENTURY MODERNISATION AND NEW THREATS

In 1714, after 12 years at war with France, another review of England's coastal defences concluded that, though St Mawes was in good repair, Pendennis was 'in very ruinous condition'. Action was taken in 1732–39, when the parapet of the Elizabethan ramparts was reformed and the Tudor guns replaced. The heaviest new guns were mounted on the shoreline beneath the fortress and on the **sea battery** beneath St Mawes. These guns could sink warships trying to enter the estuary.

By the 1770s, Britain was the dominant world power and other nations were siding with America in its war with Britain over independence. In 1775, the part-time **militia** at Pendennis and St Mawes was called up, occupying the forts in stand-by against the threat of invasion. In 1779, the risk increased as a French invasion fleet was sighted off Land's End and 2,000 Cornish tin miners were brought to reinforce the militia at Pendennis Castle. The attack never came, but to face the ongoing threat new **barracks** were built at Pendennis and the **gun batteries** were kept in working order to protect Carrick Roads. There were now 30 heavy guns at St Mawes Castle.



North-east view of Pendennis Castle by Samuel and Nathaniel Buck in 1734.



The nine-gun battery was built on the Elizabethan ramparts in the 1730s. The original nine muzzle-loading guns overlooked Carrick Roads. (The ones on display today are from the late 18th and early 19th century.)

THE NAPOLEONIC WARS

The French Revolution (1789) and the rise of **Napoleon Bonaparte** (Emperor of the French 1804–14) led to war across Europe. Britain declared war on France in 1793 and another review of the coastal defences was needed. More gun batteries were built at Pendennis along with new barracks and storehouses for **ammunition** and supplies. At the height of the war, Pendennis Castle was a formidable artillery fortress with 22 x 24-**pounder cannons**, 14 x 18-pounders and 12 **carronades**. Pendennis became one of the main **supply depots** for the British Army in Spain and Portugal and the **mail packet** ships going in and out of port needed to be armed with cannons. They unloaded their gunpowder at Crab Quay on the Pendennis peninsula, to avoid accident or sabotage while they were moored in harbour.



The war against the French under Napoleon Bonaparte required more new defences at Pendennis and St Mawes. © Creative Commons.

19TH CENTURY: DEVELOPMENTS IN WARFARE

Following the **Duke of Wellington's** victory over Napoleon in 1815, Britain reduced its army and the coastal forts were run down. But by the 1850s, France was re-building its armed forces and was once again a threat, competing with England on the latest technological advances in naval warfare. Warships were now steam-powered and iron-clad which made them faster and resistant to traditional cannon. These ships now carried **rifled guns** that were more accurate and much more powerful. In response, from 1854 more powerful guns were mounted at Pendennis. At St Mawes, the Grand Sea Battery on the shore below the castle was re-built to hold 10-inch and 8-inch **shell guns**. The **Henrician** fort (used as barracks) was given a bomb-proof cover made of concrete.



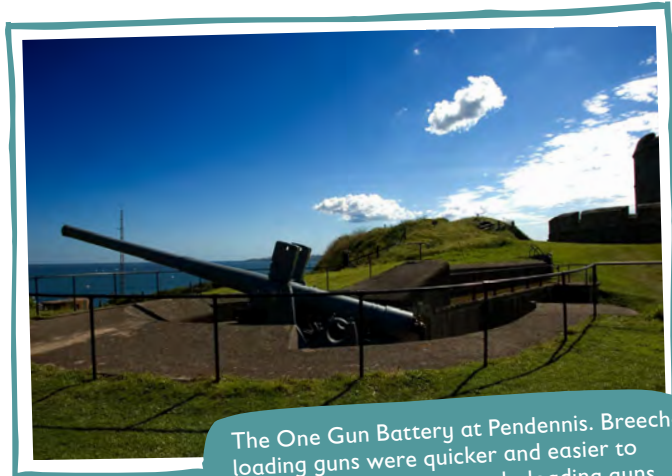
The Grand Sea Battery at St Mawes Castle today.

VICTORIAN ADVANCES: MODERN WARFARE

The changes in the technology of warfare between 1880 and 1900 had a huge impact on Falmouth's coastal defences. The invention of steel made it possible to make lighter, stronger guns. Smokeless and more powerful explosives were developed and new weapons such as **submarine mines**, machine guns and **torpedos** came into use. **Optical** methods of range-firing, telephones and electricity improved communications (including information on targets out at sea) and powerful searchlights helped to fire at enemies at night.

An electrically operated submarine **minefield** was laid in 1885 across the entrance to the Carrick Roads estuary. These mines could be detonated remotely by soldiers on the shore. By the late 1880s, Falmouth was an important port for trade as well as the first and last stopping point for ships in the English Channel. Over the next 20 years, Falmouth's defences were organised from a command centre at Pendennis. In 1888, quick-firing **breech-loading** guns were mounted at One Gun Battery and at Half Moon Battery to fire at large warships. Guns mounted on the Elizabethan bastions at Pendennis, Crab Quay and at St Mawes were intended to combat torpedo boats and machine guns were installed for defence close at hand.

A permanent garrison was needed to control the new artillery at Pendennis. Between 1900 and 1902, new barracks were built to house the soldiers of the 105th Company Royal Garrison Artillery. The War Signal station was built on the roof of the Henrician gun tower at Pendennis to control shipping entering and leaving Falmouth port.



