Bronze Age
Handling Box
Resource Book

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National Museum of Ireland

Ard-Mhúsaem na hÉireann

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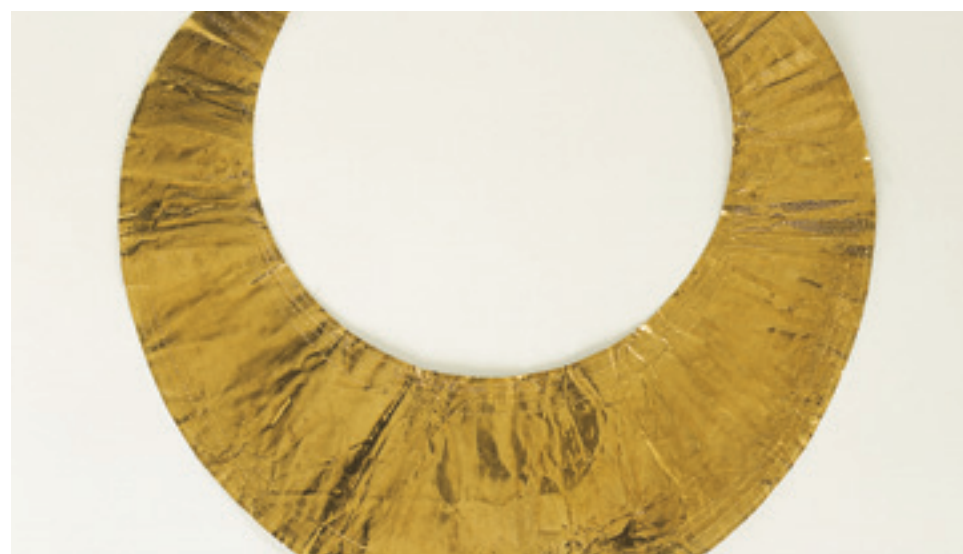Email: bookings@museum.ie
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Replica objects and raw
material in the Bronze Age
Handling Box.

Top row (L–R): Hoard of ornaments, Tooradoo, Co. Limerick Late Bronze Age, 800–700 BC; Hoard containing a gold collar, two gold lock-rings, two bracelets and an ear-ornament, Gorteenreagh, Co. Clare. Late Bronze Age, 800–700 BC; A selection of bronze axeheads; Middle row (L–R): Gold Lunula, Trillick, Co. Tyrone, Early Bronze Age, c. 2000 BC; Bronze Age cauldron; Convex end flint scraper, Monknewtown, Co. Meath; Bottom row (L–R): Stone mould for axehead production; Amber necklace, socketed axeheads and dress-fasteners.

Introduction

The Bronze Age Handling Box is a resource developed to enrich the teaching and learning of History at senior primary and post-primary levels. The Handling Box is made up of a selection of replica objects and raw material and accompanying resources to enhance the teaching of the Bronze Age in Ireland. An online resource forms part of this resource material.

Handling objects is an effective methodology in stimulating students' curiosity and interest in the past. It encourages social interaction and strengthens students' ability to make connections to the past using all their senses. Handling an object deepens historical empathy and fosters a personal and emotional connection with the past.

The Handling Box Project arose out of an ambition at the National Museum of Ireland to enable young people to learn about the past through the study and handling of objects. With this purpose in mind, the National Museum invited the Education Centre Network of Ireland, the Professional Development Service for Teachers and St Patrick's College to collaborate on the development of a handling box resource for loan to primary and post-primary schools, through the Education Centre Network. Primary and post-primary teachers selected the Bronze Age in Ireland as the theme for the project. The resource was piloted in five education centres in 2013 namely, Navan, Dublin West, Drumcondra, Mayo and Limerick.

This resource aims to enable young people to work as historians and archaeologists and encourages them to engage with the past in a thought-provoking and fun way. Using an enquiry-based approach, it provides opportunities to develop literacy, language and problem solving skills and appeals to a range of learning styles and ability levels.

This Resource Book provides teachers with a set of pedagogical strategies and makes strong links to senior primary and junior cycle curriculum. It includes historical background to the selected objects and raw material and puts forward a range of ideas and activities to help teachers teach and learn through use of these objects and raw material in their classroom. The introduction of the new junior cycle will include a greater focus on active learning. The diversity of activities and resources outlined in this publication are ideal to support this active-based and cross-curricular approach to teaching and learning.

The originals of the replica objects in the Handling Box are on display in exhibitions at the National Museum of Ireland – Archaeology. Follow-up school visits to the Museum are strongly recommended in order for students to interact with the wealth of Bronze Age artefacts on display and to participate in the Museum's tailor-made learning programmes related to the Bronze Age in Ireland.

A lot of people worked hard to make this project possible. In particular, the Working Group demonstrated a strong commitment to this project from the outset. I would like to sincerely thank Fionnuala Waldron, Brian Ruane and John Dredge for creating the rich and innovative pedagogical content for this publication; Bernadette McHugh for developing and nurturing our partnership with the Education Centre Network and Mary Greene for her insights into museum education practice. I would also like to thank colleagues in the Museum's Education Department for their invaluable contribution to the development of this project.

Lorraine Comer
Head of Education
National Museum of Ireland

From the top down: National Museum of Ireland – Archaeology, Kildare Street; Exploring the Bronze Age at the Museum of Archaeology; Conservators at work at the National Museum of Ireland.

The Role of the National Museum of Ireland

The National Museum of Ireland has been the custodian of 10,000 years of Ireland's portable heritage and natural history since 1877. The mission of the National Museum of Ireland is to collect, care for, manage and interpret the collections while making them accessible as a source of learning and enjoyment for a wide range of diverse audiences. There are a broad range of disciplines represented in the collections including archaeology, decorative and applied arts, history, ethnography, folklife and natural history. They convey a rich and diverse tapestry of human experience.

The National Museum of Ireland preserves and conserves where appropriate the heritage of the nation, provides public access to the national collections, educates and raises awareness of our natural environment, culture and history, and undertakes academic research.

The National Museum of Ireland has four public sites: three in Dublin – Kildare Street (Archaeology); Collins Barracks (Decorative Arts and History); Merrion Street (Natural History) and Turlough Park, Castlebar Co Mayo (Country Life). The National Museum of Ireland is developing a Collections Resource Centre at Swords, Co Dublin to house its collections.

