



part  
**2**

## history

### Concepts and skills

Chapter 6 History toolkit X

### Unit 1 Aboriginal And Torres Strait Islander Peoples And Cultures

Chapter 7 Introduction to Aboriginal and Torres Strait Islander peoples and cultures X

Chapter 8 Valuing and managing water X

### Unit 2 The European and Mediterranean world

chapter 9 XX X

Chapter 10 XX XX X

Chapter 11 XX XX X

Chapter 12 XX XX X

Chapter 13 XX XX X

Chapter 14 XX XX X

Chapter 15 XX XX X

## Concepts and skills

# The history toolkit

History is the study of the past. Historians are interested in all aspects of the past and seek to piece together accurate pictures of what life was like in days gone by.

Historians are time detectives; they follow a process of **historical inquiry** in order to better understand the past. They ask questions, locate and analyse **sources**, and use **evidence** from these sources to develop theories about the past.

Historians are curious. They investigate **artefacts** and want to know more about them.

Despite these investigations, certain facts about many ancient artefacts (like the Great Sphinx) still remain a mystery. Uncovering the secrets of the past is not always easy and historians do not always agree. These mysteries drive historians to continue their

**OVERMATTER**



chapter

6

**Source 1** Many facts about the Great Sphinx at Giza in Egypt still remain a mystery.

## 6A

What are the historical concepts?

## 6B

What are the historical skills?

## 6C

What is history?

# 6.1 Historical concepts

Historians use seven concepts to help them investigate and understand the past. At times you will use several of these concepts at once; at other times you may focus on just one. As you learn to apply each concept, you will begin to think like a historian. The seven key concepts in History are:

- perspectives
- continuity and change
- cause and effect
- evidence
- empathy
- significance
- contestability.

## Perspectives

The concept of perspectives is an important part of historical inquiry. Perspective is a point of view – the position from which people see and understand events going on in the world around them. People will have had different points of view (or perspectives) about a particular event, person, civilisation or artefact depending on their age, gender, social position and their beliefs and **values**. Just like anyone else, historians have perspectives, which can influence their interpretation of the past and the way in which they write about it. Despite their own perspectives, historians must try to understand the different values and beliefs that shaped and affected the lives of people who lived in the past.

For example, many people today would share the belief that slavery is wrong. They would be shocked and outraged by the fact that about one quarter of the population of ancient Rome were slaves. However, slavery was an accepted part of life in ancient Rome, from the perspectives of slaves themselves and society in general. Today, a logical assumption is that slaves led poor lives just because they were slaves. This was not always the case. Some masters took great care of their good slaves, as replacements could be hard to find – and expensive. A slave who could cook banquets was especially prized because entertaining was very important to Rome's elite families. Those slaves who had few skills were less well looked after because they were easier and cheaper to replace.

It is important to consider aspects of the past from the perspectives of people living at the time. By taking this into account you begin to see that owning slaves was a natural part of life in ancient Rome rather than a terrible abuse of a person's rights and freedoms. By today's standards it could be considered similar to employing a cleaner or a babysitter to help out around the house.



**Source 1** This Roman floor mosaic shows a young slave carrying a tray of food for a banquet. It dates back to around the 2nd century CE.

## Continuity and change

Historians recognise that over time some things stay the same, while others change. This concept is referred to as continuity and change. Examples of continuity and change can be seen across every civilisation and any given period of time.

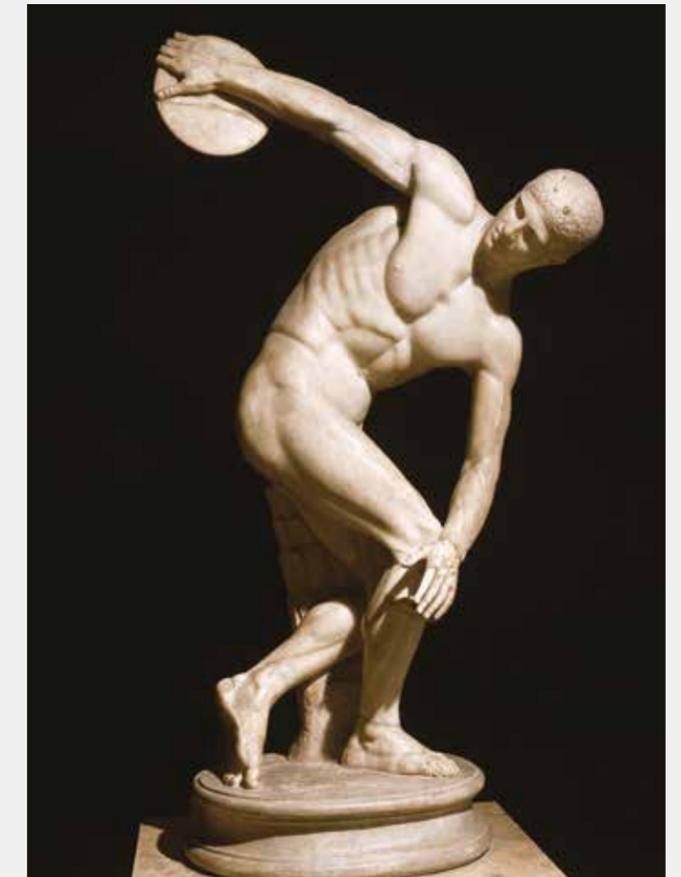
Historians refer to aspects of the past that have remained the same over time as continuities. Aspects of the past that do not stay the same are referred to as changes. Change can occur within a certain civilisation or specific time period, but also across different civilisations and time periods.

Many historical continuities influence how we act and live today. For example, look at Source 2. You will instantly be able to tell what this man is doing. Discus throwing is an ancient sport that dates back to the 5th century BCE. The sport originated in ancient Greece, but is now a routine part of every modern track-and-field competition, not to mention a popular event at the Olympic Games. Discus throwing is a good example of a historical continuity.

Now look at Sources 2 and 3 together and try to identify some of the differences between them. Even though both people are shown competing in discus throwing:

- one is a man, the other is a woman
- one is naked, the other is wearing clothes
- the ancient discus is larger than the modern discus.

These differences are historical changes. In ancient Greece only men were allowed to compete, they were required to compete naked, and the technique and equipment (the discuses) they used were not as sophisticated as those used today.



**Source 2** This statue created by the Romans in the 2nd century BCE is a reproduction of a famous Greek statue, Myron's *Discobolus*, created around 460–450 BCE. It shows a discus thrower about to release his throw.



**Source 3** Dani Samuels of Australia competes in the Women's Discus Throw Final on Day 8 of the London 2012 Olympic Games.

## Cause and effect

The concept of cause and effect is used by historians to identify chains of events and developments, both in the short term and in the long term. Cause and effect aims to identify, examine and analyse the reasons why events have occurred and the resulting consequences or outcomes. It helps to think of cause and effect as the 'why' and 'what' of history.

Sometimes the link between cause and effect is very clear. For example, heavy rain over many weeks (cause) leads to flooding and the destruction of crops (effect). However, often this link is not quite so obvious. Generally, there are many causes (reasons) that lead to an event or action. There can also be many effects (outcomes). Sometimes the effects are simple to identify, while in other cases they are more difficult to predict and may not even be observed until long after the event.

One of the strongest defensive structures in the world is the Great Wall of China. It is also a good example to explain cause and effect. The Great Wall began as a set of separate mudbrick structures that were joined together and extended under the rule of China's first emperor, Qin Shi Huang. This work was carried out in order to prevent northern invaders (known as Mongols) from entering and conquering China (cause). The wall was successful in preventing a Mongol invasion (effect); however, over 100 000 Chinese labourers died during the construction of the wall (effect). Today, the Great Wall is China's most popular tourist attraction, drawing around 10 million people each year (effect).



**Source 4** The Great Wall of China was built to protect China from invading hordes of Mongols. This was the cause of its construction.



**Source 5** Today, thousands of years after its construction, the Great Wall is so popular with tourists that sections of it are in danger of being damaged by overuse. Could Emperor Qin Shi Huang ever have predicted these effects when he ordered the Great Wall to be built?

## Evidence

Evidence is the information gathered from historical sources. The concept of evidence is an essential part of historical inquiry. Evidence can come from many different sources; for example, interviews and accounts from people who lived at the time, letters, diaries, films, maps, newspapers, **artefacts** and objects, buildings, paintings, photographs, song lyrics, nursery rhymes, clothing, photographs and even cartoons. But how do we use these sources to piece together the story of the past? We can make an educated guess (called a **hypothesis**) and then look for evidence to support it.

Evidence can be gathered from two types of sources:

- **primary sources** – objects created or written at the time being investigated, for example during an event or very soon after. Examples of primary sources include: official documents, such as laws and treaties; personal documents, such as diaries and letters; photographs or films; and documentaries. These original, firsthand accounts are analysed by historians to answer questions about the past.
- **secondary sources** – accounts about the past that were created after the time being investigated and which often use or refer to primary sources and present a particular interpretation. Examples of secondary sources include writings of historians, encyclopaedia entries, documentaries, history textbooks and websites.

Historians do not always agree on evidence, even when it is gathered from the same source. They often have different opinions or points of view. This is why historians are constantly searching for new sources of evidence. They need to use a range of different sources to help them gain a more complete picture of the past.



**Source 6** This photograph taken in 1922 shows British archaeologist Howard Carter leaving the tomb of Tutankhamun. He is holding a box of artefacts made by ancient Egyptians. Both the artefacts shown in the photograph and the photograph itself are primary sources because the artefacts were made during the rule of the ancient Egyptians and the photograph was taken at the time of the discovery of the tomb.