The One Gun Battery at Pendennis. Breech-loading guns were quicker and easier to load than the earlier muzzle-loading guns.



The Royal Garrison Artillery barracks has a clock – very important to military routine – facing the parade ground.

FIRST AND SECOND WORLD WARS: 1914-18 AND 1939-45

At the outbreak of the First World War, Falmouth became the command centre for the coastal defences of West Cornwall. Thousands of troops came to Falmouth and Pendennis for training before going to war. Royal Naval **minesweepers** used the harbour as a base for clearing shipping routes, and supply ships for the British army in Europe left from the port. An enemy submarine was sunk off Falmouth in September 1915.

When the Second World War broke out in 1939, Pendennis again became the headquarters for the defence of Falmouth. Pendennis and St Mawes were re-armed and manned by the Royal Artillery and the **Home Guard**. After 1940, **booms** were laid across the entrance to the Carrick Roads estuary to stop enemy submarines and **anti-aircraft guns** were installed.

To counter the threat of torpedo boats, twin 6-pounder guns were mounted at Pendennis and St Mawes. These guns could fire 18 shells a minute. The Half Moon Battery provided longer range defence against ships out at sea. It was reinforced to protect it from the new threat of aircraft fire. In 1943, 6-inch mark 24 guns were installed, firing under **radar** control.

The Battery Observation Post was built to control the 6-inch guns in the Half Moon Battery. It is sunk into the earth rampart for protection and its windows allow a wide view of the sea. From here, positions of enemy ships were plotted and the information sent to the guns via **Magslip transmission**.

After the war, Pendennis and St Mawes were used for training gunners until 1956. By then, new guided weapons technology had developed to make guns on the coast no longer necessary and the Coast Artillery branch of the army was disbanded. Since then, Pendennis and St Mawes have been cared for as important sites which explain the history of coastal artillery.



Reconstruction illustration showing a submarine seen through the telescope of a depression position finder on the Half Moon Battery observation point at Pendennis Castle in 1918.



The guns on display at the Half Moon Battery are similar to those which were mounted in 1943. They had a range of 12 miles.

GLOSSARY

TRICKY TERMS AND
WHAT THEY MEAN

Below is a list of words you might come across while exploring Pendennis Castle and St Mawes Castle. Use this Glossary to find out what they mean.

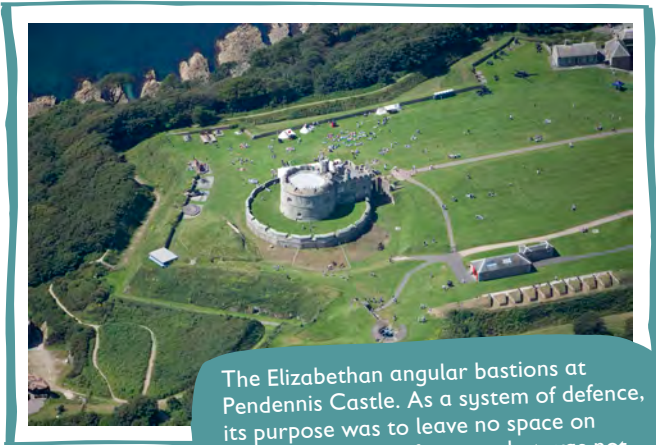
ammunition – the bullets and shells fired from guns

angle bastion – a low-level platform for guns usually built as part of the perimeter defences of a fortress. They were built with angular faces so that guns positioned on them could fire at more distant targets, protect the lengths of wall between bastions, and provide crossfire from two or more bastions.

anti-aircraft guns – guns which target aircraft in the air

artillery forts – forts with big, heavy guns firing powerful cannonballs or shells

barracks – a building or group of buildings used to house soldiers



The Elizabethan angular bastions at Pendennis Castle. As a system of defence, its purpose was to leave no space on the approach to a fortress that was not covered by the fire of defending guns.

bastion – a part of a fort that sticks out from the main outer wall, to allow guns to fire along the wall at approaching enemies

blockhouse – a small tower or strongpoint containing guns for defence, often of a river, harbour or port

boom – a floating barrier across the mouth of a harbour to prevent enemy ships and submarines from entering

breech-loading – loading a shell into the breech, or back end of the barrel of a gun. It made loading much quicker than with earlier, muzzle-loading guns.



'Little Dennis' blockhouse at Pendennis Castle.

carronade – a short cannon developed for close-range defence

Charles I – king of England, Scotland and Ireland from 1625. From 1642, Charles fought against Parliament in the English Civil War. After his defeat in 1645, he refused to accept a constitutional monarchy and was executed for high treason in 1649.

chemise – a platform built to support guns



The circular chemise around the base of the Tudor Gun Tower at Pendennis.

crossfire – gunfire from two or more directions passing through the same area

device by the king – the building programme initiated in 1539 by Henry VIII and his government to build artillery forts along the south coast of England to defend against invasion from France or Spain. It continued, on and off, until 1547.

device forts – also known as Henrician castles; artillery fortifications built during the 'device by the king' to defend the coast of England and Wales

Duke of Wellington – one of the leading military and political figures of the 19th century. His defeat of Napoleon at the Battle of Waterloo in 1815 gave him the status of a military hero both at the time and in military history.