The National Museum of Ireland is the national repository for all archaeological objects found in Ireland. Artefacts can be discovered either in the course of a licensed excavation by an archaeologist or accidentally by a member of the public. All excavations, including metal detecting, carried out for the purpose of seeking archaeological objects, must be carried out under license issued by the National Museum of Ireland and The National Monuments Service.

The National Monuments Act (Amendment) 1987 (further amended in 1994 and 2004) places a legal obligation upon a person who discovers an archaeological object to report such discoveries to the National Museum of Ireland within four days. The National Museum of Ireland is legally obliged to care for these artefacts or to delegate care of the artefact to a designated museum. Rewards may be paid to finders in respect of discoveries. Objects can also be purchased by or gifted to the National Museum of Ireland.

Objects are documented by the Registration Department and accessioned into the National Museum of Ireland's collection. The Conservation Department cares for, preserves and investigates the National Museum of Ireland's collections. It does this in a variety of ways:

— Preventive Conservation involves the preservation of objects by eliminating agents from the area where they are kept that are likely to cause them damage.
— Remedial Conservation includes the treatment of objects which can involve cleaning of items, strengthening fragile objects or revealing surface decoration.
— Investigative Conservation involves using scientific investigation of the artefacts to gain an insight into their manufacture and history.

What's on offer for Schools at the National Museum of Ireland

The National Museum of Ireland is a centre for learning and creativity for a range of audiences including young people and teachers in the formal education sector.

The learning programme at the National Museum of Ireland complements the primary and post-primary curriculum across a range of subjects. The programme explores and encourages engagement with exhibitions which display iconic artefacts from all over Ireland and non-Irish antiquities. The Education Department is vastly experienced in designing dynamic, participatory and engaging learning programmes to meet students' learning needs. Activities such as theme-based tours, art and object handling workshops, research projects, demonstrations and competitions are just some of the offerings for schools at the National Museum of Ireland. Sensory-based learning through handling and art workshops presents an unparalleled experience for students to connect with the National Museum of Ireland's collection. Students working with evidence and source material at the Museum develop an appreciation of the skills and technology used in the creation of artefacts. They also gain insight into and empathy with the peoples of the past.

There are also resources available for self-directed learning such as activity sheets and teachers' notes. These are readily accessible through the National Museum of Ireland's website at www.museum.ie and through the Bookings offices in Dublin and Mayo. For directions, floor plans and everything you need to know about our Dublin and Mayo Museums visit www.museum.ie.

For more information about the programme and resources about prehistory and archaeology for schools at the Museum go to page 156.

Section A

Learning About the Past Through Objects

The Bronze Age Handling Box Resource focuses on the Bronze Age in Ireland which dates from approximately 2500 BC to 500 BC. This Resource explores and investigates how the study of objects or artefacts provides us with insight into this phase in Irish prehistory.

What is archaeology?
Archaeology is the study of human history and prehistory through the investigation and analysis of human and material remains, artefacts and monuments.

What is an artefact?
Artefact is the term used to describe any portable object that was made and used by people in the past. Artefacts are used by archaeologists as the primary source of evidence to investigate and understand the material culture of past societies. Archaeologists must work with the knowledge that evidence is often missing due to the loss and destruction of fragile artefacts.

Understanding past cultures and societies
One of the ways in which we find out about the lives of people in the past is by examining the objects they used. Working with objects can help young people develop their understanding of how we come to know about the past. Through examining and analysing objects, young people develop an understanding of the role of artefacts in providing evidence about past material culture and human experience.

Objects offer a valuable insight into the everyday lives of our ancestors. Objects inform us about the level of technological development and creativity of a society or community including its social organisation. The design and decoration of an object can tell us about what a society valued in terms of its rituals, beliefs and the social and economic status of people living at that time. Through analysis of artefacts and the exploration of technological change over time, young people can explore historical concepts such as change, continuity and chronology.

Working with objects can help young people develop their thinking skills particularly higher order thinking such as inferential and deductive reasoning, and hypothesising. By implication this can stimulate historical empathy. Taking an enquiry-based approach to using objects can develop interpretation, investigation and problem-solving skills and encourage prompt development in language and literacy. Working with objects can appeal to a range of learning styles, both kinaesthetic and visual, and a range of ability levels. There are no literacy barriers when using objects to interpret and gain an understanding of the past.

Learning About the Past Through Handling Objects

Handling objects can be a powerful way for students to explore and enjoy finding out about the past. Students presented with objects or documents will have their interest and curiosity stimulated. They will want to investigate the objects themselves, the people who used them and the places they were found. As Gail Durbin states: 'Handling objects is a form of active learning that engages children in a way that other methods fail to do.' (Durbin, 1990)

Handling objects encourages social interaction and strengthens students' ability to make connections to the past using all their senses. This multi-sensory learning experience not only stimulates students' sense of curiosity but also motivates them to research. Making connections with the past through handling an object deepens historical empathy and creates a sense of a personal and emotional connection with our ancestors. (Ander et al, 2012)

There are many valuable learning outcomes gained from handling objects. Handlling objects can facilitate a postitive change in students' values and attitudes and can improve their motivation to engage with the learning environment. Object handling can also encourage exploration and experimentation. (Clutterbuck, 2008)

The Bronze Age Handling Box

The Handling Box is made up of
the following components:

**A Collection of Bronze Age Replica
Objects and Raw Material**
Listed below are the replica objects and raw
material found in the Bronze Age Handling Box.
These were carefully selected to tell the story of
Bronze Age Ireland:
— flint scraper, nodules and flakes
— Bronze Age axehead
— Bronze Age spearhead
— chunk of copper ore
— piece of amber and amber neaklace
— fragment of sheepskin

Resource Book
This Resource Book includes the following:
— an overview of how the Bronze Age Handling Box
  Resource fits within the Irish Primary Curriculum
  and the Junior Cycle History syllabus.
— guidelines for good practice in the use of objects
  as sources in historical enquiry.
— approaches and strategies which can be
  adapted for use with a wide range of objects.
— guidelines for each object which include
  planning resources, teaching and learning
  activities and support resources.

A re-usable Word Hoard Wall Chart
Flash cards can be photocopied, cut out and mounted
on the wall chart and are included in the back section
of this Resource Book. The Word Hoard contains
words used across all the activities. It is referred to
as generic Resource B (See page 143).

