

The Bronze Age:

what was so special about copper and tin?

Karin Doull

On first approaching this period it is possible to feel comfortable with the term 'Bronze Age' without ever really interrogating what this means. When did this period happen? What do we mean by the term *the* Bronze Age and was it different or the same around the world?

Clearly there was something about this melding of copper and tin that created a material that was more useful and effective than objects made of stone, as all around the world civilisations migrated from the use of stone to metal. Not just any metal would do, as bronze showed superior strength over copper alone and so became the metal of choice. There was more seismic development connected with this technological revolution, however, that we should look for and understand, when considering this period.

Bronze tools revolutionised agriculture. Bronze was harder, lasted longer and had a sharper edge than wood or stone tools. More forests could be cleared. More land could be ploughed. More crops could be harvested. This, in turn, led to the ability to create a surplus that could be traded or stored against disaster. Bronze ploughs were less brittle than stone and so did not fracture when hitting an obstacle or lose their edge as wood did. Bronze axes were sharper and so more effective at clearing new ground. Bronze sickles retained their edge so that the harvest could be brought in more quickly. More effective agriculture also led to population growth, as the land could sustain more while also requiring more people to work the increasingly cultivated farmland.

Bronze is an alloy that is created from copper and tin. As such it was less easy to source than stone, which was freely available in almost all locations. While copper is available across the world, deposits of tin are far rarer. The main source of copper for the Mediterranean was probably Cyprus (whose name is perhaps derived from the word). Copper was also found in the Levant (Lebanon, Syria and Turkey) and the Cyclades (Greek Islands). Tin was far more difficult to find, however. Main sources were the Iberian



Peninsula, Brittany, Afghanistan and Cornwall. Clearly the need for raw materials led to the development of trade across the region.

This trade was easier to manage from large organised trade centres; combined with increased population and sustainable farming methods, this led to growth of city states and urban development. Numbering systems for weighing and measuring and recording transactions fuelled the evolution of mathematics. Astronomy measured time and distance. Architecture and ritual building (pyramids and temples) required manpower, thereby increasing the growth of cities. Written language recorded trade and government, and so literacy grew. Ideas and innovations were spread through the trade routes, adding to changing ways of life. The loom and the chariot appear in this period as does the sword.



Houmuwu Ding



Bronze age scales

The skill to turn ore into molten metal and then to create a useable artefact must initially have seemed like magic. Much superstition and awe grew up around the metal-worker, particularly one able to combine two metals to create the sought-after bronze.

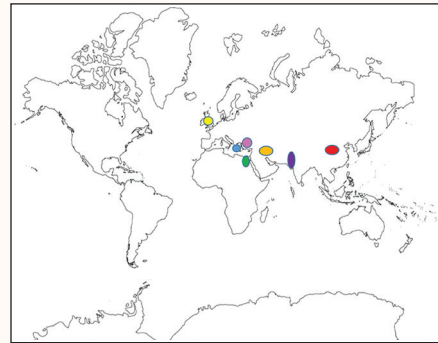
Bronze could be made into long thin wires, hammered into flat plates or cast in a mould. It was also of course recyclable, as objects could be repaired or melted down and cast again into something new. The process

of using a mould to shape the liquid metal allowed a vast range of artefacts to be created from tiny hairpins to a vast ding (the size of a VW Beetle), including intricate decoration and craftsmanship.