English Civil Wars – the wars from 1642 to 51 between people who supported Parliament (Parliamentarians) and people who supported the king (Royalists) over how England should be governed

estuary – the mouth of a large river, where the fresh water of the river meets the salt water of the sea, and the water level is affected by the tide

fleet – a large group of ships sailing together

The French Revolution – the revolution in France from 1789 to 99 that led to the end of the monarchy. The French king Louis XVI was executed in 1793. The revolution ended when Napoleon Bonaparte (r.1804–14) took power in November 1799.

garrison – a group of troops living in a fortress or town to defend it

garrisoned – provide (a place) with troops for defence

gun battery – a strong shelter or supporting structure built to protect or hold artillery



The Half Moon battery, camouflaged to disguise it from enemy aircraft.

gunpowder artillery – weapons that used the explosive force of gunpowder to fire solid stone, iron or lead balls, or hollow explosive shells over long distances. The introduction of gunpowder artillery changed the nature of fortified defences as the high stone walls of traditional medieval castles could easily be destroyed by artillery.

Henrician – relating to the reign and policies of Henry VIII of England (r.1509–47)

Henry VIII – King of England from 1509 until his death in 1547. He was the second Tudor monarch.

Home Guard – a volunteer part-time military force recruited for the defence of Great Britain during the Second World War

John Arundell (1576–1654) – of Trerice, Cornwall. A supporter of the king during the English Civil War and commander of the garrison at Pendennis during the siege of 1646.

Lord Fairfax (Sir Thomas

Fairfax) – an English nobleman and army general, he became Parliamentary commander-in-chief during the English Civil War. Fairfax led Parliament to many victories against the Royalists loyal to Charles I.

Magslip transmission – an electrical system of motors and cables used for communicating information

mail packet – a ship travelling regularly between two ports, transporting mail (post)

militia – a part-time military force, whose members were civilians who served as the result of a ballot (i.e. they were not volunteers)

minefield – an area on land or at sea planted with explosive mines

minesweepers – a ship or aircraft equipped for detecting and removing or destroying explosive mines

Napoleon Bonaparte – a French military leader who led several successful campaigns during the French Revolutionary Wars. As Emperor of the French from 1804 until 1814, he led France in the Napoleonic Wars against coalitions of other nations, building a large empire that ruled over much of Europe before its collapse in 1815.

New World – a name for North, Central, and South America especially during the time of first exploration and colonisation by Europeans

optical – relating to sight

Parliament – the highest law-making authority, consisting of the Sovereign, the House of Lords and the House of Commons

Parliamentarian – a supporter of Parliament in the English Civil Wars

peninsula – a piece of land almost surrounded by water or projecting out into a body of water



The peninsula of Pendennis.



The massive Elizabethan ramparts at Pendennis Castle. The earth could absorb the force of cannon balls fired by the enemy.

perimeter – the outer edge

the Pope – the Bishop of Rome as head of the Roman Catholic Church

pounder – in a gun, the weight of shot fired, in pounds

radar – the use of radio waves to detect distant ships and aircraft; towers were built to send out radio waves into the sky which would bounce back from a solid moving object, revealing its position

rampart – a defensive earthwork forming a steep-sided and high bank, often with a walkway and parapet for defence by foot soldiers or artillery

rifled guns – guns with helical grooves on the inside of the barrels to make shot or shell spin so that they fly straighter and further

Royalist – a supporter of the king against Parliament in the English Civil War

sea battery – gun batteries on the coast

shell guns – guns which shoot shells (hollow projectiles filled with explosive that explode on their target, scattering jagged metal fragments)

siege – a military operation in which enemy forces surround a town, fort or building, cutting off essential supplies, with the aim of forcing those inside to surrender

Spanish Armada – a huge fleet of Spanish warships that sailed up the English Channel in 1588 as part of an attempt to invade England

submarine mines – a type of bomb secured by a cable to the sea bed, and suspended by it on or close to the water's surface, which explodes on contact with a ship

supply depots – a place for storing large amounts of supplies e.g. food and equipment

torpedo – a self-propelled underwater missile fired from a ship or submarine or dropped into the water from an aircraft, which exploded on reaching a target



A 16th century Spanish galleon (warship).

TUDORS
1485–1603

1533

The Archbishop of Canterbury declares the marriage of Henry VIII (1509–1547) and Catherine of Aragon null and void.

1539–47

Henry's government carries out a programme of building coastal defences called 'the Device by the King'.

1585

England, ruled by Elizabeth I (1558–1603), declares war on Spain.

1534

The Act of Supremacy recognises Henry as head of the church in England. Pope Clement excommunicates Henry.

1588

English ships defeat the Spanish Armada in its attempt to invade England.

1538

France and Spain form an alliance against England.



1500

1540–45

Pendennis and St Mawes artillery forts are built as part of Henry VIII's government's 'Device by the King' building programme.

1578

Pendennis Castle and St Mawes Castle are both garrisoned with 100 men.

1596-97

A huge fleet of Spanish ships gathers in Spain to launch an attack on Pendennis but are twice turned back by bad weather.

1597–1600

A new fortress is built at Pendennis in the Italian angle bastion system.



16TH
CENTURY



STUARTS

1603–1714

GEORGIANS

1714–1830

1603

England makes peace with France and Spain following the union of English and Scottish Crowns under King James I (r.1603–25).

1642–51

The English Civil Wars between the King (Charles I (r.1625–51)) and Parliament.