A durable roll-up Bronze Age Board Game
All the required playing components are included in
the Bronze Age Handling Box. The rules of the game
are given in the back section of this Resource Book.
This is referred to as generic Resource F (See pages
153–155).

Note: The term 'students' is used throughout the
Resource Book to refer to both children at Senior
Primary level and to young people at Junior Primary level.

Section B

Overview

In this section senior primary and post primary teachers are given contextual information on the lifestyles of Early, Middle and Late Bronze Age people in Ireland. Links are made to the history curriculum at senior primary level and to the Junior Certificate history syllabus at post primary level.

Cross-curricular links are highlighted as well as guidelines for supporting good practice in the use of objects in the classroom.

Teachers at both levels are presented with effective teaching and learning strategies which will enhance classroom practice.

There are six generic resources designed to complement the pedagogical aspects of the Bronze Age Handling Box. They link all of the objects and raw material together to give a coherent overview of the Bronze Age in Ireland. These generic resources are described and explained in this section.

The Irish Bronze Age

The Irish Bronze Age dates from approximately 2500 BC to 500 BC. Archaeologists divide the Bronze Age into three periods: Early, Middle and Late. These divisions are founded on the advancement of technological and cultural developments. The period is characterised mainly by the beginning of metal-working in Ireland. It is likely the population of Bronze Age Ireland was highly organised, with agriculture forming the mainstay of the economy.

Archaeological discoveries from this period predominantly include burials and hoards of objects deposited for safe-keeping or as an offering. These artefacts offer an insight into the complex and ritualistic aspects of Bronze Age Ireland.

Early Bronze Age

The Bronze Age began in Ireland around 2500 BC. This period saw the introduction of several significant innovations, most notably the development of metal-working. Copper and gold were amongst the earliest metals used. Bronze, an alloy of tin and copper, gradually became a fashionable choice for metalworkers as it was a highly durable metal.

Stone implements, such as flint scrapers, knives, and polished stone axes, still continued in use. Their replacement by metal tools was probably a long and gradual process. Copper and tin were highly prized and costly commodities. Access to these materials was probably confined to elite sections of society. Certain metalwork and pottery was used to display rank and status within Bronze Age communities.

Between the years 2500 BC and 2200 BC, a type of megalithic tomb known as 'wedge tomb' was used for burial. However, from 2200 BC onwards, this was replaced by smaller separate burial places. In varying forms, this was the main burial rite for the next 1000 years.

The earliest burials were unburnt inhumations, where a deceased person was placed in a stone-lined grave called a cist. Offerings were occasionally placed in the grave alongside the deceased person. These included artefacts like vase-shaped or bowl-shaped pottery, which may have contained food or drink. Older customs were not entirely abandoned, with passage tombs and court cairns dating from the Stone Age still considered sacred sites. These were occasionally re-used as burial places.

Middle and Late Bronze Age

The Middle and Late Bronze Age in Ireland date from approximately 1500 BC to 500 BC. The Late Bronze Age (post circa 850 BC) was a tumultuous period in Irish prehistory.

The Middle Bronze Age saw the continuous development of metalworking techniques. Craftworkers continued to thrive and develop better moulding techniques for artefacts such as axeheads. This resulted in the Later Bronze Age characterised as a golden age in Irish archaeology.

Some of the finest examples of goldworking in Europe emerged from the workshops of Irish craftworkers, leaving a rich legacy in the archaeological record.

The Late Bronze Age saw a change in the Irish climate resulting in wetter and colder conditions. Archaeologists believe this may have impacted heavily on the agricultural economy in Ireland with bogs expanding and the countryside becoming more heavily forested. The prevalence of large quantities of weaponry found in hoards indicates that warfare and raiding may have been a regular occurrence between communities. This may have caused a significant deterioration in communications, particularly in the midlands. (Eogan, 1994: 97)

Little is known about domestic houses in the Middle Bronze Age. By the Late Bronze Age there is clear evidence for the existence of individual farmsteads with a dwelling house: 'In some instances there were small associated structures, such as open-air hearths or rubbish pits, while some sites were built in lakes or on lakeshores and therefore were protected by water; the dryland sites had only limited protection, such as a shallow ditch or a palisade'. (Eogan, 1994: 97)

Cremations were a popular burial practice in the Later Bronze Age. The burnt bones were often placed within a food vessel. Occasionally this was inverted, or turned upside-down in the burial. Later cremations were often accompanied by large ornate urns.

A common ritualistic practice in the Later Bronze Age was the deposition of hoards in sacred places. These hoards may have represented votive offerings to gods or have been left for safekeeping, or a mixture of both. Bogs have proven to be a rich resource for Bronze Age artefacts, with the anaerobic environment preserving even organic material.

An exceptional example of a hoard from Dowris, Co. Offaly can be seen in the Museum of Archaeology. It comprises of approximately 218 objects which include swords, spearheads, axes, gouges, knives, razors, cauldrons, buckets, horns, crotals and other miscellaneous objects.

Curriculum Links

Primary School Curriculum

Where does this Bronze Age Handling Box Resource fit within the Irish Curriculum?

The History Curriculum in the Primary School Curriculum (NCCA, 1999) is premised on the idea that our knowledge of the past is constructed through interpretation of historical evidence. Knowledge of the past can be incomplete and fragmentary due to the fragile nature of material culture and historical sources. This knowledge is subject to change as new evidence emerges or as new interpretations evolve through research. The concept of 'working as a historian' provides young people the opportunity to engage with historical evidence by asking questions, investigating, constructing historical narratives and offering interpretations of what the past was like. Material culture (objects, buildings, physical infrastructure and human intervention in the environment) and objects in particular, form an important part of the evidence base used in studying history. The contribution made by artefactual evidence to children's learning has been identified in the guidelines for teachers that accompany the Primary History Curriculum as follows:

— using objects promotes activity-based learning which helps to motivate children.
— objects are accessible to all children and not dependent on literacy.
— using objects as evidence helps children develop a broad and balanced view of history because objects were used throughout human history and by all people, regardless of wealth, power or education.
— examining objects helps children recognise the ingenuity and creativity of past peoples.
— working with objects provides opportunities to develop children's understanding of historical concepts such as causation and change and continuity and to appreciate the context in which those objects were created and used.
(NCCA, 1999b: 81)

The Bronze Age Handling Box Resource is informed by the principles, aims and objectives of the Primary Curriculum (1999) and specifically relates to the areas covered in Table 1 and Table 2 on the following pages.