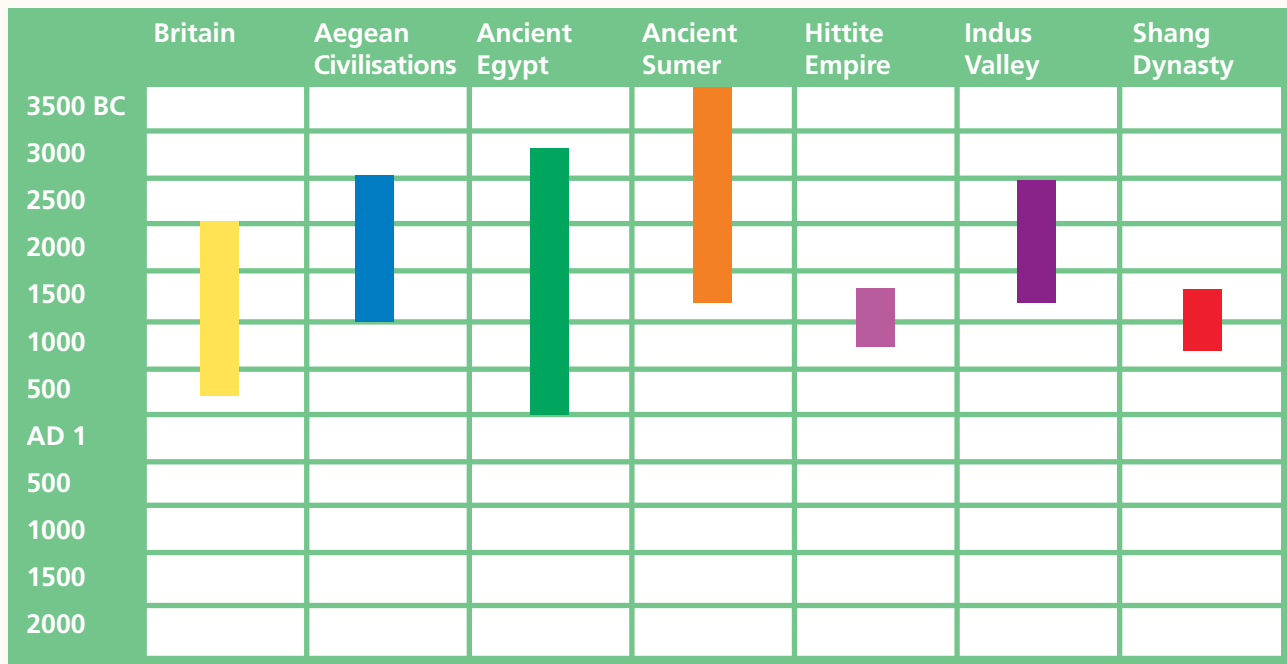
While gold was valued in most civilisations as the premium precious metal, bronze too was a material demonstrating wealth and power. It would fuel economies around the world until the ability to smelt iron ore changed the game once more.

Activity

Present children with a map showing your focus civilisations and a timeline with approximate dates and ask them to draw conclusions about how bronze-making spread across the world (alternatively, ask them to create their own map and timeline). Children could then also research other areas to add them to the picture. What happened in some of these other areas that did not have a Bronze Age? Why might this have happened?



Timeline



	Early Bronze Age 3000 BC to 2150 BC	Intermediate Bronze Age 2150 BC to 1500 BC	Late Bronze Age 1500 BC to 300 BC
Egypt	Old Kingdom	Middle Kingdom	New Kingdom
Mesopotamia	Sumer	Assyria/Babylonia	
Near East			Hittites
Aegean	Early Minoan	Middle and late Minoan	Mycenaean
India		Indus valley civilisation	
China			Shang Dynasty
Britain		Beaker people	Must Farm

Making links

One of the key elements within the National Curriculum is the focus on comparison, on identifying trends and to 'make connections' as well as 'draw contrasts' and 'analyse trends' (DfE, 2014). Within the requirements for Key Stage 2 is the expectation that schools will investigate:

'the achievements of the earliest civilisations – an **overview** of where and when the first civilisations appeared and a depth study of one of the following: Ancient Sumer; the Indus valley; Ancient Egypt; the Shang Dynasty of Ancient China, (DfE,2014).

A key word that is often overlooked is 'OVERVIEW'. The idea here is to create a historical context that will allow children to note those 'connections, contrasts and trends' that shape a period. Many schools tend to focus on the depth study without considering the relationship that these civilisations had to one another. One way to create an overview is to select a lens through which to look at the different civilisations. The use and status of bronze is one such lens. What does the 'Bronze Age' mean in Egypt or China? In addition, this is a useful tool to identify links with Britain's Bronze Age, to show it as part of a worldwide phenomenon rather than an isolated development.