1646

15 March: the Royalist army surrenders to the Parliamentary commander Lord Fairfax at Truro.

1649

Charles is tried, convicted and executed for high treason. The monarchy is abolished and the Commonwealth of England is declared.



1600

1775–83

The American War of Independence between Britain and its American colonies.

1789–99

The French Revolution leads to the end of the French monarchy. Napoleon Bonaparte (r.1804–14) takes power and begins France's aggressive campaign to become the world's dominant power.

1793

Britain declares war on France.

1815

The Duke of Wellington defeats Napoleon at the Battle of Waterloo.

1700

1642–49

Royalist warships use the Carrick Roads estuary as a base guarded by the guns of Pendennis and St Mawes.

1644

Charles I's wife, Queen Henrietta Maria stays at Pendennis Castle before sailing to France.

1646

Charles's son, Prince Charles stays at Pendennis before sailing to the Isles of Scilly.

The tiny garrison at St Mawes surrenders to Fairfax's army. The Royalist garrison at Pendennis is under siege by Fairfax's troops. After three months of fighting, Sir John Arundell negotiates surrender.

17TH
CENTURY

1732–39

The parapet of the Elizabethan ramparts at Pendennis is reformed and the Tudor guns replaced. New guns are mounted on batteries on the shoreline at Pendennis and St Mawes.

1775–80

The part-time militia at Pendennis and St Mawes garrison the forts. In 1779, 2,000 Cornish tin miners reinforce Pendennis Castle.

1793

More gun batteries are built at Pendennis along with new barracks and storehouses for ammunition and supplies.

18TH
CENTURY

VICTORIANS
1837-1901

WW1
1914-18

WW2
1939-45

1837-1901

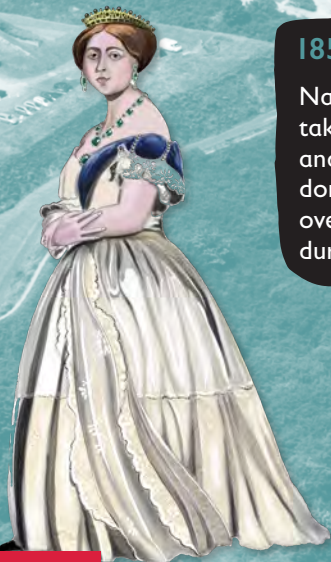
Reign of Queen Victoria.

1852

Napoleon III (r.1852-70) takes the throne of France and tries to regain French dominance. The French overseas empire doubles during his reign.

1853-56

France and Britain defeat Russia in the Crimean War.



1914-18

The First World War. Falmouth becomes the command centre for the coastal defences of West Cornwall and a base for naval operations against German submarines.



1939-45

Second World War.

1800

1900

2000

1854

New shell guns are mounted at Pendennis and St Mawes. The Henrician fort at St Mawes is given a bomb-proof cover made of concrete.

1885

An electrically operated submarine minefield is laid across the entrance to the Carrick Roads estuary.

1888

Quick-firing breech-loading guns are mounted at One Gun Battery and at Half Moon Battery.

19TH
CENTURY

1902

New barracks are built for the 105th Company Royal Garrison Artillery.

1914

Thousands of troops come to Falmouth for training before going to war.

1939

Pendennis and St Mawes are re-armed and manned by the Royal Artillery and the Home Guard.

1956

The Coast Artillery branch of the army is disbanded. From then on, Pendennis and St Mawes are looked after as important historical sites.

20TH
CENTURY

SELF-LED ACTIVITY

FALMOUTH'S GREAT FORTRESS



KSI-2

Recommended for

KSI-2 (History, Geography)

Learning objectives

- Investigate the geographical position of Pendennis Castle and St Mawes Castle.
- Understand the strategic significance of the position of both castles.
- Understand the significance of both castles in the history of the local area.

Time to complete

20–30 minutes



The Pendennis peninsula.

SUMMARY

This activity will help students understand the geographical and strategic location of Pendennis Castle and St Mawes Castle. Use the activity sheets on the next pages with your students to help them investigate:

- the location of the forts in the Falmouth area
- the shape of the coastline where the forts were built
- the key topographical features surrounding Pendennis Castle

Students can answer the questions about the Ordnance Survey map to explore the shape of the coastline around the Carrick Roads estuary and decide why this was an important place to protect. The estuary was wide and deep and sheltered from the wild weather of the Channel – a good place for enemies to anchor their ships. The estuary reaches far north into Cornwall, helping the enemy mount an invasion on land.

