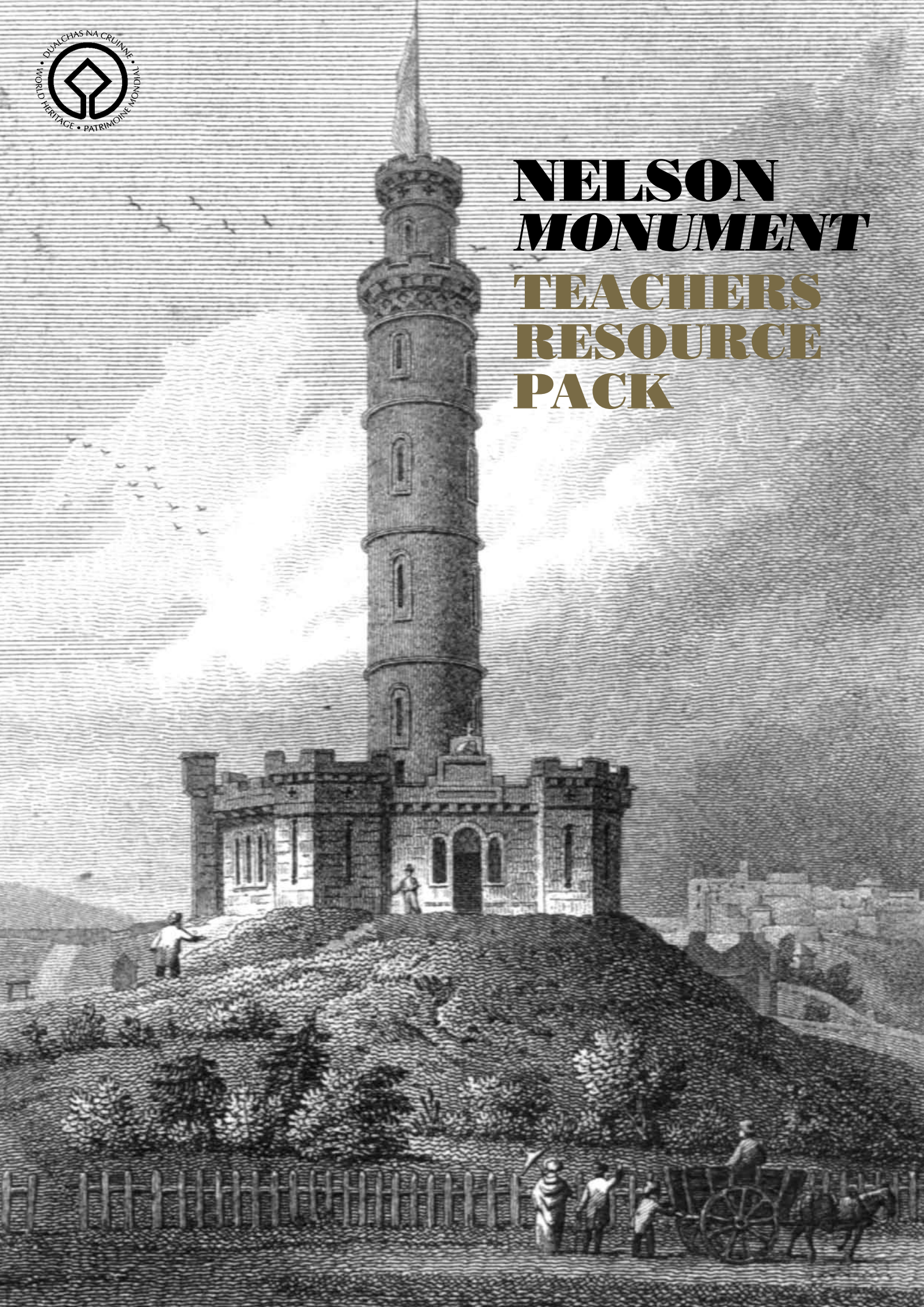
DUALCHAS NA CRUINNE • WORLD HERITAGE • PATRIMOINE MONDIAL

NELSON *MONUMENT*

TEACHERS RESOURCE PACK



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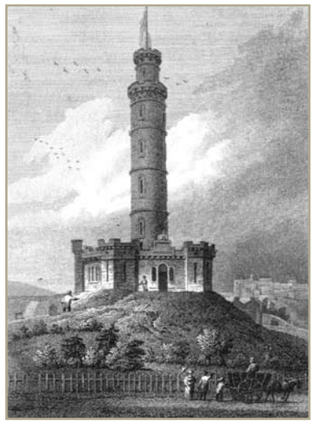
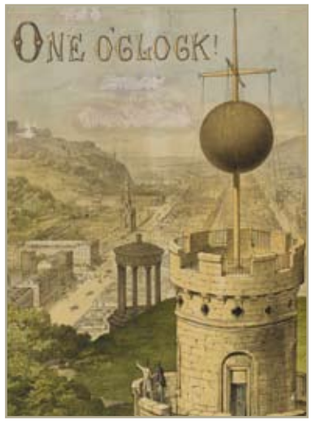
This Teachers Pack has been funded by the Ernest Cook Trust.

The Nelson Monument Project was managed by:

TIME LINE





21st Oct, 1805 – Battle of Trafalgar. This battle saw the British Royal Navy fight both the French and Spanish Navies in the seas off the coast of Spain. Admiral Lord Nelson led the British and ensured their victory. That night he died of serious injuries gained in battle.

25th November, 1805 – People in Edinburgh community met and agreed to pay for a monument to express their gratitude to Lord Nelson.

1806 – Design suggestions for the monument were submitted by artist Alexander Nasmyth and architect Robert Burn. Burn's design was successful.

1807 – Building work began on Calton Hill.

1814 – Money for the building had run out and the Lord Provost of Edinburgh appealed for donations so the project could be finished.

1815 – Robert Burn died and another architect, Thomas Bonner, took over his role.

1816 – The monument was completed.

1820's – A restaurant opened on the ground floor of the monument.

1852 – A time ball was added to the top of the Nelson monument.

1861 – The One o' clock Gun at Edinburgh Castle linked to the time ball by cable.

September 2009 – The time ball was repaired and replaced back on top of the monument.

SCOTS AND THE BATTLE OF TRAFALGAR

The Battle of Trafalgar was fought on the 21st October, 1805. The British Navy sailled to seas off the South-west coast of Spain in order to fight a combined fleet of Spanish and French ships. The battle was part of the Napoleonic Wars and its outcome would decide if Britain would face invasion by the French Emperor Napoleon Bonaparte.

Admiral Horatio Lord Nelson was in charge of the British ships, and at 6am on the day of battle he led them to war. The British Navy approached the French and Spanish ships in two straight lines. One line was headed by HMS Royal Sovereign and the other was headed by Admiral Nelson's ship, HMS Victory.