**Source 7** This illustration shows Howard Carter inside the tomb of Tutankhamun. The illustration is a secondary source because it was drawn by an artist long after the discovery of the tomb in 1922. It is only a representation of the inside of Tutankhamun's tomb, even though it is based on a photograph taken at the time of its discovery.

## Empathy

Empathy helps us to understand the impact of past events on a particular individual or group, including an appreciation of the circumstances they faced and the motivations, values and attitudes behind their actions. Put another way, empathy is the ability to ‘walk in someone else’s shoes’ – to be aware of, and sensitive to, their feelings, thoughts and experiences.

Emphathising brings history to life. It connects us as human beings regardless of how much time has passed. For example, the ancient Chinese custom of foot binding can be better understood by putting yourself in the position of those who did it and had it done to them. Foot binding was designed to improve a woman’s social status and the status of her family. Tiny feet were considered beautiful and improved a woman’s chances of securing a ‘good’ marriage.

Binding the feet prevented them from growing naturally. When a girl was between the ages of four and seven, the bones in her feet were broken and strapped tightly with a long bandage, forcing the four small toes under the sole of the foot (see Source 8). The entire process usually took about two years to complete. After this time, the feet were largely useless. Walking was at best painful and at worst impossible. After this process, the feet needed daily care. If they were not washed and manicured properly, the toenails could cut into the soles of the feet and cause infection. If the bindings were too tight, they could cut off blood flow and cause the flesh to rot.

It is difficult to imagine how much pain these women, and their families, had to go through, but the Chinese saying ‘Every pair of small feet costs a bath of tears’ gives some insight. Why then did people carry out the practice for so long? Even though many lower-class families could not afford to bind their daughters’ feet (because they needed them to work in the fields), they did so anyway in the hope that they would be able to marry into the middle class. In reality, very few women succeeded in this. Instead, these women would end up suffering as they tried to work in the fields on their bound feet. Nevertheless, mothers were

obligated to bind their daughters’ feet because they would never find a husband otherwise. Applying the concept of empathy helps you to put yourself in the position of the girls who had this done to them, as well as their families who were essentially forced to inflict terrible pain on their own children.



**Source 8** The practice of foot binding was carried out for around 1000 years. Applying the concept of empathy helps us to understand the pain these women went through, and what motivated their families to do this.



**Source 9** These women, photographed in 1998, wear tiny ‘lotus shoes’ on their bound feet. Foot binding was officially outlawed in 1911, but is said to have continued for some time after that.

## Significance

The concept of significance relates to the importance assigned to aspects of the past, such as events, developments, discoveries, movements, people and historical sites. History is full of so many important events, significant people and interesting places that we could never study all of them. Instead, we need to make a judgement about which of these is worthy of study. In order to determine if an event, development, discovery, movement, person or site is historically significant, historians may ask the following questions:

- How important was this to people who lived at that time?
- How did this affect people’s lives?
- How many people’s lives were affected?
- How widespread and long-lasting were the effects?
- Can the effects still be felt today?

Depending on your age, gender, ethnicity, religious beliefs, nationality and family background, different events and people from the past will be significant to a greater or lesser extent. For example, the development and spread of the Roman Empire is significant because it affected large areas of the Mediterranean world, its people and their way of life.

Some of the legacies of ancient Rome that are still significant today include:

- Latin – the language of ancient Rome forms the basis of many modern languages such as English, French, Italian and German
- **aqueducts** – these structures built to carry fresh water from springs in the country to Roman cities form the basis of our modern plumbing
- **architecture** – ancient Romans invented concrete and other innovative building techniques such as domed roofs.



**Source 10** This Roman aqueduct in the south of France was built between 40 and 60 CE. Aqueducts carried a constant flow of fresh water from distant sources into cities and towns, supplying public baths, public toilets, fountains and private households. Aqueducts form the basis of our modern plumbing.

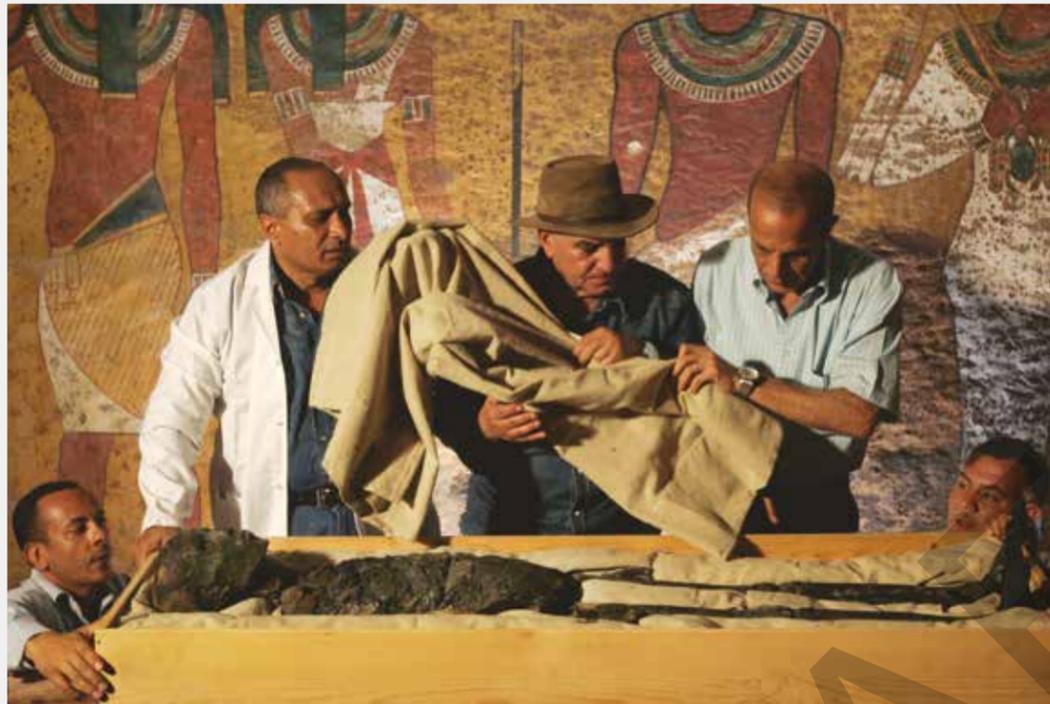


**Source 11** Domed roofs, like the one shown here at Flinders Street Station in Melbourne, would not be possible had it not been for the ancient Romans.

## Contestability

The concept of contestability relates to explanations or interpretations of past events that are open to debate. Historians around the world often have access to very different sources. Artefacts, such as cave paintings or artworks, may have been damaged or incomplete. Written records may contain errors, or have been changed or falsified after they were written. Some artefacts may even have been destroyed for good. This can lead historians to different conclusions about what they are seeing. Even historians studying the same sources can sometimes come to widely different conclusions about what the evidence is telling them. This is one of the exciting things about history – it is open to debate. There is often no right answer, and historians are always seeking a more complete understanding of the past.

The discovery of Tutankhamun's tomb in 1922 was a highly significant historical event. It helped historians uncover many important details about life in ancient Egypt, but also ignited fierce debate. An examination of the pharaoh's mummified body led historians and archaeologists to argue for many decades about the cause of Tutankhamun's death. Many believed that the boy king had been murdered. Others believed his death was accidental. It was not until modern scientific methods allowed for a proper examination of the corpse that it was decided that Tutankhamun had died as a result of an infection from a broken leg. DNA analysis conducted in 2010 also showed the presence of malaria in his system. It is believed that these two conditions combined led to his death. To this day, some historians still contest the accepted explanation.



**Source 12** Egyptian archaeologists supervise the removal of Tutankhamun's mummy from the stone sarcophagus in his underground tomb in the Valley of the Kings in Luxor, Egypt. The exact cause of Tutankhamun's death has been contested by historians since the discovery of his tomb in 1922.



**Source 13** The use of modern CT scans and DNA analysis in 2010 have finally put an end to decades of debate. These tests have allowed historians to say with some certainty how Tutankhamun died.

## Check your learning 6.1

### Remember and understand

- 1 Name the two different sources from which historians may gather evidence.
- 2 Discuss throwing is still an important event in the modern Olympic Games. What historical concept would this be an example of?
- 3 A study of the past always involves looking at why an event took place and what happened as a result. What is the name of this historical concept?
- 4 Five different people saw a fight in the schoolyard. Why might their accounts of what happened be quite different? What historical concept would this be an example of?

### Apply and analyse

- 5 Look again at the questions that help historians decide which events from the past are worthy of study (listed under Significance). Working in pairs or small groups, use those questions to decide if the following events are historically significant.
  - Your family moved to a new house last week.
  - A new shopping centre was built in your local area.
  - The prime minister of Australia gave a speech declaring Australia will allow China to build a military base in Sydney.
  - The Olympic Games were held in London.
  - News reports confirmed that over half the world's population is connected to the Internet.

Report your findings to the class. Did each group reach the same conclusions? Why or why not?
- 6 Historians are constantly trying to understand what motivated people from the past to act the way they did. This relates to the historical concept of empathy. Look at the example of foot binding in ancient China. Imagine you are the mother or father of a four-year-old girl. List three reasons why you believe you must bind your daughter's feet. Beside each reason, write how this would make you feel.
- 7 Why did Egyptian archaeologists use scientific methods to examine the mummy of Tutankhamun? Do you think all historians would accept these findings? Why or why not?