It is also important to help children locate civilisations both in time and place. Are there connections geographically? Why might civilisations develop in certain areas for instance? Are the same things happening around the world at similar times? It is easy to see how knowledge of Bronze Age technology might be spread between the civilisations in the lands around the eastern Mediterranean basin and Mesopotamia. How was it that bronze working was also so important to China at a similar time? Did it develop spontaneously or was the technology traded in some way?

Exploring contrasting pasts

Much of what we know about Bronze Age artefacts comes from buried hoards of objects or tomb goods. While these are beguiling and fascinating, they tend to portray the lives of the great rather than everyday people. However, they also present us with the most incredible examples of craftsmanship, allowing us to marvel at the beauty and flexibility of the medium.

Newly minted bronze is yellow and shiny but, unlike gold, it will tarnish with age. The copper in the bronze

turns green, producing 'verdigris'. Where possible show children reproductions of objects as well as what was found to help them envisage what they would have looked like in the original.

I have selected three significant Bronze Age tombs that have yielded treasures that tell us something of their time and the rulers who were buried in them.

Activity 1: Historical Presenters

Divide the class into three and allocate one of the tombs to each group. Provide some open-ended questions for the children to research. They can use a storage programme such as padlet (<https://padlet.com>) to record information, including audio and visual links, digitally. This programme is effectively a working wall on which to attach files.

Potential questions to consider:

- What type of person was found in the tomb?
- Was this person significant and if so how do you know this?
- What can you tell about the person from the objects buried with them?
- What materials were the objects buried in the tomb made of and why do you think those materials were used?
- What can you tell about the civilisation from the goods that were found with the person?
- What can you tell about where the coffin was found? Were there other constructs or buildings around the tomb? If so, what does that tell us?
- What do you think was the most unusual or tragic thing found in the tomb?

Once children have gathered their research they could either present the information as a documentary film or as a podcast. To do this they will need to write a script with a recognisable narrative and select carefully from their research to identify what information they want to use and what images would be most suitable. The group would need to allocate different roles such as presenter, cameraman/woman, sound technician, writer, researcher and director. You might want to watch some clips from TV historians for some ideas. I am sure children would love to make their own Horrible History version but you could also widen

When did they die?	Whose tomb?	Where is the tomb?	Who found it?	When was it found?
1323 BC	Tutankhamun	Valley of the Kings, Egypt	Howard Carter	1922
1200 BC	Lady Fu Hao	Anyang, China	Zheng Zhenxiang	1976
1450 BC	The Griffin Warrior	Pylos, Greece	Jack Davis and Sharon Stocker	2015

their experience by watching a less frenetic style of presentation.

Try to include some music from the period. Fu Hao had 23 bronze bells. Tutankhamun had a silver and a copper or bronze trumpet, ivory clappers and two wood and copper sistra. The Griffin Warrior did not have any instruments within the tomb but did have images of ritual and worship that would have involved instruments such as the lyre, the flute and the sistrum (rattle).

Here are some examples

Fu Hao – www.britannica.com/art/zhong

Tutankhamun – www.youtube.com/watch?v=8bfdKgMAkYQ

www.youtube.com/watch?v=GvDrl_zOQg8

Amarna is the city where Tutankhamun lived as a child.

The Griffin Warrior – www.youtube.com/watch?v=7IR3Y_67XOM

Activity 2: Warrior Tombs

Each of the three warrior tombs included a vast array of goods to serve their owner in the after-life. Alongside jewellery and personal items were the tools of their trade: arrows, bows, spears, armour, shields, daggers, axes and, of course, swords. 30% of the artefacts found in Lady Fu Hao's tomb were weapons. Tutankhamun had 46 bows of various shapes and types and over 680 arrows. The weapons reflect the way in which war was fought in that time and place. Swords only came into being once metal could be worked. There were no Stone Age swords.

This video will show how to make a bronze sword:

www.bbc.com/bitesize/articles/z874kqt

Here are examples of swords from our warriors.