As planned by Admiral Nelson, the ships initially sailed straight towards the enemy. At the last minute, the two lines of ships separated and changed direction. Their tactic was to split up the large group of enemy ships and not allow them to gather. The line of ships led by HMS Royal Sovereign attacked the rear section of enemy ships and the line led by HMS Victory attacked the middle. By the afternoon many of the enemy ships had surrendered and the fleet of twenty seven British ships had managed to win the battle, defeating thirty three French and Spanish ships. However, Admiral Nelson received serious injuries during the battle and died the evening victory was claimed.

Winning the Battle of Trafalgar was very important to the people of Britain because it meant that their country had gained naval superiority and would not be invaded by France. Admiral Nelson became a national hero and was commemorated up and down the country with monuments built in his honour.

Scots at Trafalgar

Scotland's capital city had always had close ties with the Royal Navy, who had a signalling station located on Calton Hill. The hill could be viewed from miles away at sea, and the naval ships on the Firth of Forth could easily notice the signals displayed from this position. This connection with the Navy encouraged many Scottish people to join and live their lives at sea. It is not surprising then that at the Battle of Trafalgar, approximately one in five sailors were Scottish.

Five of the twenty seven British ships involved in the battle were captained by Scottish men. These ships were called the Defiance, Defence, Dreadnought, Mars and Swiftsure. On HMS Victory, sixty Scots fought alongside Admiral Nelson.

The youngest person involved in the battle was ten year old John Doig from Leith. His job was a 'powder monkey', a role which involved supplying guns and cartridges to the gun crews. Limited space below deck meant that the powder monkeys had to be small and move quickly while at work.

Not only men experienced naval warfare. Each ship could have a maximum of 5 women on board. These women, often wives of the officers, had an active part to play in battle. Before fighting, they would prepare the weapons. During and after battle they would help the ships' surgeons and nurse the injured men. After the death of Admiral Nelson, a Dundee woman called Mary Buick was one of the people who embalmed his body and preserved it in brandy for the homeward journey.