Table 1: Links to the Primary History Curriculum

Strands	Strand Units	Activities
Working as a historian:	Time and chronology Using evidence Change and continuity Empathy Cause and effect Synthesis and communication	All of the activities
Early people and ancient societies:	Stone Age peoples Bronze Age peoples	All of the activities
Local studies:	My locality through the ages Buildings Sites or ruins in my locality	This will depend on the evidence relating to the Neolithic and Bronze Age periods in the local area. Where possible, children should use the activities in this Resource Book as a springboard to a local study.
Continuity and change over time:	Food and farming Clothes Barter, trade and money	pages 48, 49, 94, 95, 108–114 pages 48, 49, 108–113, 124 pages 48, 49, 64, 65, 80, 81, 124–126

Table 2: Cross-Curricular Links in the Primary Curriculum

Subjects and Strands	Strand Units	Activities
Literacy: Receptiveness to language	Oral language: developing receptiveness to oral language; Reading: developing strategies	All of the activities
Competence and confidence in using language	Reading: reading for pleasure and for information	All of the activities
Developing cognitive abilities through language	Oral language: developing cognitive abilities through oral language; Reading: developing interests, attitudes, information retrieval skills and the ability to think	All of the activities
Geography: Geographical skills	Questioning, Observing, Predicting, Investigating, Analysing, Recording and Communicating, Evaluating	All of the activities
Human environment	People living and working in the local area / in a contrasting part of Ireland	All of the activities
Natural environments	The local natural environment; Rocks and soils	All of the activities
Science: Working scientifically	Questioning, Observing, Predicting, Analysing, Recording and Communicating	All of the activities
Materials	Properties and Characteristics of Materials	All of the activities
Visual Arts: Concepts and skills development	An awareness of line, shape, form and texture	All of the activities
Drawing	Making drawings	All of the activities
Looking and responding	Looking and Talking about own work, work of other students	All of the activities

Junior Certificate History Syllabus

Where does the Bronze Age Handling Box fit within the Junior Certificate History Syllabus?

A rationale for the classroom practice of object-based learning is implicit in a number of statements made in the syllabus. The syllabus is designed to be developmental, moving from simple to complex and from concrete to abstract. The emphasis on the 'concrete' in teaching first year history is reinforced by listing the variety of sources such as artefacts, buildings, settlements and other relevant material from which students should learn to locate historical information. The revised guidelines for teachers make a number of significant points that underpin the practice of object-based learning and suggest a range of approaches:

— examining artefacts from different periods and placing them in chronological order
— describing and analysing historical artefacts as historians and archaeologists
— underpinning students' learning in history with an understanding of historical enquiry

The Handling Box provides unique, tactile opportunities for students to engage in enquiry-based learning. It provides an important resource for Section One of the Junior Certificate History syllabus, 'How we find out about the past' and specifically for the topic 'Our roots in ancient civilisation'. Bronze Age Ireland falls within the remit of this topic. The syllabus itself advocates the use of 'a variety of pictures, drawings, models as well as textbook material' to provide opportunities for discussion and to promote understanding of how 'evidence is used by archaeologists to build up a picture of civilisation in the past.'

The topic has two components: the 'roots' in question are studied in relation to 'pre-Christian and Early Christian Ireland and in one ancient civilisation [outside of Ireland]'. This is the context in which the study of the Bronze Age takes place. The syllabus sets out the aspects which are to form the focus of teaching and learning, which include:

— houses, food and family life
— work, art, crafts, tools
— burial customs

In respect of the Bronze Age Handling Box, the theme of 'work' may be seen as one that is intrinsically important, in that it encompasses the vast bulk of activities engaged in by Bronze Age people in their waking hours. It also links naturally to each of the other listed elements. 'Work' is also one of the substantive concepts listed in the syllabus objectives of which students are expected to develop an understanding in the specific context of a number of individual syllabus topics.

Table 3a: Links to Junior Certificate History Syllabus

Our roots in ancient civilisation	A study of: – houses, food and family life – work, art, crafts and tools – burial customs in pre-Christian and Early Christian Ireland and in one ancient civilisation	Study based on archaeological evidence

Table 3b: Junior Certificate History Syllabus

Topic: Introduction	The job of the historian/archaeologist	All of the activities
Our roots in ancient civilisation	**A study of:** – houses, food and family life – work, art, crafts, tools – burial customs in pre-Christian Ireland	All of the activities

Objective: Concepts	Students should develop an understanding of and the ability to apply procedural and substantive concepts essential to the study of history.
	
	Procedural: **Substantive:**
	Source **General**
	Evidence Change and continuity
	Chronology Cause and consequence
	           Comparison and contrast
	           Specific
	           Home and family
	           Work
	           Technology
	           Trade
		All of the activities

Objective: Skills	Students should develop the skills essential to the research and writing of history: Locate historical information from a variety of sources Examine critically this information Synthesise Present and communicate in a variety of ways	All of the activities
Attitudes	The teaching and learning of history should be informed throughout by the procedural values of the historian. Students should therefore develop the disposition: – to be thorough in the collecting and accurate in the recording of historical information. – to accept that individuals and events must be understood in their historical context. – to ensure that historical narrative is consistent with the evidence while recognising that the available evidence may be open to more than one valid interpretation. – to recognise that historical knowledge is tentative and incomplete and therefore subject to revision or reinterpretation in the light of new evidence or insights.	All of the activities

Guidelines for Good Practice

The following guidelines can help support good practice in relation to the use of objects in the history classroom:

—There may be a perception amongst young people that the lifestyles of ancient civilisations were primitive. It is important to develop an understanding of the link between 'good technology' and the context of its use. In other words, good technology is that which answers the needs of people in their particular context. Young people should be encouraged to see that objects demonstrate examples of the problem-solving and innovative thinking skills of our ancestors. This helps to develop young people's respect for the ancient technology and creativity of our ancestors.