Tutankhamun



Shang



Griffin Warrior

Other questions that might be asked include: What other weapons did they have? How were they the same or different? Which was the most important weapon that each had and why do you think that? What was different about the types of metal used in the tombs of the Griffin warrior, Tutankhamun and Lady Fu Hao? Which metal seemed less important to the Shang?

What is happening in the images on these two artefacts below? What impressions was the artist trying to portray? Why would you want something like this in your tomb if you were a warrior?



'The Pylos Combat Agate' – agate seal 3.6 cm long carved without lasers or magnifying glasses.



Wooden side panel from 'The Painted Box' showing Tutankhamun slaying the Syrians.

Teacher resources to develop subject knowledge

Here are a list of sites that might provide some useful information:

Tomb Shang

www.ancient-origins.net/ancient-places-asia/lady-fu-hao-and-her-lavish-tomb-shang-dynasty-002278

www.ancient-origins.net/news-history-archaeology/tombs-treasures-and-2000-year-old-bronze-sword-uneearthed-china-002775

Tomb Tutankhamun

www.eloquentpeasant.com/2011/05/02/ghost-music/Trumpeters-were-referred-to-using-titles-such-as-trumpet-speaker-and-caller-on-the-trumpet/

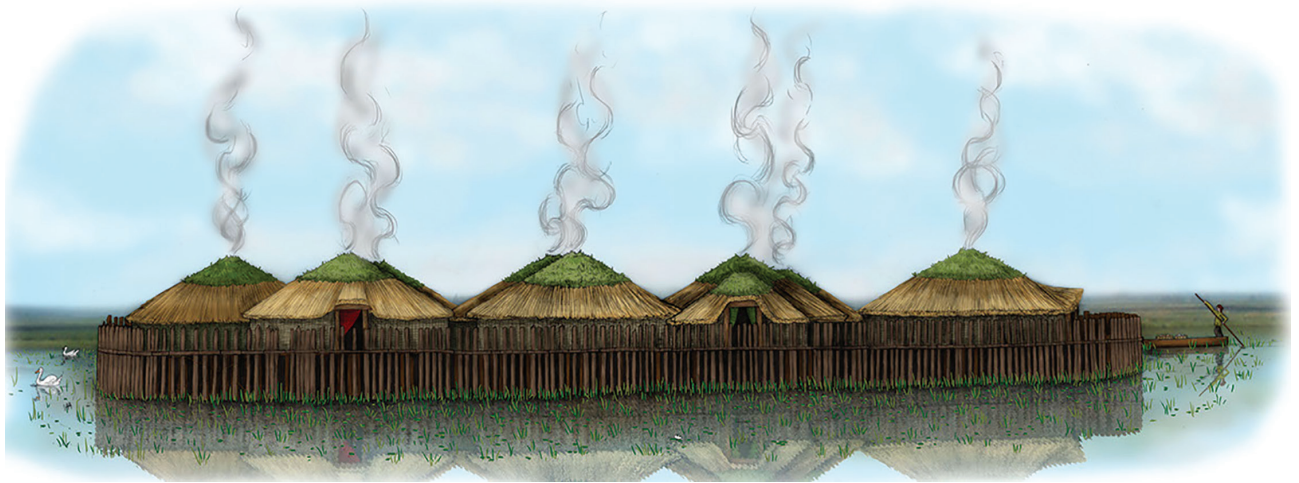
www.griffith.ox.ac.uk/discoveringtut/journals-and-diaries/

Griffin Warrior Tomb

https://magazine.uc.edu/editors_picks/recent_features/uneartingamasterpiece.html

https://magazine.uc.edu/editors_picks/recent_features/griffinwarrior.html

www.smithsonianmag.com/history/golden-warrior-greek-tomb-exposes-roots-western-civilization-180961441/



What does Must Farm tell us about how ordinary people used bronze?

Must Farm is the archaeological site for a late Bronze Age settlement that was discovered in 2015 in Cambridgeshire. The settlement contained at least five roundhouses made of wattle with turfed and thatched roofs set on wooden piles sunk into the fen. Around the settlement was a palisade and walkway. It was close to Flag Fen which had already provided rich evidence of Bronze Age communities. The site dates to between 1000 and 800 BC. It appeared that the area had started out dry but became progressively wetter. The saturation of the area had led to the river valley becoming an embayment in the greater fen. This had led to the community constructing dwellings above the water, although they still used the land to farm and hunt, rarely eating fish.