Some of the weapons used in the battle were also manufactured in Scotland. The Carron Iron Works near Falkirk was responsible for the Carronade, a gun which was designed for close quarter fighting. Seven men were required to operate this huge weapon. Its nickname 'the smasher' showed its destructive capacity.


The Carronade

This piece of naval ordnance was cast at the Carron Ironworks near Falkirk in Scotland in the year 1800.

Weighing 6cwt 2qtr and 1lb. this carronade fired a cast iron ball of 4 inch diameter, a bag containing iron shot (grape shot) wrap iron or chain depending on the gunner's intentions.

They were designed to deliver a deadly blow to enemy ships at close range (up to 300 yards). Consequently these guns were known as "smashers" by the sailors and marines who used them.

Produced between 1779 and about 1850 carronades were used extensively on British Naval vessels during this period.

HMS Supply and HMS Swift, the guardians of the First Fleet in 1788, were armed with carronades.

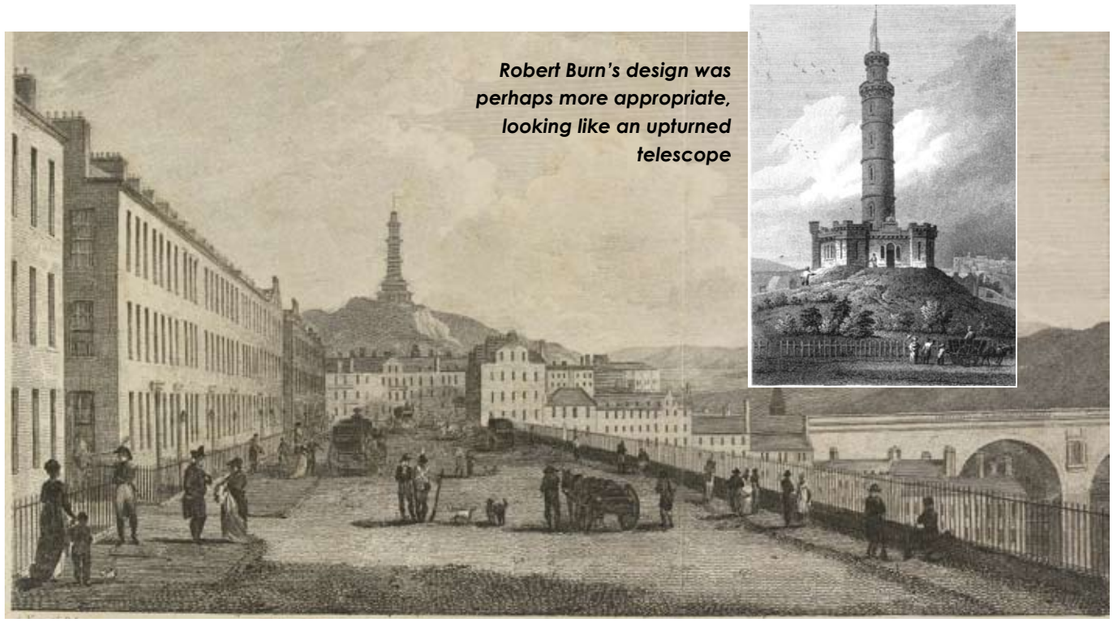
THE MONUMENT IN THE MAKING

On the 25th November, 1805, people in Edinburgh met and agreed to fund a monument to express Scottish gratitude towards Nelson. The monument was to be at least 100 feet tall and had to provide accommodation for a signal officer and five sea men.

In 1806, design suggestions were handed in by artist Alexander Nasmyth and architect Robert Burn. Nasmyth's design was too expensive and so Burn's was chosen. Burn's design was thought to represent an upturned telescope, making subtle reference to Nelson's naval career. The stone structure he designed was 106 feet high with 143 steps to reach the top.

In 1807, the Town Council decided that the monument should be located on Calton Hill. Building work began that year, but a lack of funding stopped construction. In 1814, a lighthouse engineer called Robert Stevenson inspected the partially finished building. He thought that it was in a dangerous condition and advised that it should be finished as soon as possible. After an appeal to raise money by the Lord Provost of Edinburgh, building work began once more. During the period of inactivity, Burn died. Another architect called Thomas Bonnar was employed to finish off the design.

Above the door of the monument, the stern of the San Joseph ship has been sculpted into the stone. This feature, designed in Nelson's honour, shows one of the two vessels which the Admiral captured in a daring fight during the Battle of Cape Vincent in 1797.