—To promote the development of young peoples' thinking skills and skills in analysis and deductive reasoning, we need to develop their abilities to observe, discuss, speculate and hypothesise. This takes time and focus. Research suggests that naming the object too early can militate against this development. If it is a common object young people may think that in naming it, they have said all they need to say about it. If on the other hand it is an unknown or mystery object, asking them to name it promotes guessing. Some questions can close down discussion. Where historical objects are concerned we may not have a definite conclusion on what the object is and there may be more than one possible answer. Using an open-ended approach to questioning can encourage discussion, speculation and develop an understanding that there may be more than one possible answer. This can encourage young people to understand that evidence can be incomplete. (Durbin, Morris & Wilkinson, 1990; Vella, 2010)

—Collaborative group and whole class enquiry-based approaches foster the best environments for investigating objects. This provides opportunities for young people to develop analytical and deductive reasoning through discussion and speculation amongst their peers. It has been argued that having an enquiry-based, dialogical approach to examining artefacts promotes learning and can help make that learning more accessible to all young people, regardless of achievement levels. (Vella, 2010)

Strategies for Learning Through Objects

There are a variety of approaches that can be used when learning through objects. Some examples are included below:

Using Questions
Questions should be actively encouraged from the class. They should be open-ended rather than closed. At the beginning of an investigation, young people could write down all of the questions they have about the object. The questions could be annotated with a sketch or a photograph of the object (see below). They could then sort the objects according to different criteria e.g. theme, or according to which questions can be most readily answered.

Discussion
Discussion should be an integral part of investigating the objects. It is the most effective tool for developing young people's analytical and cognitive skills.

Using Enquiry Frames
Enquiry Frames provide a way for young people to analyse objects. Young people can respond to short prompts or open-ended questions, assist in ordering their thoughts and record their findings. Enquiry Frames should support young people's thinking but should not be closed questions or take a worksheet approach. There are many examples of Enquiry Frames in the resource, including the Synthesis Template which can be used with each object to draw together and synthesise the young people's learning after they have engaged in their investigations through the suggested activities.

Brainstorming
Brainstorming is used to generate a multitude of ideas quickly. Typically, a group will be asked an open-ended question or given a problem to solve. All responses are recorded despite how unlikely they may seem. Young people should be encouraged to base their ideas on the evidence before them. When all the ideas have been recorded, they can be grouped with similar ideas together and clarification can be sought. Brainstorming can be conducted in a variety of ways to good effect.

Snowball Brainstorms
In snowball brainstorms, participants can begin as individuals, then join together with a partner. Pairs then combine to become groups of four. Groups of eight could then be formed before the whole class comes together. Each stage is given a defined time, which can increase as the group grows to allow a continuous building of ideas. Snowball brainstorms can also be implemented in a whole class context as a chain process where each student builds on the contribution of the previous one.

Time Travel Brainstorm
In a time travel brainstorm, participants brainstorm in role as people from the time in which the artefact was produced. Thinking about and discussing how that experience might be different raises many interesting issues for discussion and provides a context for thinking about world view.

Sketching and Photographing Objects
A good way of improving young people's observation and analysis of objects is to ask them to sketch or photograph the object from different perspectives e.g. front view, side view, aerial view, focusing on specific parts of object etc. The same approach can be taken with regard to taking digital photographs. These images (sketches and photographs) can then be used for further analysis through annotation (see below) and through asking questions.

Annotated Drawings and Digital Photographs
Annotation can also be used as a way to encourage analysis of an object. Using a sketch or a photograph of the object, the young people write comments around the margins e.g. this edge is sharp / there could be a piece missing here. Annotations help young people to observe objects closely and in detail. For example, a child who observed that 'this edge is sharp' may then go on to conclude that 'it could have been used for cutting'. Annotation takes practice and when young people begin this process they may only write a single word. It works well as a group process or in a round robin, with each child contributing a new annotation.

Using Stories

Creating stories around objects can help young people to put the objects into a real life context and examine concepts like time, chronology and causation. This encourages young people to develop empathy and to think about world view. Linking objects from the same period using a narrative approach aids in the understanding of the broader themes and concepts of a historical period.

Reconstructing Objects in Different Media

Reconstruction of objects in clay, plasticine, plaster, Lego, building materials, fabric etc. will help develop young people's thinking about the objects, improve their observation and help them to focus on how the object was designed and constructed.

Mystery Objects

The traditional 'Kim's game' involves putting the object in a bag which is then passed from child to child. Each child feels the object through the bag and suggests ideas about its characteristics. Other ways of exploring mystery objects include putting a screen between two young people with the mystery object on one side of the screen. The student without the object asks questions of the second student and creates a drawing of the object based on the answers. A variation of this is where a group passes the object from one to the other out of sight of one member of the group who is nominated to be the 'drawer'; each student says one thing about the object. The drawer has to sketch the object based on the description given by the group. The onus is on the group to give clear instructions. They are not allowed to say what the object is or what it is used for.

Concept Maps and Spidergrams

Concept Maps and Spidergrams are diagrammatic tools that enable connections to be made between concepts. In the case of Concept Maps, the concepts to be linked are identified though open spaces can be left for participants to identify additional concepts. Participants create links and articulate the relationship between the linked concepts. A Spidergram is a mindmap generated around a central concept. Both Concept Maps and Spidergrams vary in their level of structure. Concept Maps should be created by groups rather than individuals to promote creative thinking.

All of the concept maps in this resource can also be done as whole-class activities using interactive whiteboards or overhead projectors.

Card Sorts

Card Sorts are used to explore concepts such as cause and effect, to classify and sort, to distinguish between true and false, fact and opinion, to recognise significance etc. In a Card Sort, cards with text (single words, phrases, sentences) are grouped, sorted, ranked according to particular criteria. Cards can be sorted according to themes e.g. cards that offer explanations of processes and cards that offer descriptions, concepts such as significance, facts, time, probability, usefulness etc. Card Sorts can take the form of a game such as 'Odd One Out' or 'Tops and Tails' (matching the top half and the bottom half of an idea or piece of information together). This can help young people to make connections and for understanding basic characteristics of objects, places, events, processes. By having the text on cards, young people can move them around, can group them and then change their minds. This approach promotes discussion and collaborative learning. There are a number of examples of Card Sorts included in the Resource Book.

Mysteries and Dilemmas

In Mysteries and Dilemmas, young people are given 16 – 30 pieces of card with key information on them. The cards are used to create an answer to a central question which is presented in the form of a mystery or dilemma (choice). This is a Card Sort activity. Generally the question has no single answer, and some of the information is less relevant and ambiguous. The information as presented is in discrete pieces of information which the young people have to link to make sense of the key question. Young people will manipulate the cards, sort them and move them around as they try to find their answer. Mysteries and Dilemmas are group activities. They generate discussion and debate. They develop young people's skills in sorting relevant information, interpreting information, making links, creating hypotheses and articulating arguments. Finally the groups put their viewpoint to the class and defend their decision based on the information on the cards.