A catastrophic fire led to the sudden abandonment of homes, allowing precious goods to sink into the water. It seems that no real effort was made by the population to rescue their substantial possessions. The river silted over the homes and goods, preserving them until they were recently rediscovered. Because of this sudden conflagration the fleeing inhabitants seem to have literally dropped everything, including the pot with the spoon still in it that was being stirred over the fire. Archaeologists have therefore a wealth of material to help them understand life in the late British Bronze Age.

Historic England have created an excellent series of slide shows related to the discoveries at Must Farm. They show the dig site and the techniques that the archaeologists used to recover the remains. They also have high quality images of the artefacts both in situ and by themselves. The evidence provided by the Must Farm site would allow children to develop a good insight into late Bronze Age life in Britain. These are the everyday objects that would have been used in daily life.

Activity

There is a good opportunity to apply the 'Mantle of the Expert' (MoE) here (for further information see www.mantleoftheexpert.com/ and for specific ideas for a session see www.mantleoftheexpert.com/wp-content/uploads/2018/01/Tudor-House-Updated.pdf)

Here the teacher creates a fictional context where children can take on the responsibilities of an expert team who have been set a problem to solve. The children need to research across the curriculum to gather information and work towards a product, while the class teacher works alongside the children to help solve the problem. There may be several stages to the MoE so this should take place over a series of lessons. Children need time to manage an activity like this, time to talk, time to research and plan. Have plenty of drawing materials in order to allow children to explore and visualise their ideas. You will need a hook to pull children in and introduce the fiction and context. Below are some brief suggestions which you would need to expand in line with ideas found on the MoE website.

Developing the project

1. Identify a hook to introduce the context
2. Create resources
 - a. Images of artefacts
 - b. Large sheet with outline shape of roundhouse
 - bi. Small cones for inner and outer posts
 - bii. Sticks for roof poles
 - biii. Image of wattle panel
 - c. Small plan showing post holes and sites of some of the artefacts discovered.
 - d. Email from Historic England with questions to shape task
3. Plan possible structure
4. Prepare vocabulary cards

Hook:

Archaeologists have just discovered some post holes near the edge of a quarry.

As they investigate further they notice a rickety submerged walkway made from piles driven into the clay and with a lattice of wicker slates. The end of the walkway seems to have collapsed further into the mud. There also seems to be some evidence of burning.

What could this be? What seems to have happened? Show photo and draw walkway out large.

Task

1. On the large sheet, position the cones, sticks and wattle.
2. Discuss all the time with the children what they think it is as you add more.
3. You can also add some pots or images of artefacts.
4. Introduce email from Historic England with questions that they would like the children to find out.
5. Children work in teams to research information, using images of artefacts. They can research information from different perspectives such as the artist, the scientist, the DT specialist, the geographer.

End product

An exhibition to encourage visitors to a new museum around the find, with:

1. Model of house
2. Sample board of images with labels or information
3. Poster to promote the site

Teacher resources to develop subject knowledge

Here are a list of sites that might provide some useful information:

Cartoon www.bbc.com/teach/class-clips-video/history-ks2-bronze-age-britain-animation/znrygw
Must Farm

www.mustfarm.com/bronze-age-settlement/discoveries/

www.archaeology.co.uk/articles/features/must-farm.htm

Historic England Powerpoints and activities
<https://historicengland.org.uk/services-skills/education/teaching-activities/must-farm-life-in-bronze-age-cambridgeshire/>