Robert Burn's design was perhaps more appropriate, looking like an upturned telescope

Alexander Nasmyth's design for the monument was like a Chinese pagada.

A monument with many uses

The monument had two functions. Its primary use was to commemorate Admiral Nelson as an example to the citizens of Edinburgh. Its secondary function developed in 1809 when the Northern Lighthouse Board suggested that the naval signaling station should be moved from its temporary location at Telegraph Knowe to the Nelson Monument. Aside from signaling ships, flags have been flown from the top of the Nelson Monument for many different reasons. In the past, flags were flown to commemorate the victory of the Battle of Trafalgar, to announce the arrival of shipments at Leith harbour, and to let guests know that Royal Garden parties had been cancelled.

The monument was also intended to provide housing for a signal officer and five sea men. Though there was enough space, the men did not move in and the monument was occupied by the widow of a Petty Officer, Mrs Kerr. In the 1820s, Mrs Kerr opened a restaurant on the ground floor of the monument, and it became the venue for annual commemorations of the Battle of Trafalgar.

Once the Nelson Monument had been built, it received mixed reactions. A famous Edinburgh author, Robert Louis Stevenson, was critical and described it as 'among the vilest of men's handiworks.' However, others had a more positive opinion. The view from the top has been described in one guide book as 'one of the most unique and panoramic views of the city and environs. The view from this is said not to be surpassed even by that of the Bay of Naples.'

Today, the monument still remains as one of

Edinburgh's top tourist attractions. From the top can be seen buildings such as the Castle and the Parliament, and scenery like Salisbury Crags and Princes Street Gardens.

THE TIME BALL

In 1852, a time ball was installed on the top of the Nelson Monument, to drop at exactly one o'clock every day. This was done to help the captain's of ships moored in the Firth of Forth in navigating around the globe.

Knowing the correct time was an essential factor in ship navigation. If a ship's clock (called a chronometer) was set to the exact time, then the longitude of the ship's position could be calculated and the ship could be navigated accordingly.

Before the creation of the time ball, ships had to send a member of their crew ashore with their chronometer. It had to be taken to the Observatory on Calton Hill in order to obtain the correct time. This was an inconvenient trip, and one which risked damaging the valuable chronometer.

The arrival of the time ball allowed a much simpler system. The visual signal of time displayed by the time ball was easily seen from miles at sea, and meant that the ship's chronometer could be adjusted on board.

The time ball concept was created in 1818 by an Edinburgh man, Captain Robert N. Wauchope. Wauchope as light travels at a faster speed than sound, a visual signal would be the most accurate way of conveying the time.

Scotland's Astronomer Royal, Professor Charles Piazzi Smyth, had witnessed the successful use of the time ball in South Africa. He suggested that the Nelson Monument's high position on Calton Hill made it an appropriate location. His advice was followed, and in 1852 a time ball was installed on top of the monument.

In order to ensure the accuracy of the time ball, Piazzi Smyth worked with clockmakers James Ritchie & Son to link the ball's mechanism to the master clock at the Observatory.

The time ball is a huge metal coated wooden ball. It was fitted on to a wooden mast, located on the top of the Nelson Monument. Turning the wheel at the base of the mast raised the time ball up to the top of the mast. At 12.55pm, the ball was raised halfway up the mast, as a signal for navigators to get ready. At 12.58, the time ball was raised all the way to the top and held in place by metal pins. At 1.00pm exactly, an astronomer at the Observatory pressed a trigger which sent an electric shock to the time ball mechanism, causing the ball to drop.

Courtesy of the Royal Society of Edinburgh

A view of the city from the Firth of Forth, painted by Charles Piazzi Smyth

Though the time ball was extremely effective in times of good weather, adverse conditions such as mist or snow obscured its visual signal. In 1861, banker James Hewat suggested that a sound signal should be incorporated into the time ball system. He suggested the firing of a gun, as he had seen at the Palais Royal gardens in Paris, would be an appropriate addition. Charles Piazzi Smith took this idea on board and introduced the One o 'Clock Gun to Edinburgh.

The One o' Clock gun was fired from Edinburgh Castle. The accuracy of the gunfire was, once again, coordinated by Piazzi Smith and Ritchie & Son. A steel wire, three quarters of a mile long, connected Calton Hill to the Castle, so that both the time ball and the gun were set off at exactly the same time.