### Evaluate and create

- 8 You are planning a museum exhibit about your own life. Choose three artefacts you will include in the display. Explain how each of these artefacts has played a significant part in your life.
- 9 Look again at the Great Sphinx (Source 1 on page XX). Conduct your own research and formulate your own hypothesis (theory) about why it was built. Support your hypothesis with one primary and one secondary source.
- 10 Choose one of the key concepts discussed in this section. Design a poster for your History classroom to help you and your classmates remember what this concept is and to help you apply it as you study History this year.

## 6.2 Historical skills

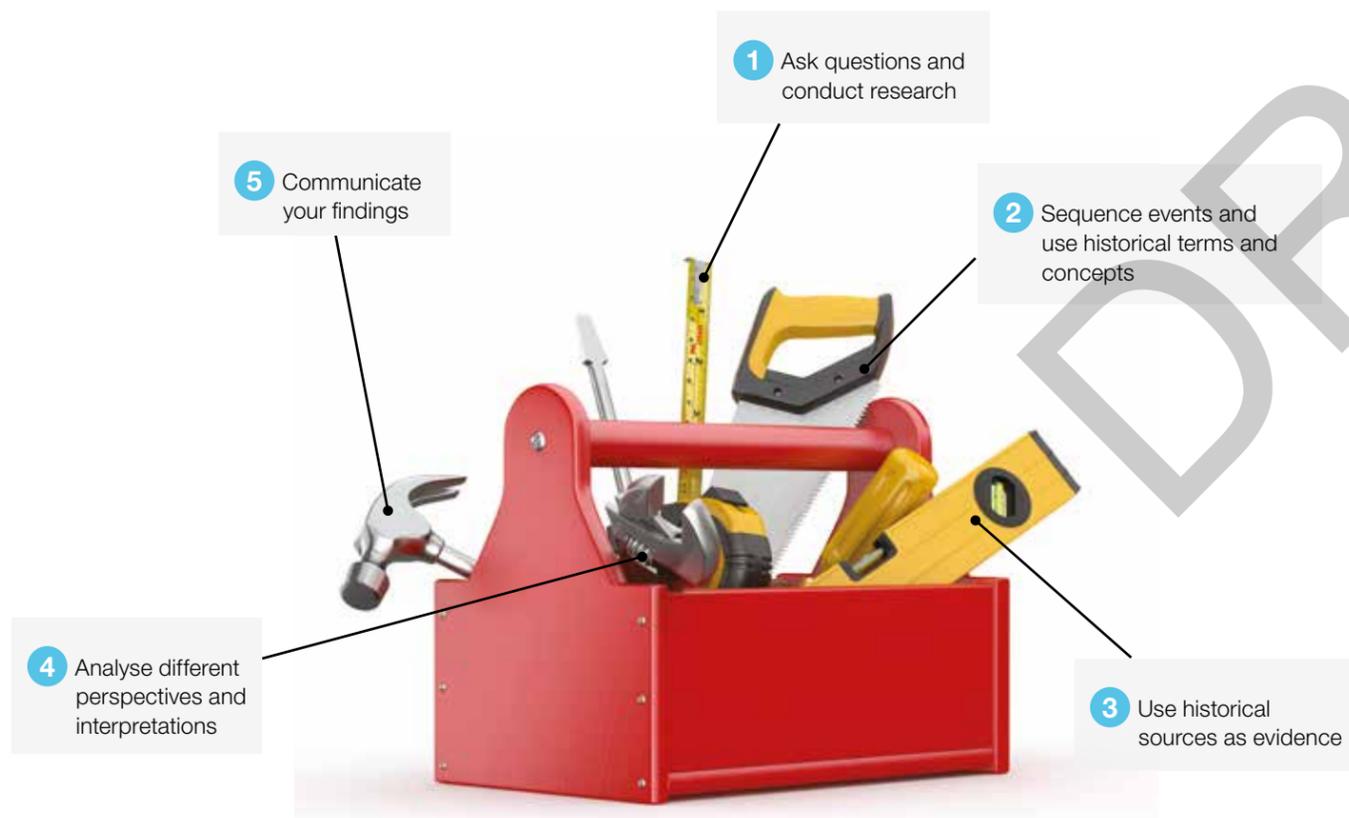
History has been described as ‘who we are and why we are the way we are’. Historians examine the past and try to explain what they find. Like detectives at the scene of a crime, they follow a process of historical inquiry.

As shown in Source 1, there are five stages in any historical inquiry. They are:

- Stage 1 – Ask questions and conduct research
- Stage 2 – Sequence events and use historical terms and concepts
- Stage 3 – Use historical sources as evidence
- Stage 4 – Analyse different perspectives and interpretations
- Stage 5 – Communicate your findings

To conduct a historical inquiry, historians need a range of skills. By studying history you will gradually master each of these skills. Some of them you will find easy to master, others may take a little longer. As you develop each new skill you will have gained another important tool for understanding and explaining events and people that have shaped our world.

Each of the skills you will learn over the course of this year is explained below. Each one represents a stage in the process of historical inquiry. These skills are organised into five stages. Each stage has a number of specific skills that you will be learning. It might help you to think of each of these skills as individual tools in your toolkit. For some historical inquiries, you may only need to use one tool; for others, you may need to use many.



**Source 1** There are five stages in any historical inquiry. At each stage, historians use a number of different skills. Each of these skills is like a tool in a toolkit.

## 6.3 Ask questions and conduct research

### Identify a range of questions about the past to inform a historical inquiry

Historians begin any historical inquiry by asking big questions. From these big questions, historians develop a **hypothesis** (a theory) about who, what, where and why certain events took place. These questions then help to frame the process of inquiry and act as a guide for the collection of evidence.



**Source 1** Developing historical questions is an important part of a historical inquiry.

### skilldrill: Historical significance

#### Generating questions to inform a historical inquiry

Look closely at Source 1. This visitor to the Great Sphinx at Giza in Egypt is asking some important historical inquiry questions. You can learn to do this too by starting your questions with the words ‘what’, ‘where’, ‘how’, ‘when’ and ‘why’ before beginning your inquiry.

For example, big questions such as the following help to guide the steps in the research process:

- What is the Great Sphinx?
- Who built it?
- When was it built?

The very best questions open up an exciting area for you to explore. For example, the visitor might ask a simple question, such as ‘What does the Sphinx look like?’ This is a question with a relatively simple answer. A better historical question for the visitor to ask might be ‘What is the Sphinx meant to represent?’ This question opens up a whole new area for exploration.

#### Apply the skill

- 1 Based on what you have read and seen, generate four big questions of your own that will help guide your investigation into the Great Sphinx.
- 2 Once you have generated your inquiry questions, identify the information you will need to answer these questions and where you might be able to locate it.
- 3 The mystery of the Great Sphinx has puzzled historians for many years. Are there any questions for which you have not been able to find reliable evidence or answers? What reasons might there be for this?

## Identify and locate relevant sources, using ICT and other methods

Sources provide information for historians. They can take many different forms, from historical artefacts to written records in books or online. Some examples of sources include human remains, coins, cave paintings, textbooks, journals, online databases, newspapers, letters, cartoons and diaries.

Locating a range of relevant sources is a valuable skill which usually involves a number of different search methods, such as:

- checking catalogues at your school and local library
- using online search engines such as Google, Yahoo and Bing
- visiting museum and government websites
- looking at newspaper and magazine archives
- contacting local historical societies
- interviewing older family members about the past, and examining family antiques and keepsakes.

### Using ICT to locate relevant sources

Although printed books and newspapers are valuable sources of information, most research today is conducted online. In order to ensure that sources gathered online are accurate, reliable and relevant, a number of guidelines should be followed:

- Search engines such as Google are useful research tools, but much of the material on these sites is not reliable and may contain inaccuracies, false and misleading information or material that is

out of date. When using search engines like Google or Yahoo, be sure to define your search using keywords. Your librarian is a good person to ask for help and information. Most schools will also have a website devoted to providing information about developing good research skills.

- A reliable way of searching for sources is to use sites linked to educational institutions, government departments, reputable companies, museums, universities and educational institutions. A quick way of telling if a site is reputable is to look at the domain name in the URL (Internet address). Some of the most common domain names are listed in Source 2 along with some information about their reliability.
- Avoid blogs posted by unknown individuals. If you happen to find information relevant to your investigation on a blog or social media site, always verify it by using a more reliable source.
- Never cut and paste information from the Internet straight into your own work. Taking someone else's work, ideas or words and using them as if they were your own is called plagiarism and can result in very serious consequences.



Domain name	Description
.edu	The site is linked to an educational institution such as a university or school. These sites are generally very reliable.
.gov	The site is linked to a government institution. These sites are generally very reliable.
.net	This site is linked to a commercial organisation or network provider. Anyone is able to purchase this domain name and generally there is no one to regulate the information posted on the site. As a result, these sites may be unreliable.
.org	This site is linked to an organisation. Generally, these organisations are not for profit (e.g. Greenpeace, World Vision International, British Museum). If the organisation is reputable and can be contacted, it generally means that the information provided has been checked and verified by that organisation. You need to be aware of any special interests that the organisation may represent (e.g. particular religious, commercial or political interests) as this may influence what they have to say on a particular issue. If you are unsure about the reliability of information found on a website with this domain name, check with your teacher or librarian.
.com	This site is linked to a commercially based operation and is likely to be promoting certain products or services. These domain names can be purchased by anyone, so the content should be carefully checked and verified using another, more reliable source.