Reconstruction Must Farm

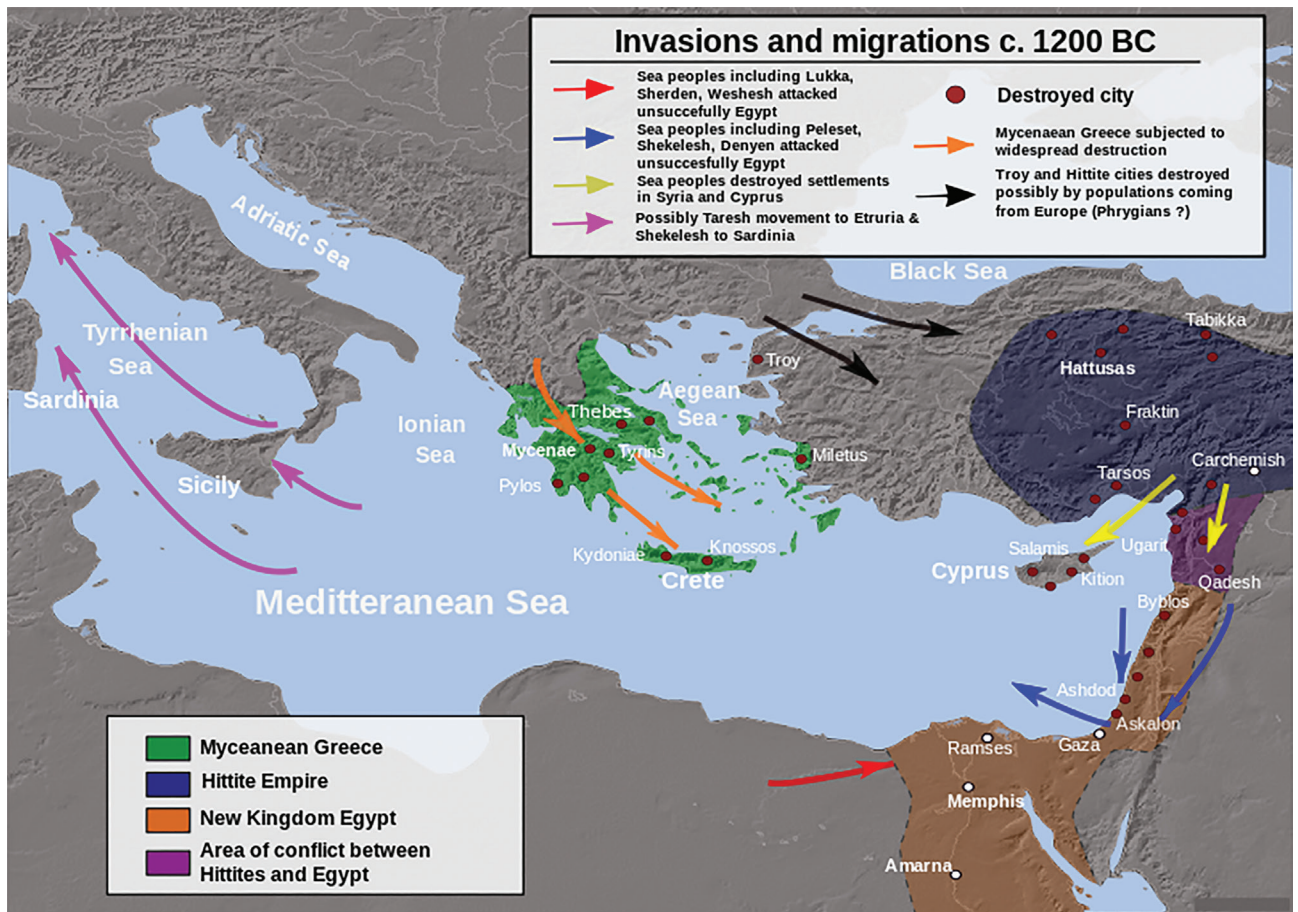
www.behance.net/gallery/52656967/Reconstructions

www.schoolsprehistory.co.uk/2018/02/20/must-farm-cluedo/



So what happened in the Late Bronze Age collapse?