Courtesy of the Royal Society of Edinburgh

Courtesy of the Royal Society of Edinburgh

A gang of sailors haul the cable to the top of the monument

Both the One o' Clock gun and the time ball on Nelson's Monument still operate six days a week, as a time signal to everyone in the city

TEACHER'S NOTES

A visit to Edinburgh's Calton Hill and the Nelson Monument offers a great opportunity to explore one of Edinburgh's most famous landmarks, take in stunning views of the city and learn something of our city's scientific and sea faring past.

The following activity suggestions can be combined with a visit to support development in expressive arts, literacy, social studies and sciences.

Social studies

Lord Nelson and the Battle of Trafalgar

The Nelson Monument was built after the Battle of Trafalgar in 1805. This was probably Britain's most famous naval victory, when a smaller British fleet completely destroyed a combined French/Spanish force. It was made possible by the skilful leadership of Admiral Nelson, who died in the course of the battle. Many Scots played a key role in this victory and the patriotic Edinburgh people raised the money to have the monument erected in Nelson's memory – designed in the shape of an upturned telescope.

The display inside the monument will give the class some background to the battle itself and the dramatic events of that day, as well as the Scots who played their part. This could provide a basis for the class to research the history of Trafalgar, Admiral Nelson and the Scots who fought there.

Useful links:
www.hms-victory.com/
www.woodlands-junior.kent.sch.uk/Homework/trafalgar/
www.seaandlearn.co.uk/
www.bbc.co.uk/history/british/empire_seapower/trafalgar

Edinburgh and the sea

Edinburgh has long relied on its proximity to Leith and Newhaven for much of its prosperity and some key moments in its history. The Nelson Monument became an important building for sailors in Leith after 1852 when the time ball was installed as a time signal. The sailors would watch for the signal so that they could set their ships' chronometers at precisely one o'clock – vital for accurate navigation at sea.

The display inside the monument will give the class a background to the history and workings of the time ball, and you can even see it in operation if you are there at the right time! This could provide the basis for the class to research further their local history and Edinburgh's historic links with the port of Leith.

Useful links:
www.leithlocalhistorysociety.org.uk
www.historic-scotland.gov.uk/TrinityHouse

Changing Edinburgh

The top of the Nelson Monument affords one of the best views of Edinburgh. From here the class can clearly see the contrast between Edinburgh's Old and New Towns and how the city has developed over the centuries.

Pupils could be encouraged to sketch or photograph their impressions of Edinburgh from here or try to roughly map out the different parts of the city. This could lead to a more detailed mapping exercise back at school, comparing old maps of Edinburgh to see how it has developed over the years.

Useful links:
www.nls.uk/maps/towns/index.html#edinburgh-city
www.scran.ac.uk

Language and literacy

Diary of a powder monkey

The youngest Scot to serve at Trafalgar was a 10 year old powder monkey called John Doig. Pupils could research the life of a powder monkey and write the diary of a day in John Doig's life – perhaps even recording the day of the battle itself.

Useful links:
www.hms-victory.com/index.php?option=com_content&task=view&id=128&Itemid=183
www.seaandlearn.co.uk/aboutnelson/filetodownload,28639,en.pdf

Expressive arts

Signal flags

Before the time ball was installed in 1852, the Nelson Monument was already being used to communicate with sailors at Leith and on the Firth of Forth. A system of flags was used to send messages from the monument. Pupils could research these flags and practice designing and sending their own messages using the system. Alternatively they could devise their own designs for coded flags.

Useful links:
www.marinewaypoints.com/learn/flags/flags.shtml.

Role play – Nelson's Navy

One of the keys to success for Nelson's navy was the discipline and organisation of his men. The class could research the different roles that sailors would have on board a ship and devise a role play that would express how this command structure would work and what the lives of these men might entail.

Useful links:

www.hms-victory.com

Books from the 'Osprey' series are excellent, vivid source materials for pupils to use for research, especially 'Nelson's Sailors' and 'Nelson's Navy'.

Sciences

The speed of sound

The time ball at the monument was an effective means of communicating the exact time to sailors – it was vitally important that they set their ships' clocks (chronometers) accurately so that they did not sail off course. The exact time was communicated to the monument from the nearby observatory by an astronomer who would set his clock according to astronomical readings – a complicated business. However, on a foggy day the system didn't work - the sailors couldn't see the time ball. As a result an alternative time signal using sound was introduced; the one o'clock gun. The gun is still fired from the Castle at the precise moment the time ball drops, although the obvious drawback to this, of course, is the amount of time it takes for the noise from the gun to reach Leith.