How to use the Generic Resources

Resource A – Timeline
Resource A in the Bronze Age Handling Resource Book provides information to help the class create their own timeline. Prehistoric time periods in Ireland are specified on page 141 as a guide. A wider range of time periods can be added and the timeline designed for use either horizontally or vertically. Before embarking on the activities in this Resource Book, take some time to work with the students to locate key events and periods they have studied in history. Write them on cards and place them on your timeline. Through this activity students will develop their understanding of time, chronology, change and continuity. This also involves the construction of a coherent and usable historical framework which is an essential element of historical literacy.

Resource B – Word Hoard
Resource B is a 'word hoard' which can be used to support a range of activities in this Resource Book. This should be displayed in the classroom and could be supplemented by words identified by the students or by the teacher.

Resource C – Enquiry Card
This resource is for students at senior primary level.

Resource D – Synthesis Template
Resource D is a Synthesis Template (post-primary). This is a Junior Cycle resource that can be used at the conclusion of classroom work on each object to reinforce learning.

Resource E – Display Card

Resource F – Bronze Age Board Game
Rules of the game are on page 154.

The resources which can be photocopied such as the timeline, enquiry card, writing frames, card sorts and activity sheets, enable students to work together, discuss, make connections, evaluate the evidence, construct arguments and communicate their findings and ideas. Where students are asked to respond through writing (e.g. writing frames, concept maps etc.) or through drawing, the sheets should be photocopied on to A3 sheets if possible.

Many of the activities in the Resource Book are interchangeable from object to object e.g. brainstorming activities. Others are specifically designed resources tailored to the individual object. The final activities in this Resource Book link all of the objects together to give a coherent overview of the collection.

Section C

Overview

The investigation of each object in the classroom commences with an enquiry question. This is aimed at understanding the relevance of the object to the lives of Bronze Age people. Each section contains the key concepts, learning outcomes for both senior primary and post-primary students, detailed information on the object and the relevant resources and activities.

Section C concludes with a section exploring all that has been taught and learned. Specific activities help to combine the learning from the individual objects in order to address how this collection of objects and raw material enhances our understanding of life in Ireland during the Bronze Age.

Guidelines For Use of Objects

Enquiry Question
Identifies the overarching question that the use of the object and associated activities seek to answer.
Senior Primary/Junior Cycle

About this Object
Provides background information for the teacher.
Senior Primary/Junior Cycle

Key Concepts
Identifies the important concepts specific to the Bronze Age and to historical enquiry that the object can be used to develop.
Senior Primary/Junior Cycle

Learning Outcomes
Identifies the key learning outcomes for the object. These are linked to the key concepts identified.
Senior Primary/Junior Cycle – An additional outcome is identified for Junior Cycle students. In addition, in the section on Curriculum Links, objectives linked to the Junior Cycle curriculum are identified.

Key Questions
Identifies the key questions that drive the investigations. These should be made explicit to the students and could include questions developed by the students themselves.
Senior Primary/Junior Cycle

Resources
Identifies the resources for the activities.
Senior Primary/Junior Cycle

Activities
Identifies a range of activities linked to the key concepts, key questions and learning outcomes. The final activity is common to all objects i.e. the Synthesis Template.
Senior Primary/Junior Cycle – Some are appropriate to both Senior Primary/Junior Cycle and differentiation will occur in the level of response. For other activities, there are alternatives and extension activities for Junior Cycle to ensure progression.

Notes on Activities
Provides guidance and explanations for each activity.
Senior Primary/Junior Cycle

Flint

Enquiry Question

How was flint important during the Bronze Age?

About the Object

The Bronze Age Handling Box contains a flint nodule, a selection of flint scrapers and various pieces of flint waste. Stone tools or lithics are common finds on archaeological sites. Such artefacts were used extensively in the Stone Age period with the trend continuing into the Bronze Age. It would be easy to assume that these are primitive tools, however their durability and effectiveness ensured that they were widely used, even after the introduction of metal to Ireland. Lithics manufactured in the prehistoric period had varied uses, from arrowheads to knives and scrapers.

Flint and chert are the most common types of stone used in Irish prehistory. Flint is found in nodules within layers of chalk. Mining was required to retrieve the nodules. These nodules can also be found scattered on the landscape, particularly on beach sands. Flint nodules are plentiful in the north east of Ireland, particularly in Co. Antrim but can also be found throughout the country.

Archaeologists refer to those who work with flint as 'flint knappers'. Knappers must be skilled and experienced in selecting stone and in applying different flaking techniques.

Anderson (1994: 36–37) describes the work of the knapper: 'The competent knapper will take great care in the preparation of the flint core and can produce very consistent results. In its simplest form, a stone tool that will cut may be produced by breaking a nodule of flint in half and using the resulting sharp edge. Specialised tools can be made by employing different flaking techniques. There are several methods of flaking stone, each probably used at some stage in prehistory. The flint worker can either apply force (percussion) by directly or indirectly hammering the flint nodule with a stone or an antler bâton, or alternatively flakes can be removed from the core by applying pressure, for which an antler bâton is well suited. While the blades and flakes removed from a core usually have sharp, useful edges, the flint knapper may modify the tool by removing small flakes from the edge; this technique, known as retouching, can either strengthen, sharpen, smoothen or entirely alter the shape of a tool, and can be achieved either by percussion or pressure.'

Scraping tools were employed in varying degrees throughout the prehistoric period. They were used primarily in the processing of animal hides. The term 'scraper' is used by archaeologists to describe these tools. Scrapers are tools which have been retouched to such a degree that, while sufficiently sharp to remove excess fat and tissue from hide, they remained blunt enough to avoid cutting through animal skin. The animal hides were subsequently used for clothing, containers or tent coverings. Scrapers are found at archaeological sites dating from the Stone Age up to Early Christian times. Their discovery tends to be indicative of people dependant on domesticated animals.

The flint objects in the Bronze Age Handling Box were produced by a lithic expert in Co. Cork. These were deliberately selected flakes that retained the original cortex of the nodule which is the outer skin. The first flakes of a nodule, that retain the cortex, are often most suitable for scraper production. This is because they tend to be naturally round and thicker than the following flakes.