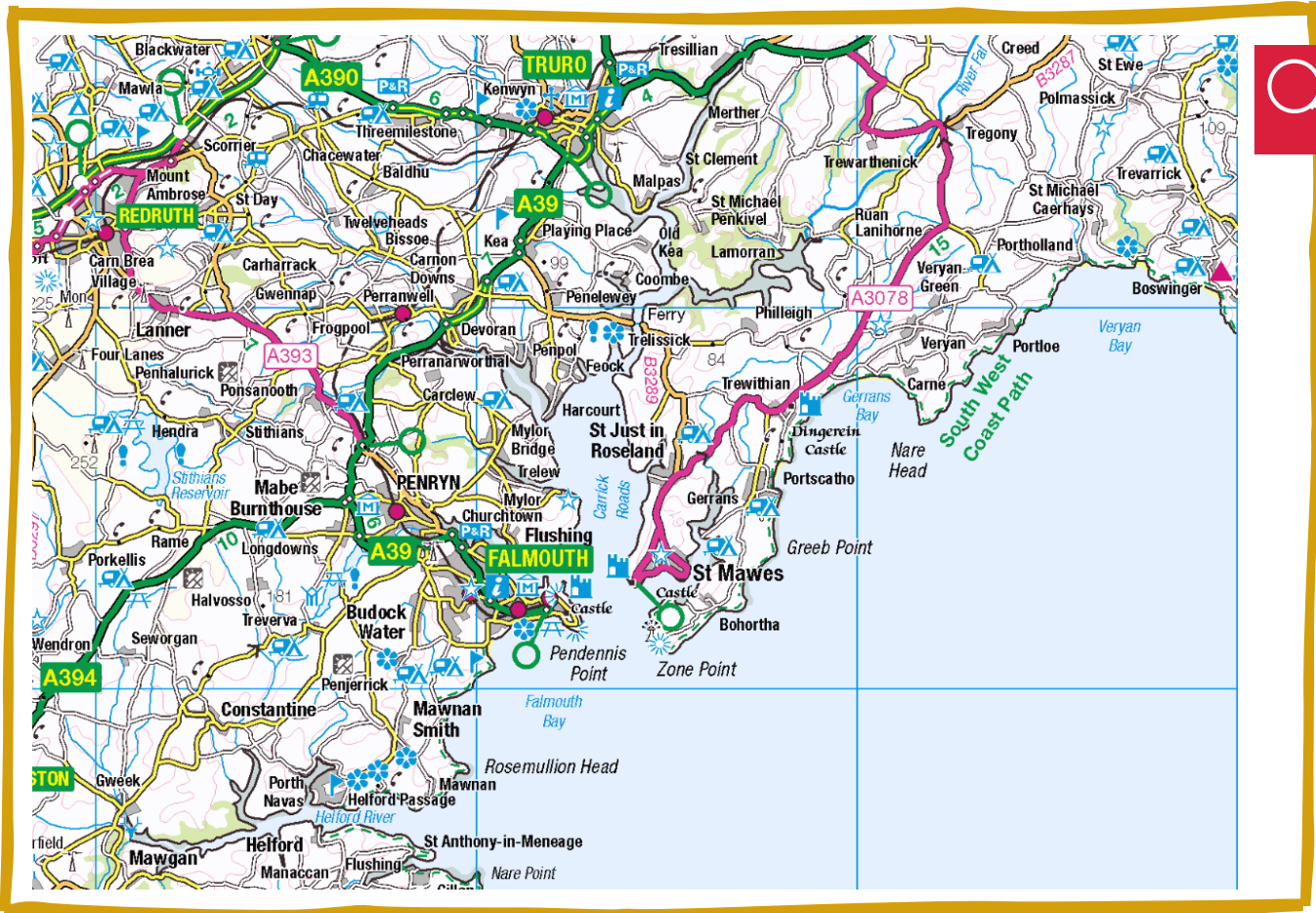
Students can find the position of Pendennis Castle and St Mawes Castle and identify their position in relation to each other. Both castles worked together using crossfire to stop an enemy sailing into the mouth of the Carrick Roads estuary.

The second worksheet explores the topography of the Pendennis peninsula. The rocky shoreline was not a safe place for ships to dock, so the castle guns could aim fire at enemy ships trying to sail past into the safe harbour. The peninsula is long and thin, reaching out from the mainland so the castle could attack ships on their way into the estuary. The ground on the peninsula is high up so the castle has a good view of enemies approaching on the horizon.

MORE LEARNING IDEAS

Ask students to find the name of a river on the map that feeds the Carrick Roads estuary. Explore the etymology of the word 'Falmouth' meaning the 'mouth' of the River Fal. They could use a map of the coastline to investigate other coastal towns that have similar combinations of words e.g. Portsmouth, Bournemouth and Plymouth. 'Aber' is a very ancient word for 'river mouth' in Cornish and Welsh and the Cornish name for Falmouth is 'Aberfala'.

WHERE ARE PENDENNIS CASTLE AND ST MAWES CASTLE?



- 1** Find and circle Pendennis Castle and St Mawes Castle on the map.
- 2** Find and circle the Carrick Roads estuary on the map.
- 3** Why were two castles built at the entrance to the Carrick Roads estuary?
.....
- 4** Follow the line of the Carrick Roads estuary with the end of your pencil until you reach the end.
- 5** Why was protecting the entrance to the Carrick Roads estuary important?
.....
.....

AERIAL PHOTOGRAPH



Pendennis Castle on the peninsula.

- 1** Label the landscape features on the image above.
- 2** Why is the peninsula a good place to build a castle?



AT PENDENNIS CASTLE

Activities for students to do at Pendennis Castle to help them get the most out of their learning.

SELF-LED ACTIVITY

BUILD ME A FORTRESS!



KSI-2

Recommended for

KSI-2 (History, Design and Technology)

Learning objectives

- Investigate the circular design of the Tudor Gun Towers at Pendennis and St Mawes.
- Collect evidence about how defensive features work.
- Apply learning in designing a representative model.

Time to complete

30 minutes



The Henrician gun tower at Pendennis Castle.

SUMMARY

This activity helps students to understand the design of the original Tudor fortresses. It will be helpful before you visit to explore the concept of Device Forts with your class. Use the Historical Information and Sources to help you.