Pupils could explore further how people can actually tell the time accurately by looking to the skies. Alternatively they could carry out their own time gun experiments to judge the speed of sound – this can be set up in the playground or even on Calton Hill itself. All you need is a long tape measure, a stopwatch and something to make a loud noise with. The speed of sound = the distance divided by the time it takes the sound to get there.

The Nelson Monument and a Curriculum for Excellence

A visit to the Nelson Monument can be used as a stimulus for any of the listed activities and can support the experiences and outcomes in a variety of curriculum areas. For example:

Social subjects

Pupils will be able to discuss why people and events from a particular time in the past were important, placing them within a historical sequence.

Pupils will be able to locate, explore and link local features and places.

Pupils will be able to develop their use of maps and locate key features at a local level.

Literacy

Pupils will be able to consider a type of text, select ideas and relevant information, organise these in an appropriate way for their purpose and use suitable vocabulary for their audience.

Expressive arts

Pupils will be able to observe, record and create images and/or objects which show their awareness and recognition of detail.

Pupils will be able to express and communicate ideas, thoughts and feelings through drama, inspired by a range of stimuli.

Sciences

Pupils will be able to develop their skills of scientific inquiry and investigation using practical techniques.

10. Did you see any boats in the Firth of Forth? Draw a picture of a one.

What did you like best about the Nelson Monument?

5. Draw a picture of something you can see from the top

Nelson Monument Quiz

This quiz will help you find out more about this great monument. You will need to climb to the top of the tower and visit the interpretation rooms to find all the answers.

Good luck!

1. How many steps are there inside the Nelson Monument?
   (There will be clues along the way in case you loose count)

   _____

2. What is the name of this hill?

   _____

3. This building is in the shape of something that sailors use. What?

   _____

4. The time ball helps sailors to find their way at sea. What time does the ball drop from the top of the tower?

6. What is the ball made out of?

   _____&_____

7. What year was Lord Nelson born & when did he die?

   _____

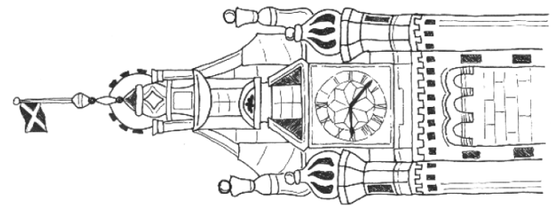
8. What is the name of Nelson's final battle?

   _____

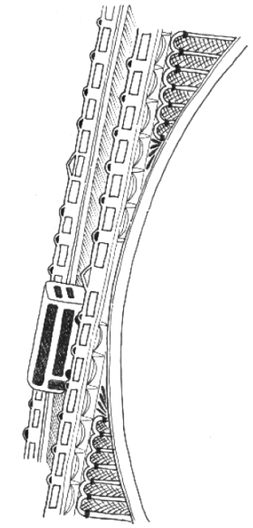
9. After a few hiccups, what year was the monument finally finished?