Source 2 Some domain names and their characteristics

## Recording relevant sources

As you identify and locate relevant sources, it is essential that you record details to include in your list of references or bibliography.

When citing (mentioning) a book in a bibliography, include the following, in this order, wif available:

- 1 author surname(s) and initial(s)
- 2 year of publication
- 3 title of book (in italics)
- 4 edition (if relevant)
- 5 publisher
- 6 place of publication
- 7 page number(s).

### Example:

Easton, M. & Saldais, M., 2016, *Oxford Big Ideas Humanities 7 Victorian Curriculum*, Oxford University Press, Melbourne, pp. 18–19.

When citing an online source in a bibliography include the following information, if available:

- 1 author surname(s) and initial(s) or organisation name
- 2 year of publication or date of web page (last update)
- 3 title of document (article) enclosed in quotation marks
- 4 date of posting
- 5 organisation name (if different from above)
- 6 date you accessed the site
- 7 URL or web address enclosed in angle brackets <...>.

### Examples:

British Museum, 'Papyrus from the Book of the Dead of Ani', accessed 6 September 2012, <[www.britishmuseum.org/explore/highlights/highlight\\_objects/aes/p/book\\_of\\_the\\_dead\\_of\\_ani.aspx](http://www.britishmuseum.org/explore/highlights/highlight_objects/aes/p/book_of_the_dead_of_ani.aspx)>.

Williams, A.R., 2005, 'King Tut Revealed: Modern forensics and high-tech imaging offer new insights into his life – and death', June, *National Geographic*, accessed 17 July 2012, <<http://ngm.nationalgeographic.com/2005/06/king-tut/williams-text>>.

## Check your learning 6.3

### Remember and understand

- 1 List three different examples of sources.
- 2 Beside each source write where it can be found.

### Apply and analyse

- 3 Using the table below give two advantages and two disadvantages of using the different search methods shown.

Search methods	Advantages	Disadvantages
Using the library catalogue	• •	• •
Google search	• •	• •
Interviewing older family members	• •	• •

- 4 Examine the following sites. Explain whether you think they are reliable. Explain why.

- a British Museum  
[www.britishmuseum.org](http://www.britishmuseum.org)
- b Coca-Cola  
[www.coca-cola.com.au](http://www.coca-cola.com.au)
- c University of Tasmania  
[www.utas.edu.au](http://www.utas.edu.au)
- d History of Egypt – Ask Aladdin  
[www.ask-aladdin.com/history1.htm](http://www.ask-aladdin.com/history1.htm)

### Evaluate and create

- 5 Create a handbook or class wiki providing tips on good research techniques to share with other students in your year level or post on your school intranet.

# 6.4 Sequence events and use historical terms and concepts

## Sequence historical events, developments and periods

One of the most helpful things historians can do to get a better understanding of the past is to organise events in the order that they happened. This is known as **chronology**. Chronology can help us organise things that happened over a small period of time, like a day or week, or huge periods of time, like hundreds of thousands of years. We can also use chronology to look at events that happened in one place or society, or compare events across many different places and societies.

Chronology allows us to develop an ordered sense of time. Once events have been ordered chronologically, we are able to use a range of

historical concepts such as cause and effect, significance, and continuity and change to analyse them in detail.

## Sequencing time

Examples of how historians sequence time are shown in Sources 1 and 2. Each table shows how 2100 years have been divided into smaller periods of 100 years. These periods are known as centuries.

Because there is no zero used in the Common Era (CE) calendar, we have to begin from the year 1. This means that the years from 2001 to 2100 are actually part of the 21st century. These tables will help you as you work through Year 7 History. Refer to them as often as you need to.

Century BCE	Time period	Century BCE	Time period	Century BCE	Time period
21st century BCE	2100 to 2001	14th century BCE	1400 to 1301	7th century BCE	700 to 601
20th century BCE	2000 to 1901	13th century BCE	1300 to 1201	6th century BCE	600 to 501
19th century BCE	1900 to 1801	12th century BCE	1200 to 1101	5th century BCE	500 to 401
18th century BCE	1800 to 1701	11th century BCE	1100 to 1001	4th century BCE	400 to 301
17th century BCE	1700 to 1601	10th century BCE	1000 to 901	3rd century BCE	300 to 201
16th century BCE	1600 to 1501	9th century BCE	900 to 801	2nd century BCE	200 to 101
15th century BCE	1500 to 1401	8th century BCE	800 to 701	1st century BCE	100 to 1

**Source 1** More than 2000 years of history Before the Common Era (BCE) divided into centuries. When ordering time BCE, remember to count backwards to 1.

Century CE	Time period	Century CE	Time period	Century CE	Time period
1st century CE	1 to 100	8th century CE	701 to 800	15th century CE	1401 to 1500
2nd century CE	101 to 200	9th century CE	801 to 900	16th century CE	1501 to 1600
3rd century CE	201 to 300	10th century CE	901 to 1000	17th century CE	1601 to 1700
4th century CE	301 to 400	11th century CE	1001 to 1100	18th century CE	1701 to 1800
5th century CE	401 to 500	12th century CE	1101 to 1200	19th century CE	1801 to 1900
6th century CE	501 to 600	13th century CE	1201 to 1300	20th century CE	1901 to 2000
7th century CE	601 to 700	14th century CE	1301 to 1400	21st century CE	2001 to 2100

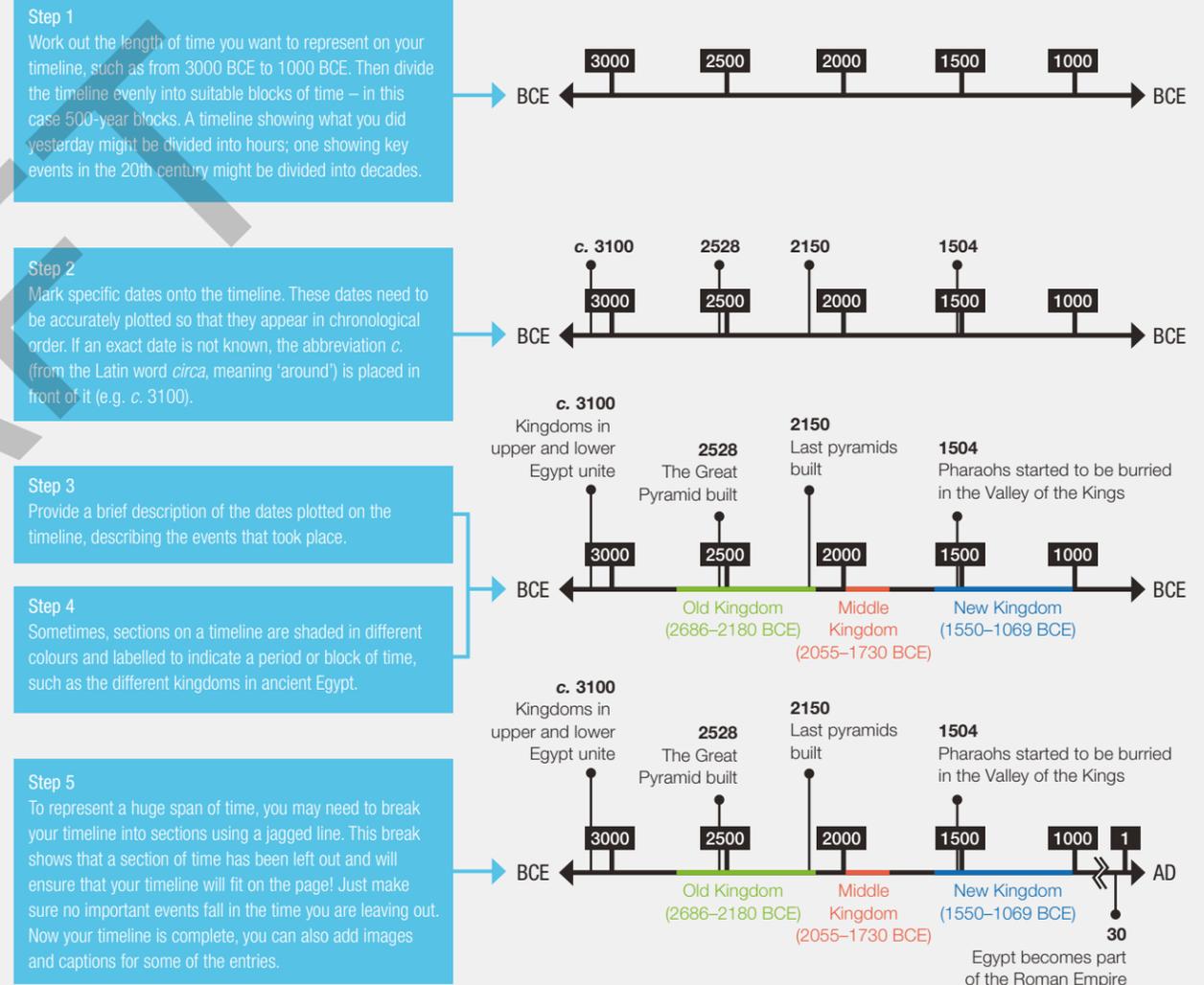
**Source 2** More than 2000 years of history in the Common Era (CE) divided into centuries. When ordering time CE, remember to count forwards from 1.

## skilldrill: chronology

### Creating a timeline

**Timelines** are used by historians to sequence time and order important events chronologically. They help divide large sections of time into smaller periods so that events (such as the births and deaths of important people, wars and discoveries) can be arranged in the correct order.