During your visit, students should investigate the Tudor Gun Towers at Pendennis and St Mawes. We have suggested some questions below to help students collect evidence about how the Tudor Device Forts were designed.

Henry VIII has commanded that you design him a state-of-the-art fortress, to protect England's coastline, based on Pendennis Castle or St Mawes Castle. You need to do some research to plan your design:

- 1: What shape is the Tudor castle?
- 2: What material is the castle made from?
3. How many gaps in the walls (embrasures) for guns can you see?
4. Which direction are the guns pointing to?
- 5: Is there a moat? Do you think it had water in it?
6. How did guards keep a look-out for enemies?
7. How many floors does the main gun tower have?
8. Can guns shoot from the bottom level of the gun tower?

MORE LEARNING IDEAS

Back in the classroom, students can use the information they have collected to design their own Tudor Device Fort for Henry VIII. They should demonstrate understanding of key defensive features both to defend the coast e.g. 360 design, and key castle defensive features e.g. moats or ditches, portcullis and crenelated battlements. Don't forget to send your class's designs to us on Twitter @EHEducation.

BUILD ME A FORTRESS!

Henry VIII has commanded that you design him a state-of-the-art fortress, to protect England's coastline, based on Pendennis Castle or St Mawes Castle. You need to do some research to plan your design:

1 **What** shape is the Tudor castle?

.....

2 **What** material is the castle made from?

.....

3 **How** many gaps in the walls (embrasures) for guns can you see?

.....

4 **Which** direction are the guns pointing to?

.....

5 **Is** there a moat? Do you think it had water in it?

.....

6 **How** did guards keep a look out for enemies?

.....

7 **How** many floors does the main gun tower have?

.....

8 **Can** guns shoot from the bottom level of the gun tower?

.....

SELF-LED ACTIVITY

STAND-TO, GUNNER!



KS1-2

KS3

Recommended for

KS1-2 and KS3 (History, English, Drama)

Learning objectives

- Understand what life was like for Tudor gunners living at Pendennis and St Mawes.
- Use role-play to explore emotions associated with living under constant alert.

Time to complete

15-20 minutes



Tudor gunners lived in the gun towers at St Mawes (pictured here) and Pendennis.



The Alberghetti gun at St Mawes.

SUMMARY

This activity helps students to understand the highly skilled role of a Tudor Gunner in the 16th century.

During your visit, use the commands to coach your students through a role-play of loading a Tudor gun. Use the hot-seating question prompts on the next page to explore the emotions of a gunner living in the Tudor Gun Tower.

Tudor gunner role-play:

- *Order your piece to load!* Raise the muzzle of the gun.
- *Search your piece!* Clear the barrel of debris, using a long rod with a spiral metal end.
- *Put in your powder!* Place the paper cartridge of gunpowder in the barrel.
- *Put home your powder!* Press the powder down in the barrel using a rammer.
- *Thrust home your wad!* Put wadding (straw or rags) into the gun and use the rammer to push it down against the powder.
- *Put home your shot gently!* Push the shot (cannon ball) gently into the gun.
- *Put back your piece!* Return the gun to position.
- *Gauge your piece!* Look down the gun barrel and take aim. This might involve moving the gun sideways and lowering or raising the barrel.
- *Prime your piece.* Put some fine gunpowder into the touch hole.
- *Apply your linstock!* Put a smouldering piece of cord (called match) onto the gun's touch-hole to ignite the gunpowder...
- *Fire!*



A re-enactor playing the part of a Tudor gunner at Pendennis.

1. What is it like to live in the gun tower with other soldiers?
2. How do you feel when you're waiting for the enemy to attack?
3. How do you feel when your commander orders you to get the gun ready to fire?

MORE LEARNING IDEAS

Back in the classroom, students can use the experiences to write a creative writing piece e.g. a diary entry of a Tudor gunner or a job description for the role at Pendennis Castle and St Mawes Castle.

SELF-LED ACTIVITY

DISCOVERY CHESTS



KSI–2

KS3

Recommended for

KSI, KS2 and KS3 (History)

Learning objectives

- Discover through investigating objects what life was like at Pendennis Castle during the Tudor period and the Civil War, and what life was like in Falmouth during World War Two.
- Use object-handling and costumes as stimuli for historical enquiry. Apply skills of empathy, deduction and imagination through role-play and 'hot-seating'.
- Understand differences between life in the past and life today and draw conclusions about what life was like for different people associated with Pendennis Castle and the local area.

PRIOR LEARNING

Use the Historical Information, Glossary and Sources in this Teachers' Kit to give your students an overview of the history of Pendennis Castle during your chosen period of study.

SUMMARY

This handling collection has been categorised into three separate topics:

- Tudor Life at Pendennis Castle
- The Civil War at Pendennis Castle
- The Home Front in Falmouth

Each box has information cards about key objects and some suggested activities. We suggest an adult helper uses the information cards to help KSI–2 students explore the objects. KS3 students may like to work independently.

The handling objects and costume items are replicas. However, please advise your students to handle each object and try on the clothes carefully to preserve this collection for future education groups.

The Discovery Chests are free for school groups to use at Pendennis Castle but must be booked in advance. Please contact our education bookings team on 0370 33 0606 or email: bookeducation@english-heritage.org.uk

SELF-LED ACTIVITY

CHANGING WARFARE AT PENDENNIS



Recommended for

KS3 (History)

Learning objectives

- Explore the different types of artillery and defences at Pendennis Castle and St Mawes Castle.
- Understand how changes in technology impacted the development of warfare.