   _____

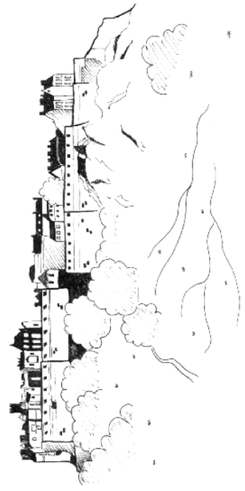
Nelson Monument—Look and Find



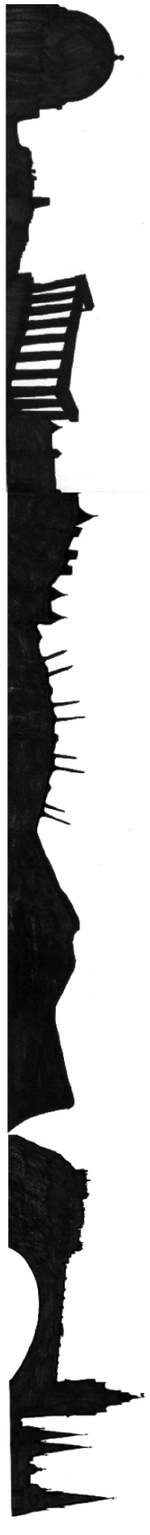
Clocktower of the Balmoral Hotel



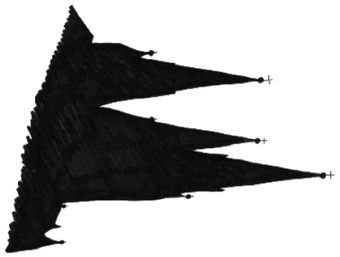
North Bridge



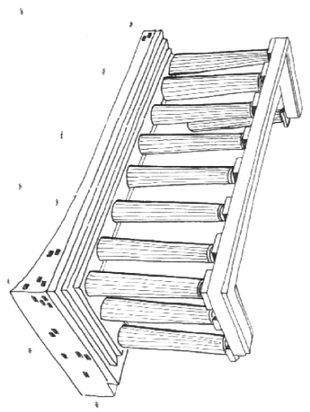
Edinburgh Castle



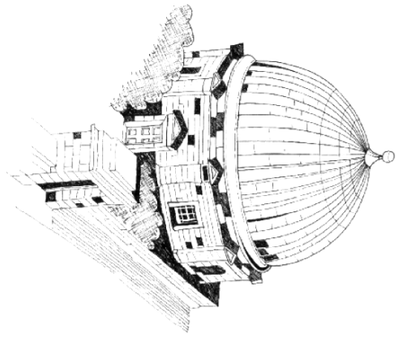
Nelson Monument—Look and Find



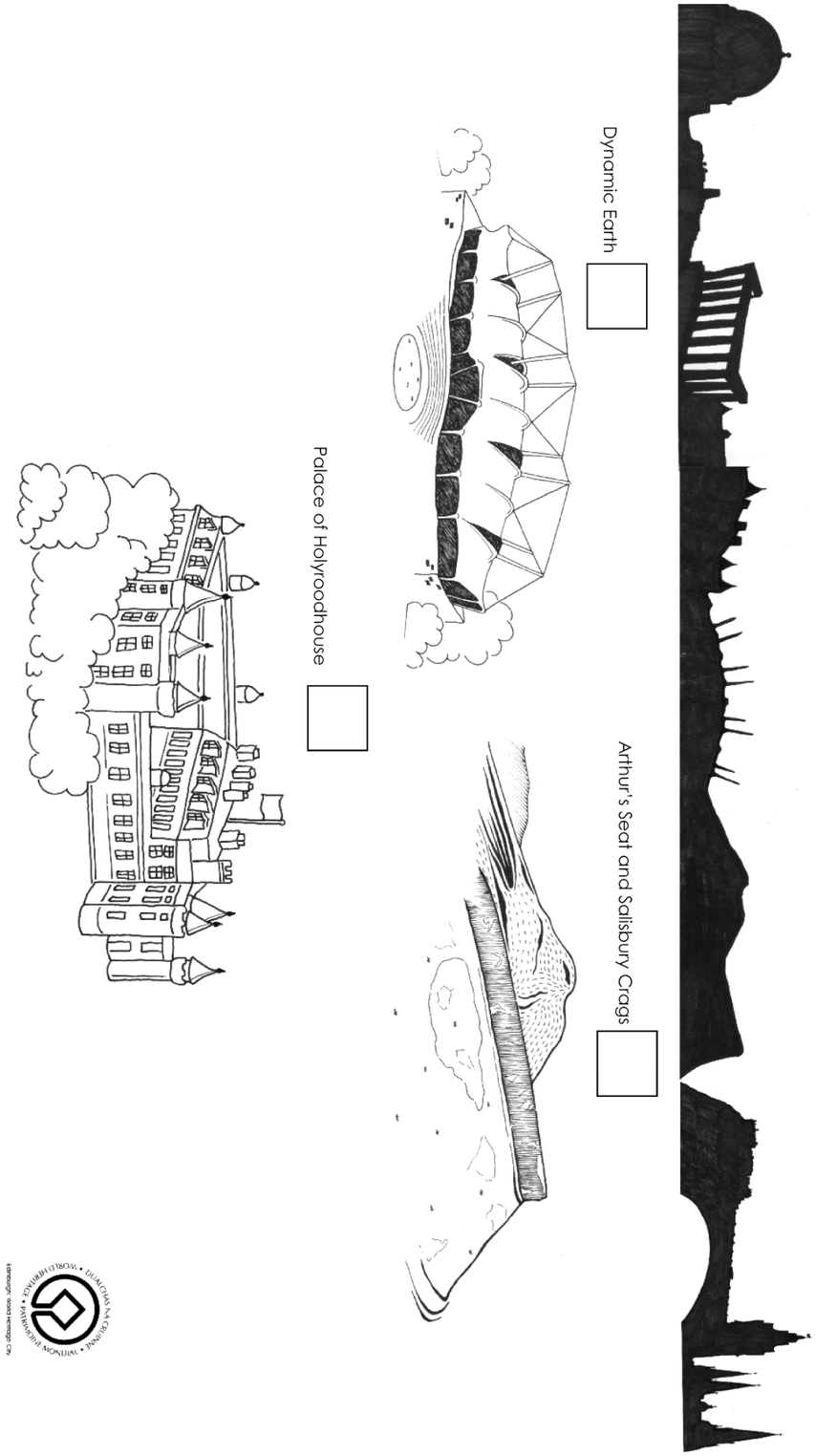
St. Mary's Cathedral



The National Monument