Timelines can look quite different, but they all work in the same way. There are some basic steps you need to follow when constructing timelines. Source 3 provides a simple example for ancient Egypt. Follow these basic steps when creating a timeline:



**Source 3** A step-by-step guide to creating a timeline

### Apply the skill

1 Create your own timeline based around one of the following topics:

- important events that have taken place in your life so far
- events in the life of someone important in your life (e.g. a family member or close friend)

Your timeline should have at least 5 entries and feature at least 1 image (with a caption). You will need to conduct some research online to complete this task.

## Use historical terms and concepts

Just like scientists, historians share a common language. They use historical terms and concepts to clarify what they are talking about and share their findings. Source 4 lists and defines some commonly used historical terms.

Term	Definition
AD	An abbreviation of the Latin <i>Anno Domini</i> – ‘in the year of our Lord’; a term used for any time after the birth of Christ (i.e. any time after 1 CE). This term has now largely been replaced by CE (see entry below).
age	A period of history with specific characteristics that make it stand out from other periods (e.g. the Stone Age, the Bronze Age)
BC	An abbreviation of Before Christ, a term used for the period of history before the birth of Christ (i.e. any time before 1 CE). This term has largely been replaced by BCE (see entry below).
BCE	An abbreviation of Before the Common Era, a term used for the period of history before the birth of Christ (i.e. any time before 1 CE). This term has largely replaced bc, because it is culturally neutral.
CE	An abbreviation of Common Era, a term used for any time after the birth of Christ (i.e. any time after 1 CE). This term has largely replaced AD, because it is culturally neutral.
century	A period of 100 years
chronology	A record of events in the order they took place
circa	A Latin word meaning ‘around’ or ‘approximately’ (abbreviated as c.)
decade	A period of 10 years
era	A period of time marked by distinctive characteristics, events or circumstances (e.g. the Roman era, the Victorian era)
millennium	A period of 1000 years
prehistory	The period of history before written records
time period	A block of time in history
timeline	A sequence of related historical events shown in chronological order. A timeline is generally scaled with years marked at equal distances.
year	A period of 365 days

Source 4 Some useful historical terms

### Check your learning 6.4

#### Remember and understand

- 1 What is a timeline?
- 2 What century are we living in?
- 3 What does BCE after a date mean?

#### Apply and analyse

- 4 Arrange the following dates in chronological order.  
1 CE 200 BCE 1200 CE 2012 CE c. 8000 BCE
- 5 Which centuries were the following years in?
  - a 2012 BCE
  - b 1 CE
  - c 1920 CE
  - d 1200 CE
  - e 902 BCE
  - f 654 BCE

#### Evaluate and create

- 6 Make a human timeline by forming a line with your classmates from youngest to oldest. Before you begin the activity, you will need to organise yourselves in groups based on:
  - a your years of birth
  - b your months of birth
  - c your dates of birth
  - d your times of birth (if two or more people are born on the same day and year).
- 7 Create a rhyme to help you remember one of the following:
  - the difference between CE and BCE
  - the definitions of year, decade, century, millennium, era and age.

## 6.5 Use historical sources as evidence

### Identify the origin and purpose of primary and secondary sources

As explained earlier (see ‘Evidence’ in section HT.1), historians use two types of sources to gather evidence about the past:

- **primary sources** – objects created or written at the time being investigated; for example, during an event or very soon after
- **secondary sources** – accounts about the past that were created after the time being investigated and which often use or refer to primary sources and present a particular interpretation.

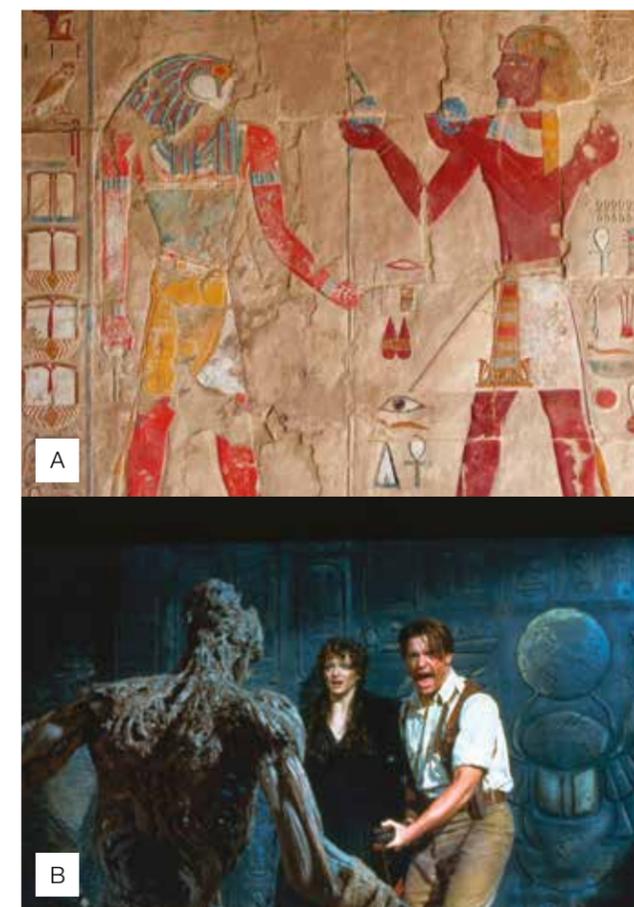
### Understanding the origin and purpose of primary and secondary sources

Both primary and secondary sources are useful, but it is important to understand where they came from (origin) and why they were created (purpose) because they will almost always reflect the perspective of the person who made them, as well as the attitudes and beliefs of that time. All sources are affected by the author’s own point of view, and in some cases the author may have been paid or forced to write in a particular way or ignore certain facts. This is referred to as bias and is often aimed at persuading the reader to agree with the author’s point of view. This is why historians must carefully analyse and evaluate sources.

Analysing sources by asking ‘who’, ‘what’, ‘when’ and ‘why’ questions will help you identify the origin and purpose of the sources. For example:

- Who wrote, produced or made the source?
  - Is the creator’s personal perspective obvious in the source?
  - Is the creator a member of a particular group, religion or organisation?
- What type of source is it?
  - Was the source created at the time of the event or afterwards?
- When was the source written, produced or made?

- How old is the source?
- Is it an eyewitness account or is it written by someone at a later date?
- Is the source complete?
- Why was it written or produced?
  - Was it designed to entertain, persuade or argue a point of view?
  - Does the creator have anything to gain personally from the source?
  - What other events may have been happening at the time and might have influenced the author or source?



Source 1 The origin and purpose of these primary (A) and secondary (B) sources are very different even though they are both linked to ancient Egypt.

## Locate, compare, select and use information from a range of sources as evidence

By this stage of your historical inquiry, you will have located and collected a variety of different sources and types of information. Now it is time to compare and select the most relevant information that you will use as evidence to support your hypothesis. There are a number of different ways to organise large amounts of information so that you can decide quickly and easily which sources provide the most useful, relevant and reliable evidence.

## Graphic organisers to help you compare, select and use information

Organisation charts are very useful tools for collecting, comparing and selecting suitable resources that you have located. A decision-making chart like Source 2 can help you do this.

RESEARCH TOPIC: Tutankhamun – how did he die?			
HYPOTHESIS: That Tutankhamun died as a result of a fall from a hunting chariot.			
<b>Source 1:</b> 'King Tut died from broken leg, not murder, scientists conclude' National Geographic website	<b>Pros:</b> <ul style="list-style-type: none"> <li>Article is current and based on scientific evidence</li> <li>Written by a reputable organisation – National Geographic</li> <li>Very detailed medical evidence</li> </ul> <b>Cons:</b> <ul style="list-style-type: none"> <li>The scientist refuses to listen to any counter-arguments by other experts</li> <li>Article uses words like 'probably' and 'most likely' and 'maybe', so they could be wrong</li> </ul>	<b>Category of source:</b> Secondary source Scientific article	<b>Reference information:</b> <a href="http://news.nationalgeographic.com/news/2006/12/061201-king-tut_2.html">http://news.nationalgeographic.com/news/2006/12/061201-king-tut_2.html</a> (Accessed 23/08/12)
<b>Source 2:</b>	<b>Pros:</b>	<b>Category of source:</b>	<b>Reference information:</b>
	<b>Cons:</b>		
<b>Source 3:</b>	<b>Pros:</b>	<b>Category of source:</b>	<b>Reference information:</b>
	<b>Cons:</b>		
<b>Source 4:</b>	<b>Pros:</b>	<b>Category of source:</b>	<b>Reference information:</b>
	<b>Cons:</b>		
<b>Source 5:</b>	<b>Pros:</b>	<b>Category of source:</b>	<b>Reference information:</b>
	<b>Cons:</b>		

Recommended sources in order of relevance/usefulness:

- 1
- 2
- 3
- 4
- 5

**Source 2** A decision-making chart showing an example of how you might compare and select sources

## Draw conclusions about the usefulness of sources

A useful source, whether primary or secondary, is one that will add to your understanding of a historical inquiry. The source needs to be relevant to the topic or question asked and must also be reliable. The following are good questions to ask in order to determine the usefulness of a source:

- Is it a reliable source?
- Is there enough information and sufficient detail to help me answer the inquiry question?
- Does the information support and reinforce evidence from other sources?
- Is it balanced or does it present one point of view (bias)?
- Is it based on fact or opinion?
- Is the information current?