Time to complete

1 hour



The Nine Gun Battery.

SUMMARY

Before your visit, students can use the map on the next page to investigate how the guns and defences of Pendennis Castle and St Mawes Castle evolved over time.

Pendennis Castle and St Mawes Castle were built on each side of the entrance to the Carrick Roads estuary to cover the mile (1.6km) of water between them. No guns in the Tudor period had a long enough range to cover the estuary from one side only.

The later Elizabethan angled bastions allowed a greater range of fire around a larger area of the fort's perimeter. This solved the problem of the circular Henrician forts which had vulnerable areas of 'dead ground' which they could not defend.

In 1627, in response to the threat from Spain during the Thirty Years War, additional ramparts, bastions and mounted guns were added to the neck of the peninsula.

In the late Victorian/Edwardian era breech-loading guns replaced muzzle-loaders (see the gun displays in the Field Train Shed and the 12-pounder QF we have returned to firing condition) and accurate range-finding instruments were developed. A submarine minefield was laid across the Fal estuary in 1885.

By the Second World War, Pendennis and St Mawes used radar and long-range guns to defend the estuary against German submarines and torpedo boats.

During your visit, students can use the activity sheet to record the changing nature of warfare at Pendennis by exploring different types of artillery. Students can fill in the table with sketches and/or information that explains how developments in technology evolved weapons.

MORE LEARNING IDEAS

Back in the classroom, students can use the information they have collected to create a map of the changing warfare at Pendennis, labelling the types of artillery at different locations on a copy of the site map.





TUDOR FIRING RANGE



In the 1547–8 inventory, the largest gun at Pendennis Castle was a brass culverin and the largest at St Mawes Castle was a demi-culverin. Both had a range of 2,000 ft (610m). The guns at both castles worked together using crossfire to defend the entrance to Carrick Roads estuary.

On the map, **draw** an approximate circular diagram of the range of fire from the centre of both castles to show the area of crossfire between the guns.

Fill in the table with information that you discover about artillery and defences from each period below:

CHANGING WARFARE AT PENDENNIS	
<p>Tudor Gun Tower</p> 	<p>TUDOR</p> <ul style="list-style-type: none">– Cast iron guns
<p>Nine Gun Battery</p> 	<p>18TH AND EARLY 19TH CENTURY</p> <ul style="list-style-type: none">– Smooth bore muzzle-loading guns– Rifled muzzle-loading guns
<p>One Gun Battery</p> 	<p>LATE 19TH CENTURY</p> <ul style="list-style-type: none">– Breech-loading guns
<p>Half Moon Battery</p> 	<p>20TH CENTURY</p> <ul style="list-style-type: none">– Long-range firing



POST-VISIT

Activities and information to help you extend your students' learning back in the classroom.

SOURCES

PEER INTO THE PAST

An historical source is something that tells us about life in the past such as a document, a picture or an object. It may be a primary source, from the time, or a secondary source, created later. Experts at English Heritage have chosen these sources to help you learn about the history of Pendennis Castle and St Mawes Castle.

SOURCE 1

‘SEMPER HONOS HENRICE TUUS LAUDESQUE MANEBUNT’

(Henry, your honour and praises will last forever)

‘SEMPER VIVET ANIMA REGIS HENRICI OCTAVI QUI ANNO 34 SUI REGNI HOC FECIT FIERI’

(May the soul of Henry VIII, who had this made, in the 34th year of his reign, live for ever)

‘GAUDEAT EDUARDO NUNC DUCE CORNUBIA FELIX’

(Let Lucky Cornwall rejoice that Edward is now her Duke)

‘HONORA HENRICA OCTAVUM ANGLIE FRANCIE ET HIBERNIE REGNUM EXCELLENTISSIMUM’

(Honour Henry VIII most excellent king of England, France and Ireland)

‘EDWARDUS FAMA REFERAT FACTISQUE PARENTUM’

(May Edward resemble his father in fame and deeds)

This source is a translation of some of the Latin inscriptions on the outside of the Tudor Gun Tower at St Mawes Castle.