Scrapers were often resharpened when they became blunt. This could be done several times with the scraper steadily becoming smaller.

It is probable that scrapers were the first stone tools that young people learned to make and use in prehistory. Young people may have carried out such work as hide scraping, which was a tedious but easy task. Most likely they would have learned how to flint knap by re-sharpening the scrapers they were given. Later, they may have selected their own flakes from waste material and retouched these into scrapers, before eventually learning how to make the flakes themselves.

Key Concepts

- Tool making

- Innovation

- Knapping

- Technology

- Trade

- Natural Resources

- Neolithic

- Bronze Age

Learning Outcomes

Senior Primary

(see curriculum links pages 21 – 23)

On completion of these activities the students will be enabled to:

– know that flint was used to make tools and demonstrate their understanding of the process of knapping.

– explain their understanding of the manufacture and use of flint tools with reference to the evidence.

– identify the skills and organization needed by Neolithic and Bronze Age communities to create and acquire flint tools.

– hypothesise about the shift from stone to metal as the dominant material for making tools during the Bronze Age.

Junior Cycle

(see curriculum links pages 24 – 25)

On completion of these activities the students will be enabled to:

– know that flint was used to make tools and demonstrate their understanding of the process of knapping.

– explain their understanding of the manufacture and use of flint tools with reference to the evidence.

– identify the skills and organization needed by Neolithic and Bronze Age communities to create and acquire flint tools.

– hypothesise about the shift from stone to metal as the dominant material for making tools during the Bronze Age.

Resources/Activities

Senior Primary

1. Use Concept Map to examine relationship between nodule, blade, scraper and flakes. (Resource 1a, page 45)

2. Annotate drawings and/or digital images of scraper and blade to analyse design. (see point 2 under Notes on Activities, pages 43, 44)

3. Writing Frame looking at transition to metal. (Resource 1b, page 46)

4. Tops and Tails card sorting activity focusing on tool making. (Resource 1c, pages 48 – 49)

5. Enquiry Card and/or Display Cards for synthesis. (Generic Resources at back of book: B, pages 142 –148; C, page 149; E, page 152)

Junior Cycle

1. Use Concept Map to examine relationship between nodules, blade, scraper and flakes. (Resource 1d, page 50)

2. Annotate drawings and/or digital images of scraper and blade to analyse design. (see point 2 under Notes on Activities, pages 43, 44)

3. Writing Frame looking at transition to metal. (Resources 1b and 1e, pages 46, 51)

4. Tops and Tails card sorting activity focusing on tool making; followed by extension writing activity. (Resources 1b and 1c, pages 46 – 49, and Resource 1f, page 52)

5. Synthesis Template (Generic Resource at back of book: D, pages 150 – 151)

Tops and Tails matches/answers (pages 48 – 49)

A:10	B:8	C:9	D:5	E:3	F:1
G:4	H:11	I:2	J:6	K:7	L:12

Key Questions

– What were these flint objects used for?

– Who used these objects?

– Who made these objects?

– How did the development of flint tools change people's lives?

– How do we know about flint objects?

– What do they tell us about the people who made them and used them?

Notes on Activities

Senior Primary

1. Resource 1a – Concept Map
The purpose of this activity is to enable the students to identify the relationship between the flint nodules, the tools and the flakes. Students should be given the opportunity to examine the objects first, before they work on the concept map. Through discussion, the material could be identified as stone and named as flint. In order to develop students' creative thinking skills it is best if the objects were not named at this point. In groups, students discuss the relationship between the objects and use the concept map to develop that. The desired outcome would be that students would recognise that the scraper and blade were deliberately made from the noduleand that the flakes were the waste product of that process. Students could discuss and suggest how they were made and what might have been used in the process.

2. Annotation of drawings and/or digital images
As the introduction states, annotation develops students' skills of analysis. Students may write comments such as 'this is a sharp edge', 'it would be good for cutting' or other similar observations. The more observations that are made, the greater the depth of the subsequent discussion. Sketching the object or placing a digital image of the object in the centre of a large piece of paper will facilitate group discussion. The background information provided can be used to guide and extend the discussion as appropriate. At the end of this activity, students could be encouraged to suggest names for the tool. Inform students that the names we give to archaeological objects are modern interpretations of the objects. It cannot be said with certainty what such tools were called or even used for in the Bronze Age.

3. Resource 1b – Writing Frame
This Writing Frame supports students in thinking through the reasons why flint tools and other stone tools demonstrate technological innovation in human history. While imagining themselves as Bronze Age people, the students are encouraged to consider how tools were used to improve people's lives. They can also consider why communities began using metal and the advantages assoiacted with this change. The idea that stone tools continued to be used throughout the Bronze Age and into the Iron Age could be discussed. Students could be prompted, through discussion of their frames, to consider whether some people had greater access to metal tools than others and why this might have been the case.

4. Resource 1c – Tops and Tails
This Tops and Tails activity provides a good way to mediate knowledge about flint toolmaking. This activity can be done in pairs and can be followed by class discussion and identification of the key points in the activity. This activity works best when the statements are individually cut out in advance.

5. Enquiry Card and/or Display Cards for synthesis
This Enquiry Card (Resource C – see page 149) provides a template that can be used for all objects to help students synthesise and communicate their learning. This works best if students have had the opportunity to work through the activities above. In addition, students can use Resource E (see page 148) to create a display card for the object, as it would appear in a museum collection. Resource B (Word Hoard) provides support for this activity. See page 29 and pages 142–148.

Notes on Activities

Junior Cycle

1. Resource 1d – Concept Map
Where the above activity has been previously encountered by students, teachers will need to establish the extent of students' prior knowledge before discussing the basic knowledge and understanding of the distinctions between nodule, scraper and flakes. Where appropriate, an information sheet using the information provided in the 'About the objects' (See pages 38 – 39) should be provided to students.

2. Annotation of drawings/digital images
(See note 2 for Senior Primary)

3. Resources 1b – Writing Frame, 1e – Writing Frame
(See note 3 for Senior Primary)
The extension, written activity is intended to develop students' writing skills and consolidate learning generated by the tops and tails activity.

4. Resource 1b – Writing Frame, 1c – Tops and Tails, 1f – Extension Activity
(See note 4 for Senior Primary)

5. Synthesis Template
The Synthesis Template (Resource D – see pages 150 –151) can be used for all objects to help students synthesise and communicate their learning. This works best if students have had the opportunity to work through the activities above. In addition, students can use Resource E (see page 152) to create a display card for the object, as it would appear in a museum collection. Resource B (Word Hoard) provides support for this activity.
See page 29 and pages 142 –148.