## Check your learning 6.5

### Remember and understand

- 1 Which of the following is an example of a primary source?
  - a an Egyptian tomb painting
  - b an article written about tomb painting by a historian in 1907
 Give a reason for your answer.
- 2 Historians may never be absolutely sure of the building methods used to construct the Great Pyramid of Giza. Why might this be?

### Apply and analyse

- 3 Give two reasons why it is important to know the origin of a particular source of information.

## Separating fact from opinion

The conclusions you draw about the sources you have found will determine their usefulness. In many cases, this means separating fact from opinion. A fact is something that can be proved: when an event took place, what happened and who was involved. An opinion is based on what a person, or persons, may believe to be true. A simple way to detect whether a statement is fact or opinion is to look closely at the language used. The use of words like 'might', 'could', 'believe', 'think' and 'suggests' all indicate that an opinion is being expressed. For example:

- **Fact:** Tutankhamun was a pharaoh who ruled Egypt.
- **Opinion:** Many historians believe that Tutankhamun was murdered.

- 4 What words may indicate that a writer is expressing an opinion rather than presenting a fact?

### Evaluate and create

- 5 Conduct an online search to locate other graphic organisers that may be useful to help you locate, compare and use information from a range of sources as evidence. Some graphic organisers of use to you may include KWL charts, fishbone diagrams and PMI charts. Once you have examined other types of graphic organisers, make an assessment of which is most useful to you.

## 6.6 Analyse different perspectives and interpretations

### Identify and describe points of view, attitudes and values in primary and secondary sources

Primary and secondary sources reflect and represent many different points of view, attitudes and values. These may include personal, social, political, economic or religious points of view. For example, the Greek historian Herodotus visited Egypt in 450 BCE and wrote the following account of how the Great Pyramid of Giza was constructed:

#### Source 1

[Then] Cheops [the pharaoh] succeeded to the throne ... he closed the temples and forbade the Egyptians to offer sacrifice, compelling them instead to labour in his service. A hundred thousand men ... ten years oppression of the people to make the causeway for the conveyance of the stones [ramp to move the stones] ... the pyramid itself took twenty years ... built in steps.

Translated extract from *The Histories*, Book II, by Herodotus, a Greek historian (c. 450 BCE)

For many years this account was believed to be true, along with Herodotus' claim that over 100 000 slaves had been forced to build the pyramid.

Historians now know that Herodotus' account is incorrect. At the time of his visit, the pyramid had been standing for over 2000 years and its construction was almost certainly not achieved with the use of slave labour as he described.

Modern historians have excavated skeletons and believe that the pyramid was built by Egyptian labourers who worked on it during flood time, when they were unable to farm. They lived in specially constructed villages near the worksite. Graffiti etched into stonework indicates that at least some of the workers took pride in their labours, calling themselves 'Friends of Khufu'.

What could have motivated Herodotus to deliberately write this false account? As a citizen of Athens, Herodotus' view of the world was shaped by his own democratic background. He resented the fact that so much power was held by one man, the pharaoh, and may have been trying to discredit him by blackening his name.



Source 2 The Great Pyramid of Giza, Egypt

### Check your learning 6.6

#### Remember and understand

- 1 Historical sources always reflect the perspective of their writer. Give two examples of factors that may influence a writer's point of view or perspective.
- 2 Why might the Greek historian Herodotus have written that the Great Pyramid at Giza was constructed using slave labour?

#### Apply and analyse

- 3 When explaining why an event occurred in history, would it be acceptable to present your own opinions? Why or why not?

## 6.7 Communicate your findings

### Develop text types (such as descriptions and explanations) that use evidence from a range of sources

Historical writing requires you to describe and explain using evidence from a range of sources. You will often be required to outline the significance of a past event while providing reasons for the event and referring to relevant evidence.

Different types of sources need to be used to ensure that historical writing presents a balanced view and is supported by reliable evidence.

The two most common text types you will be expected to use this year are descriptions and explanations.

#### Writing descriptions

The purpose of descriptions is to give clear information about people, places or objects at particular moments in time. They focus on the main characteristics of particular people or things.

Descriptions must always follow a set structure, and events must be organised in chronological order.

#### Structure of a description

<b>Introduction</b>	<ul style="list-style-type: none"> <li>• Introduces the subject.</li> <li>• States the name of the person or event.</li> <li>• Outlines why the topic is important.</li> </ul>
<b>Body</b>	<ul style="list-style-type: none"> <li>• Provides details about the person or event (including dates and important facts).</li> <li>• Information must be organised in paragraphs, with a new paragraph for each detail.</li> <li>• Quotations and descriptive words should be used where relevant.</li> </ul>
<b>Conclusion (optional)</b>	<ul style="list-style-type: none"> <li>• Revisits the most important details and provides a concluding statement.</li> </ul>

#### Source 1

#### Writing explanations

The purpose of explanations is to tell how or why something happened. They provide the reader with a greater understanding of the causes and effects of past events. Explanations must be clear and factual.

They should not contain opinions or emotional language. There must be supporting evidence from a variety of sources for each point made. These sources must be acknowledged in a bibliography using the correct referencing format.

#### Structure of an explanation

<b>Introduction</b>	<ul style="list-style-type: none"> <li>• Clearly states the main idea or aim.</li> <li>• Briefly outlines the reason/s why an event occurred and its effect/s.</li> </ul>
<b>Body</b>	<ul style="list-style-type: none"> <li>• Each idea must be supported by evidence. The evidence should be analysed to explain its significance or importance.</li> <li>• Information must be organised in paragraphs, with a new paragraph for each detail.</li> <li>• Language should be precise and not contain emotional words.</li> <li>• Personal opinions should be avoided.</li> </ul>
<b>Conclusion (optional)</b>	<ul style="list-style-type: none"> <li>• Provides a short and clear overview of the main ideas presented in the body.</li> <li>• States a conclusion drawn from the evidence.</li> </ul>

#### Source 2

### Use a range of communication forms

The final stage of any historical inquiry is the presentation of your findings. This is one of the most important aspects of your inquiry because it draws together all of the sources, evidence and findings of your investigation.

There are a number of ways to effectively and impressively communicate your findings. For example:

- oral – speeches, class presentations, re-enactments, interviews and role plays
- graphic – posters, cartoons, graphic organisers and models
- written – descriptions, explanations, class newspapers, scripts, letters and diaries
- digital – audiovisual presentations, websites, films, blogs, wikis and apps

## 6.8 How we know about the ancient past

History is the study of the past. Historians try to understand and explain the past by examining its remains – fossils, bones, books, ruins – known as sources. Historians use sources to generate theories (known as **hypotheses**) about people and events from the past. The process of investigating history therefore involves finding sources, asking questions about these sources, and then creating hypotheses. In order to prove these hypotheses, historians continue looking for more sources and gathering more evidence.



Some historical sources are easier to find than others. Some groups of people from the past have left behind more primary sources than others. No matter how many sources a historian finds, each piece can only tell part of the story. And regardless of whether the source is a small fragment of ancient pottery or a detailed book, it will only represent a small piece of the puzzle or one person's perspective. To combat this problem, historians need to research widely, recognise **bias** and accept that there are periods in history for which we cannot gather evidence. Increasingly, historians work with experts in other fields – such as scientists, biologists, translators, palaeontologists, geologists and archaeologists – to construct a more accurate and complete picture of the past.

### What sources can be used in a historical investigation?

Historians use a variety of sources in historical investigations. These are usually divided into **primary sources** and **secondary sources**.

#### Primary sources

Primary sources are things that existed or were written or made during the time being studied. They have a direct link to the event, period or person being studied.

**Source 1** Tollund Man, found near Tollund in Denmark in 1950, has allowed us to unlock important information about the past. Scientists, archaeologists and historians working together have determined when he died, what he had eaten, how he died, how ancient people in his society mourned the dead, as well as other information about his life.



**Source 2** Archaeologists excavate ancient sites in order to find artefacts, buildings or even human remains that will help them understand the past.

#### Secondary sources

Secondary sources are things that have been created after the time being studied. A secondary source interprets and analyses primary sources. These sources are one or more steps removed from the event. A secondary source for one historical inquiry may be a primary source for another. For example, a painting of a 10th-century battle by a 17th-century artist is a primary source for that artist's life but a secondary source for the battle.

**Source 4** Some examples of primary and secondary sources



**Source 3** This spearhead is a primary source that provides evidence about our Indigenous Australian past.

Primary sources	Secondary sources
<p>Anything that existed or was written or made <i>during</i> the time being studied, such as:</p> <ul style="list-style-type: none"> <li>• skeletons or corpses</li> <li>• buildings</li> <li>• paintings</li> <li>• documents or inscriptions</li> <li>• music, songs or stories</li> <li>• costumes, clothing and jewellery</li> <li>• household items.</li> </ul>	<p>Anything that interprets or explains primary sources, and was created <i>after</i> the time being studied, such as:</p> <ul style="list-style-type: none"> <li>• textbooks, including this one</li> <li>• books, magazines, articles and websites</li> <li>• films and documentaries</li> <li>• maps</li> <li>• timelines.</li> </ul>

### Check your learning 6.8

#### Remember and understand

- 1 Describe some of the sources historians use to investigate the past, and what they can tell us.

#### Apply and analyse

- 2 Examine Source 1 and make a decision about whether it is a primary or secondary source. Explain why you think a source like this might be important for historians and archaeologists.

#### Evaluate and create

- 3 Imagine you are a historian in the 25th century, researching life in the early 21st century. Create a list of historical sources that you think would have survived. For each source, describe what it would tell you about life at that time. What would those sources *not* tell you about? Write a historical report outlining what you have 'discovered' about life 400 years ago, and how you did so.