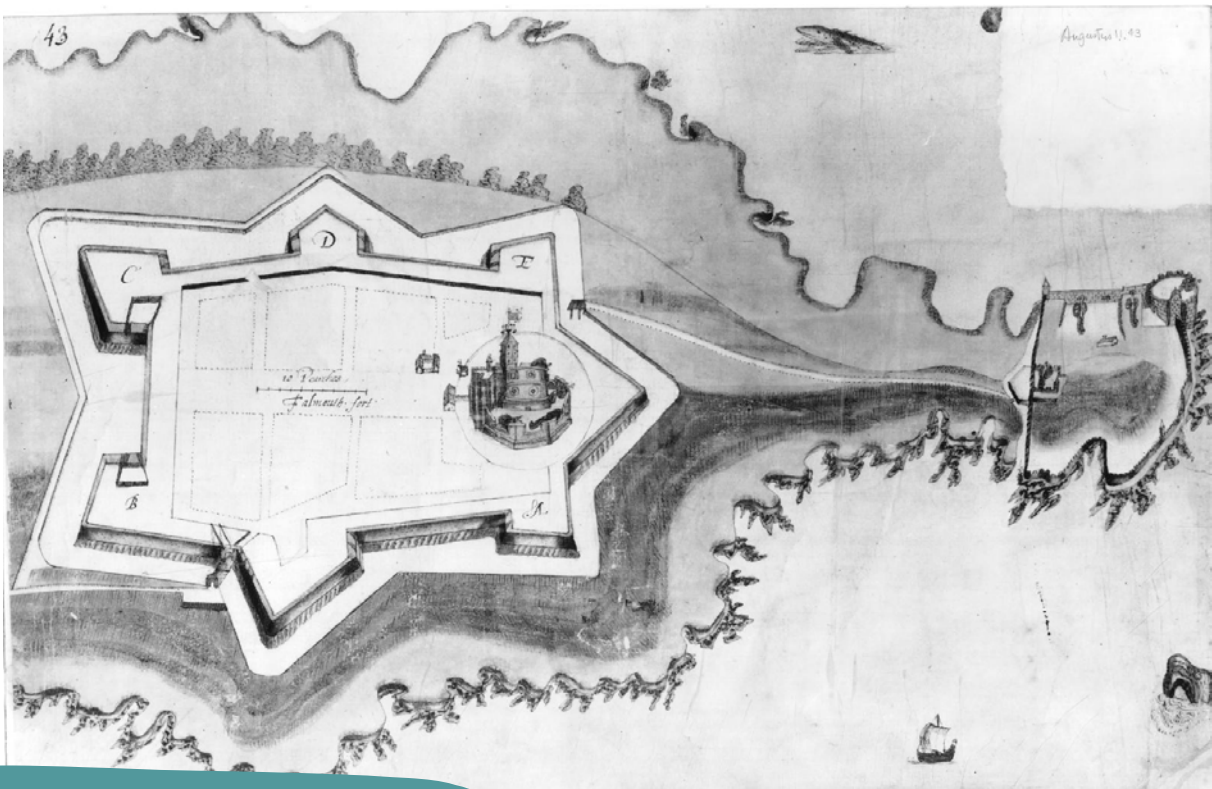
The Royal Arms of England on St Mawes Castle.

SOURCE 2

‘Since the beginnings of our works here, I have followed Paul Ivey’s directions to compass the ground to see how it will prove, and we find it somewhat rocky, which is likely to be chargeable. You will perceive by the engineer’s draft enclosed, that he has clean altered his plot, as he was mistaken in the ground, and for easing of the charge has made it less than Sir Fras Godolphin and myself thought necessary. There are 400 workmen employed here, and the weekly charge is 80L., besides emptions (purchases) so that I have very little money left, having received but 200L., to employ these... My duty binds me to acquaint you of the weaknesses and insufficiency of all things necessary for the defence of the castle.’

This source is a letter from Sir Nicholas Parker, captain of Pendennis to Lord Burghley, Elizabeth I’s chief minister, advising him that changes were being made to the plans of the new angle bastion defences at Pendennis and that money was running out. The letter is dated 27 February 1597.

SOURCE 3



A plan of the Elizabethan improvements to the defences at Pendennis Castle, c.1597–1600.

SOURCE 4



A reconstruction illustration of Pendennis Castle as it may have looked during the siege of 1646.

SOURCE 5



A map of the Carrick Roads estuary from 1725.

SOURCE 6

COASTLINE PAINTING

Detail of a painting of the coastline above the Battery Observation Post window, showing the area commanded by guns.



SOURCE 7



A reconstruction of the Half Moon Battery during the Second World War. Drawing by Peter Urmston
© Historic England, English Heritage Trust.

SELF-LED ACTIVITY

RANGE, ROUTES AND RADAR



KS3

Recommended for

KS3 (History, Science, Maths)

Learning objectives

- Understand how radar was used to discover the location of ships and how ships were targeted with guns.
- Understand the role of the Battery Observation Post and how it controlled the guns on the Half-Moon Battery during the Second World War.

Time to complete

30 minutes



One of the 6 inch guns in the Half Moon Battery.

SUMMARY

This activity helps students to understand how enemy ships were targeted from the Battery Observation Post (BOP).

Start with an explanation of how radar was used to reveal the position of enemy ships. Radio waves were sent out into the sea and bounced back when they encountered a ship. This information was then recorded on a map as coordinates.

The soldiers in the BOP sent the gunners in the Half Moon Battery two sets of coordinates for aiming their fire; one outside range and the other inside range. The guns were set to fire at the predicted position (the second set of coordinates) and were fired just as the enemy boats arrived at the outside range position.

Using the information below, students can use the equation:
distance = speed x time to answer the questions.

A German E boat is sighted travelling due south towards Pendennis at **24 metres per second**.

The soldiers in the Battery Observation Post send the gunners in the Half Moon Battery two sets of coordinates:

1. Out of range: when the boat reaches here, the guns are fired.
2. In range: the position where the shell will impact the boat.

The BOP gives the in range co-ordinates **192 metres** due south of the out of range position. When the boat passes the out of range position, the guns at Half Moon are fired and the shell impacts and sinks the boat at the in range position. How many seconds does it take for the shell to hit the boat?

The shell travelled **6,768 metres** before it impacted the E boat. How many meters per second does the shell travel?

MORE LEARNING IDEAS

Students can create their own maps of coordinates and work with a partner to play a 'Battleships'.