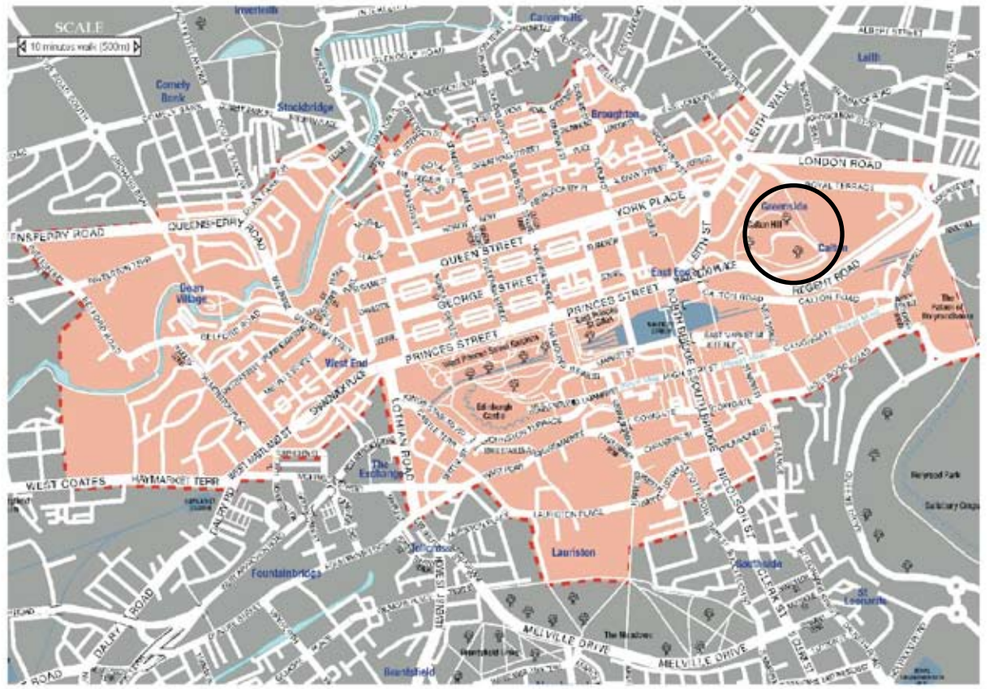


The Observatory



HOW TO MAKE A SITE VISIT

How to get there:



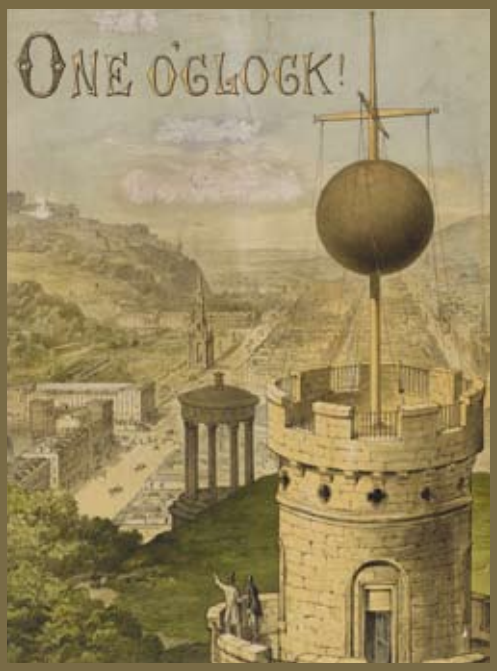
Contact:

City of Edinburgh Council
Learning and Access Department
City Art Centre, 2 Market Street, Edinburgh EH1 1DE
0131 529 3962/3

Opening times:

1st October- 31st March: Mon – Sat 10am – 3pm

1st April - 31st September: Monday 1pm – 6pm; Tue – Sat 10am – 6pm


ONE O'CLOCK!