## 6.9 Archaeological digs

If you missed the grand final of your favourite sport and wanted to know what happened, you probably would not get reliable information if you spoke to just one person. You would need to check many sources of information – newspapers, television reports, game replays, fan blogs and so on. Likewise, historians cannot just rely on one source of evidence for an investigation. Historians need to act like detectives, constantly searching for clues about the past to gather as much evidence as possible.

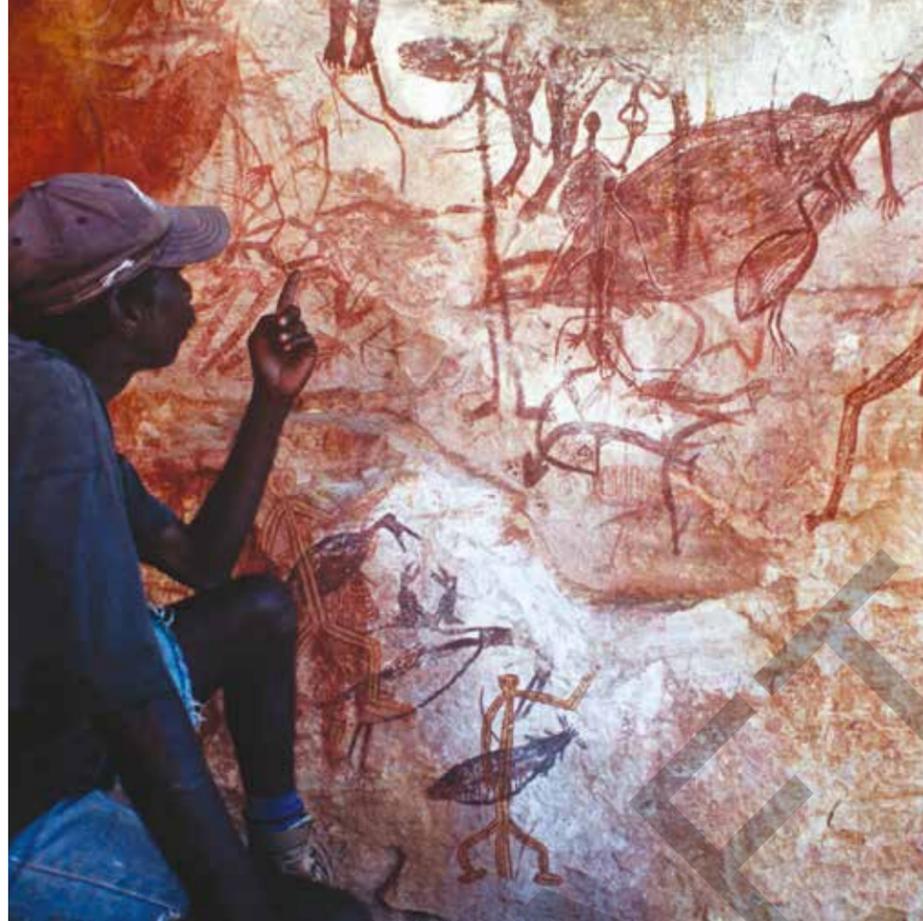
When conducting investigations into the ancient past, historians rely on the work of many other experts, including biologists, **geneticists**, **palaeontologists** and **archaeologists**. Many of these experts work together at **archaeological digs**, which are an important source of evidence of the ancient past.

Archaeologists uncover sources of evidence of past peoples. This includes not only skeletons but also the places where they lived and travelled, such as the ruins of towns, temples and tombs; artefacts they made, such as pottery, weapons, tools and coins; inscriptions and stone reliefs they carved; even rubbish dumps (middens) and fire sites. Some sources are so old that they have turned into fossils or remain only as a 'shadow' or crust in the soil. Some archaeologists work underwater, looking for sources on or beneath the sea bed, such as old shipwrecks.

Most sources found on land are buried. They might be covered by the silt of past floods, sand blown by the wind, or forests that have grown over them. Some, like the ancient Aztec capital of Tenochtitlan, lie beneath more recent cities or settlements that have been built over the top of them.

Once a site is discovered, archaeologists rope off or otherwise protect the site, called the 'dig'. It is then marked off into segments, in a grid. This allows the precise location of any items that are found to be specified. After surveying the site, archaeologists remove overlying rocks and dirt. Ancient objects can be extremely delicate, so archaeologists need to take great care uncovering them.

Once a source has been fully exposed or excavated, the archaeologist photographs and numbers it, and records details of its size, appearance and exact location.



**Source 1** Indigenous art at Injalak Hill, Northern Territory. This is evidence of Australia's ancient Aboriginal people. A historian might investigate the age of these paintings, who painted them and why.

### Sources of evidence

Archival material (e.g. letters, reports, documentaries, voice recordings, newspapers, official documents) found in libraries, archives and on specialised Internet sites

Textbooks and journals by experts relating to the matter under investigation

Portable artefacts (e.g. tools) and other sources (e.g. a skull) in places such as museums, libraries and art galleries

Cemeteries, caves, beach middens, historic sites (e.g. with ruins) and so on

**Source 2** Sources of evidence for a historical investigation. Some can be found at archaeological digs. Others can be used to make sense of objects found at digs.

### keyconcept: Significance

#### Ötzi the Iceman

In 1991, the preserved corpse of a man who had lived 5300 years ago was found accidentally by tourists in the Ötztal Alps, in northern Italy. Ötzi the Iceman is the oldest natural mummy in Europe. At first, the people who found him did not realise the significance of their find. A jackhammer was used to chisel the corpse out, damaging part of the body. Later, the body was treated with much more care. The mummy provided many different types of evidence that showed what life was like when Ötzi was alive. For example, his lungs were blackened, probably from breathing in campfire smoke, and his stomach contained remnants of what he had been eating. Scientists could tell what kind of environment he had lived in from pollen found in his intestine, and they could see what sort of lifestyle he had led from his bones. He also had a tattoo. With the corpse were clothes, tools and equipment, which presented further clues to his life. Ötzi gave historians new insights into the lives of ancient Europeans.

For more information on the key concept of significance, refer to page XX of 'The history toolkit'.



**Source 3** The remains of Ötzi the Iceman



**Source 4** Some archaeological excavations can be quite deep because the sources being excavated may be covered by many layers of dirt, rock and debris.

### Check your learning 6.9

#### Remember and understand

- 1 Identify what kinds of sites archaeologists excavate.
- 2 Explain how archaeologists investigate a dig.

#### Apply and analyse

- 3 Analyse how Ötzi the Iceman's body could be used to provide information about life in the Ötztal Alps more than 5000 years ago.
- 4 Sketch an archaeological dig and label the different types of evidence that could be found there.

#### Evaluate and create

- 5 Imagine you are an archaeologist. Briefly explain why your job is important to the study of history.

## 6.10 Scientific techniques

When archaeologists and historians find objects from the past, they often need help from scientists who use the latest techniques and machinery to gather more information. Many of these techniques – known as scientific techniques – are used to assess the likely age of sources. They can tell us, for example, the ages of the skulls in Source 2. Scientific techniques like the ones described below need to be used in combination with other historical techniques and evidence to provide a complete explanation of the past.

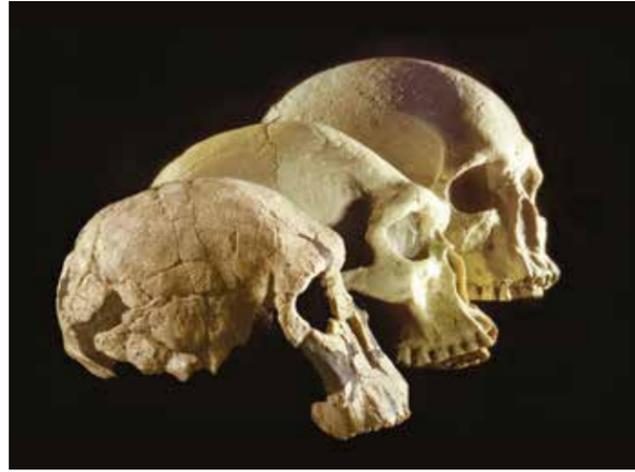
### Some scientific techniques used to analyse historical sources

- Stratigraphy (analysis of soil or rock layers)
- Fluorine dating (analysis of the age of bones)
- Radiocarbon dating
- Dendrochronology (analysis of tree rings)
- DNA analysis
- Ice-core sampling
- Palynology (analysis of microscopic organic compounds)

**Source 1** Some scientific techniques used to investigate the past

### Scientific dating techniques

Many scientific dating techniques are used to investigate the past. Some are absolute dating techniques, which allow the age of an object to be stated as precisely as possible (in years). Others are relative dating techniques, which can only determine whether an object is of an earlier or more recent date relative to (compared with) another object.



**Source 2** Three skulls – front: *Homo habilis* (Kenya, 1.88 million years old); centre: *Homo erectus* (Kow Swamp, Victoria, 13 000 years old); back: *Homo sapiens* (Keilor, Victoria, 13 000 years old)

### Stratigraphy

**Stratigraphy** involves analysing sources found in the different strata of earth. Strata are layers marking different geological time periods. Since the layers of rocks are generally youngest on top and oldest on the bottom, items found in the lowest strata will usually be the oldest (see Source 3). In an **archaeological dig**, scientists may know that a particular stratum (the singular form of strata) is 1000 years old. This means that the items excavated from that stratum will probably be of a similar age.