Between 1250 and 1100 BC there was catastrophic climate change across the Mediterranean and northern Europe. Temperatures dropped and the waters of the Mediterranean Sea cooled. The westerly winds failed to fill with much needed rain and so precipitation dropped in the eastern lands. Drought ensued, not just for one year but over a sustained period. This was a catastrophe that grew across decades rather than a sharp crisis event. Oaks and pines declined while semi-arid plants flourished. Olive production began to fail. Agriculture could no longer sustain the same density of population. Ramesses III suffered a labour strike as he could no longer provide the grain needed for his workforce. Everywhere across the region crops were failing. This led to migration, as people moved to look for food. They became known as the Sea People to those of the time. Urban centres were no longer sustainable and the great cities of the time fell to civil unrest and riot. Trade routes were disrupted; culture, learning and literacy were lost in the collapse. The Hittites, Levant, Mycenaean, Babylonian and Egyptian civilisations disappeared. The eastern Mediterranean descended into chaos. This became the Greek Dark Ages around the Cyclades, while Egypt moved into another intermediate period. In the north of Europe the weather became colder and wetter. Trees failed to thrive, due to lack of sufficient sunlight. In Britain, formerly dry valleys filled with water, becoming fenland – much as happened around Must Farm and Flag Fen.



One potential source of change was the eruption around 1000 BC of the Hekla volcano on Iceland (Hekla 3). This was a huge eruption featuring as a level 5 on the Volcanic Explosivity Index (VEI). It is estimated that it had a plume of up to 10 km in height, throwing 7.3 cubic metres of volcanic rock into the atmosphere. The troposphere would have been substantially affected and the stratosphere significantly influenced. The volcano is one of the most active in the world and has exploded 20 times within recorded history, the last being in 2000. It was, in the medieval ages, referred to as the 'Gateway to Hell' after an eruption in 1140 AD.

Evidence Cards – six in all

1. Scientific – fossilised pollen spores (these show the types of vegetation and how it changed)
2. Scientific – tree rings (the narrow tree rings show lack of growth)
3. Written – arrival of the Sea People (Hittites/ Egyptians write of problems)
4. Written – labour strike over lack of grain (1159 BC Ramesses III)
5. Archaeological – destruction of cities
6. Archaeological – evidence of lost written languages (linear B)

Activity

Create a series of cards. You will need a set of seven consequences cards, six evidence cards and a map of the area (see above).

Consequences Cards – seven in all
Have picture on one side with a consequence on the other, e.g.
Literacy lost

Other consequences include:
breakdown in trade / less sun and rain / cities destroyed / people migrate / crops fail / riot and destruction

Present day Hekla Volcano, Iceland



Activity:

1. Pairs activity –
 - a. Give each pair a set of the consequences cards. Ask them to sort the cards to show how they might be linked. Is any one consequence more significant than the rest?
 - b. Give out two random evidence cards to each pair – can they link these to their consequences?
2. Whole-class activity – pull altogether and discuss what evidence we have for something catastrophic happening and think about what reasons there might be for this. At this point the children will realise that they had different evidence, so pull all the aspects together. What could have created this problem? Use the map to draw out aspects such as where people are coming from, where these civilisations are situated.
3. Discussion – consider the reasons war/famine/pestilence – what could have led to these? Children will probably be able to make links to present day situations, particularly climate change. If it is climate change, what created it? Pollution of the atmosphere is one solution but of course we are talking about natural rather than man-made. At this point you can introduce the Hekla 3 eruption.

Show children where Iceland is on the map in relation to the Mediterranean.

4. You can link this up to current day issues of climate change concerning volcanic eruptions, if you so wish.

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Image to use with loss of literacy consequence card

Ten things you need to know about the Bronze Age

1. The Bronze Age was not a single event but a technological development that took place at different times in different parts of the world.
2. Not all continents experienced a Bronze Age
3. Bronze is an alloy made of copper and tin where the ores are smelted and then combined.
4. Britain experienced a Bronze Age later than some other civilisations
5. Bronze tools were stronger and more effective than those made of copper, stone or wood
6. Trade was an important factor in the spread of Bronze Age technology as tin was a relatively scarce ore
7. The development of bronze tools stimulated more effective farming creating the possibility of greater populations of people leading to city states
8. Literacy and numeracy developed increasing trade
9. The importance of the smith dates from this time
10. We do not know exactly where or how people came to discover how to create bronze.