Natural disasters and geological events can change the way strata are arranged, so it is not an exact science. Stratigraphy is a relative dating technique.

### Fluorine dating

Bones can be dated using **fluorine dating**. Bones absorb the chemical element fluorine from the soil in which they are immersed. The longer they are there, the more fluorine they absorb. Like stratigraphy, this is a relative dating technique.



**Source 3** Different artefacts are found in different strata (or layers). These are generally positioned according to their age. Artefacts found in stratum A will be more recent than those found in stratum E.

### Radiocarbon dating

**Radiocarbon dating** is a complex technology that is more accurate than stratigraphy and fluorine dating. It is an absolute dating technique. All living things contain a particular type of carbon called C14, which is why we are called carbon-based life forms. This carbon is continuously renewed while an organism is alive. Living things stop absorbing C14 when they die. C14 is radioactive, which means that, over time, it breaks down at a known rate into a different type of carbon. Scientists use special equipment to work out how much C14 is still present in once-living organisms. Using that information, they can work out how long ago the organism died, and therefore how old it is.



**Source 4** Radiocarbon dating would determine the likely age of mummified human remains such as these. This corpse was found in central Asia.

### Dendrochronology

**Dendrochronology** refers to tree-ring dating. Scientists can date a tree by studying the growth rings in a cross-section of its trunk (see Source 5). Each year in a tree's life, a new ring forms. It varies in shape and width according to the conditions that year. It has two parts: a light part (spring growth) and a dark part (summer/autumn growth). Scientists can study these rings and can compare rings between trees to determine their age.

Sometimes experts can calculate the relative age of wooden artefacts, such as bowls or floorboards. This is possible if they can match the ring patterns in the wood with those of local trees of the same species.



**Source 5** Trees grow a new ring every year.

## Other scientific techniques

### DNA analysis

All living organisms (except some viruses) contain deoxyribonucleic acid, or **DNA**. DNA holds the genetic code that determines how a living thing develops and operates. It is comparable to the ones and zeros that make up computer code and tell your software what to do. DNA is sometimes preserved in the remains of once-living organisms. Scientists can learn a lot from studying DNA. They can tell what type of organism it is. They can also tell how closely related it is to other species and to other individuals of the same species. For example, they can study the DNA of ancient remains and determine how closely related they are to modern humans.

### Ice-core sampling

This technique works in a similar way to stratigraphy. Ice-core samples are long cylinders of ice that have been drilled from thick ice sheets. These samples are most commonly taken in the polar ice caps of Antarctica and Greenland, or from high mountain **glaciers** all over the world. As ice forms in the gradually increasing build-up of annual layers of snow, lower layers are older than upper layers. This means that an ice core contains ice formed over many years. Air trapped at various sections along an ice core, such as the one shown in Source 6, provides evidence of what the atmosphere was like at different periods in the past. Scientists can then form conclusions about the climate at a particular time.



Source 6 Scientists collecting ice-core samples in Antarctica



Source 7 Analysis of the fossilised pollen in this soil core allows researchers to find out how plant life in a particular area changed over thousands of years.

### Palynology

**Palynology** is the study of microscopic organic compounds (such as pollen) that are found in soil. Taking soil cores enables scientists to analyse fossilised pollen and find out how plant life in a particular area has changed over thousands of years (see Source 7).

## Check your learning 6.10

### Remember and understand

- 1 In your own words, describe each of the scientific techniques covered in this section.
- 2 Describe how DNA analysis can help historians to better understand a source.

### Apply and analyse

- 3 Explain why it is important to be able to date sources.
- 4 Imagine you found human remains at an archaeological dig. Which methods would be best suited to dating these remains and why?

### Evaluate and create

- 5 Explain which dating technique you think is the most accurate or the most reliable. Justify your answer.
- 6 Study the evidence about the age of the Sphinx in the following Key concept section. Determine how old you think the Sphinx is. Make sure you support your decision with evidence.

## keyconcept: Contestability

### The mystery of the Sphinx

Historians and archaeologists disagree about how old the Sphinx is. Different forms of evidence point to different answers, and historians look at various forms of evidence in combination to form an opinion about the Sphinx's age.

Most archaeologists believe that the Sphinx is about 4500 years old, having been built around 2500 BCE, but there are some who believe it is much older.

The Sphinx lies among Egypt's pyramids at Giza. It was carved from an outcrop of limestone rock and was probably once painted. The Sphinx has been studied by many scholars and scientists. There is much we know but also a great deal we do not. For example, whose face is represented on this monument? How and why was the face and nose of the Sphinx damaged? Are there tunnels beneath it? How old is it?

### HISTORICAL EVIDENCE

Between the front paws of the structure there is a tablet inscribed with **hieroglyphs** (similar to those in Source 9). The hieroglyphs describe a dream of the Egyptian king Thutmose IV, who ruled Egypt between 1424 and 1417 BCE. He ordered that this inscription be made. It includes the statement that the Sphinx was made 'in the days of Khafre, when the world was young'.



Source 8 The Sphinx, with the body of a lion and the head of a man

The Sphinx lies close to the tomb of the Egyptian pharaoh Khafre, who lived c. 2603–2578 BCE. It is also believed to resemble Khafre.

### EVIDENCE FROM EROSION

Some archaeologists and scientists believe the Sphinx was built about 9000 years ago. They argue that the erosion on the Sphinx could only have been caused by steady rainfall. The last time it rained steadily in the Sahara was about 8000 years ago.

Other scientists **contest** this evidence. They argue that the erosion could have other causes. The erosion could also have been caused by water rising in the ground under the Sphinx. It moves up into the limestone, and when it evaporates it leaves behind salt, which can cause the limestone to break down.

Finally, there is no evidence of an Egyptian civilisation that existed in 7000 BCE. For the Sphinx to be 9000 years old, there would have to have been an ancient civilisation that pre-dated the Egyptians. This is a tantalising idea, but is it true?

For more information on the key concept of contestability, refer to page XX of 'The history toolkit'.



Source 9 Stone relief of Egyptian hieroglyphs found at the entrance to a tomb

## 6.11 Conserving and protecting sources

Historical sources can be very fragile. Once exposed to the open air, weather, pollution and humidity, many items will quickly deteriorate. In addition, sources may be stolen or broken by careless handling. If a source is important, it needs to be conserved to secure its value for future generations.

Tourist numbers are growing rapidly in places such as Pompeii and the Indigenous art caves in the Kimberley. Too much trekking over the same ground, too much touching and too much breathing in a confined space can damage sources, especially if they are very old and fragile. In addition, such actions may sometimes cause offence to others, or show disrespect to others' beliefs.

**Conservators** are now taking a range of measures to protect certain objects and places from overexposure. For example, Indigenous cave art is often fenced off. Such an action respects the spirituality of Indigenous people but also protects this ancient art from damage. Another example is the inclusion of certain old buildings in Australia and around the world on heritage lists, which ensures their protection and conservation.

Many sources are stored in libraries, archives, art galleries and public museums where they can be cared for and preserved. Valuable, fragile or very important sources can usually be viewed but not borrowed, touched or removed. Some examples include:

- the Mitchell Library in the State Library of New South Wales, which houses a huge collection of historical sources on Australiana
- the Bunjilaka Aboriginal Cultural Centre at the Melbourne Museum, which aims to 'keep alive' the oral stories and history of Victoria's Koorie people. In this case, conservation is about making sure stories are not forgotten.

Venues such as museums and galleries provide security and proper storage facilities. Their design also sets the right environmental conditions. Some items, for example, must have muted light or low humidity. Think how your clothes fade when you wear them outside in the sun a lot. It is important to protect historical sources from such damage. In addition, these institutions have staff who know how to restore and repair damaged items. They also know which artefacts are the most important to conserve, because conservation can be expensive.



**Source 1** A conservator restoring an ancient statue of Marcus Aurelius' horse. Marcus Aurelius (121–180 CE) was Roman emperor for the last 19 years of his life.



**Source 2** The Gallery of First Australians in the National Museum of Australia in Canberra includes this display, which provides evidence of the strong connection Torres Strait Islanders had with the sea. The museum conserves these sources in order to maintain this part of Australian history.

### keyconcept: Evidence

#### Preserving our heritage



Historical sources are part of our heritage. They are a reminder of the glories and terrors of past times, and the mistakes and great advances made. They remind us where we have come from and what shaped our societies and cultures. They give us a sense of who we are as a people. Conserving these remnants of the past ensures that future generations will be able to appreciate a shared heritage.

**Source 3** The Pintupi Aborigines' women's Dreaming site

It is important to conserve not just our recent past but also our ancient past. Some groups want to ban access to significant Indigenous sites in order to aid their conservation. Large numbers of tourists visiting a site can both physically damage it and can be regarded as disrespectful.

Source 3 shows a sacred women's Dreaming site belonging to the Pintupi Aborigines. Some people think public access to such sites should be limited in order to conserve it.

For more information on the key concept of evidence, refer to page XX in 'The history toolkit'.

### Check your learning 6.11

#### Remember and understand

- 1 In your own words, describe what conservation is.
- 2 List the different reasons for conserving historical sources.

#### Apply and analyse

- 3 Explain what precautions museums put in place for fragile artefacts and why.
- 4 Outline the reasons for banning access to popular Indigenous sites.

#### Evaluate and create

- 5 Justify whether you think access to significant Indigenous sites (like the one shown in Source 3) should be limited.
- 6 Create a plan for conservation of an important source of history in your community. Think about why it is important and what factors may cause it to be damaged.