Explore

**The objects named below are all connected.
Think and talk about these connections.
How many connections can you find?**

Draw lines to help you find connections.

Scraper

Flint

Nodule

Explore what you think the connections are:

Imagine

I use flint to make tools because…

But…

Copper is good for making tools because…

But…

If I mix tin with copper…

I will still use flint to make tools because…

Match

Match Letter to Number

| A | Flint can be found in layers of chalk in the earth… | that young people learned to make and use in prehistory. | 1 |

| B | Flint can be found in Ireland particularly… | process of breaking and shaping flint. | 2 |

| C | The flint workers carefully chose… | to process animal hides. | 3 |

| D | The flint workers (knappers) used different techniques to shape the flint… | for clothing, containers and tent coverings. | 4 |

| E | Skilled workers used large pieces of flint… | depending on what kind of tool they wanted to make. | 5 |

| F | Flint scrapers were the first stone tools… | turn the flint into useful objects such as arrowheads, cutters and scrapers. | 6 |

G	After being scraped, animal hides were used…		and they continued to be used alongside metal tools throughout the Bronze Age.	7
H	When freshly broken…		in the North East of Ireland.	8
I	Knapping is the name given to the…		pieces of flint to make tools which were used for cutting and scraping.	9
J	Knappers used hammers of wood, stone, bone or antler to…		or scattered in the land, especially on sandy beaches.	10
K	Flint tools were used in Ireland throughout the Mesolithic and Neolithic periods…		flint has razor-sharp edges.	11
L	In areas where it was difficult to get flint…		other stones were used e.g. chert.	12

Explore

Nodules

Nodules are found or they are mined.

Scrapers

Scrapers are made from nodules by pressure or are made by force.

Flakes

Flakes are small pieces of flint that come away from the nodule during the process of knapping. They may be treated as waste or used for a specific purpose.

Where?	How?	What?
Where has flint been found and mined?	How are pressure and force used to make scrapers?	For what purpose are flint flakes used?

Explain

Flint was widely used in ancient Ireland, from the Stone Age on.

Stone Age people used flint to make:

1.

2.

3.

4.

They used flint to make a number of different things, because flint was:

1.

2.

3.

4.

When metal ores were discovered, people began to use metal to make:

1.

2.

3.

4.

They used metal to make a number of different things because it was:

1.

2.

3.

4.

They continued to use flint because it was:

1.

2.

3.

4.

Write

Write a short report on what we know now about flint working during the Bronze Age, using the following headings:

Where flint was found.

How flint workers (knappers) went about their work.

The different objects that knappers made from flint.

How flint helped people in their everyday lives.

Copper

How did the use of copper change peoples' working lives?

About the Object

The Bronze Age Handling Box contains a piece of copper ore. Ireland had significant copper and gold resources during prehistory, making it arguably, one of the most important metal-producing areas in early prehistoric Europe. Copper ore was used to make tools of copper, and later tools of bronze. Common bronze tools included axeheads, spearheads, knives, daggers, swords and rivets. Copper ore is prevalent in the South of Ireland. One of the earliest copper ore mines in Western Europe is Ross Island, in Lough Leane, Killarney, Co. Kerry. (Waddell, 2000) Over thirty copper ore mines were located at Mount Gabriel in Co. Cork. (Waddell, 2000)

When metalworking first began in Ireland, copper ores were collected on the surface. This type of copper ore is known as 'native copper'. It is extremely malleable and does not require smelting (the extraction of metal from ore by heating). However, it is now rare, and most likely was rare even in the Bronze Age. (Jackson, 1994: 73) Copper ores which were mined and then smelted were the most widely used type in the Bronze Age.

Metal smiths began to extract ores from mines using a technique known as fire setting. Fire setting involves setting a fire against the rock face and then throwing water on the heated surface. The copper ores were then prised from the rock face using mauls and hammer stones. The ores were crushed before being smelted. The smelting process involves removing the sulphurs by heating. A waste product is created during this process called slag. Slag is a common find on Bronze Age and Iron Age archaeological sites, and is indicative of the smelting process taking place. As a result of the smelting process the metallic copper can be formed into ingots or 'copper cakes' which were later turned into tools. Examples of these ingots have been found in hoards from Monastery, Co. Wicklow and Carrickshedoge, Co. Wexford. (Flanagan, 1994: 78)

'As the Bronze Age progressed, so too did the skills and repertoire of the metal-workers, with, apparently, an advancement of their knowledge of the properties of metals.'

(Flanagan, 1994: 79).

The earliest metal-using period in Ireland was principally a copper-using phase. A new technique of adding tin to the copper, producing bronze, was introduced around 2000 BC. This was a major development in metalworking. Adding tin to copper lowered the melting point which made it easier to work with. The resulting alloy was much harder when it was cast. The Bronze Age metal smiths gradually worked out that 10–12% tin was the optimum amount needed to produce quality bronze. Any amount above or below that figure made the metal brittle.

The tin used in the bronze tools of the Middle and Late Bronze Age was most likely imported into Ireland from Cornwall. It may have been traded for Irish copper and gold.

Except for those tools made of native copper, most metal tools were formed using moulds to shape the molten metal into the desired form. The most commonly used mould was stone. The technology or moulding bronze improved through the Bronze Age. Initially, items were cast by pouring the bronze into hollowed-out stone moulds. By the Middle Bronze Age, people had invented two-part moulds, where two hollowed stones were put together and metal poured into a gap at the top. This allowed for sophisticated objects like daggers to be produced. By the end of the Bronze Age, metal smiths were making wax or fat models of what they wanted to cast, putting clay around them and then heating the clay to melt the wax. The melted metal was then poured in and once set, the clay was chipped away. Examples of such moulds are on display in the 'Prehistoric Ireland' exhibition at the Museum of Archaeology.

Key Concepts

– Innovation

– Metal

– Mining

– Alloy

– Casting

– Technology

– Trade

– Natural Resources

– Tool Making

Learning Outcomes

Senior Primary

(see Curriculum links pages 21 – 23)

On completion of these activities the students will be enabled to:

– know that metal use developed gradually and involved technological change and innovation.

– explain the processes involved in mining and casting.

– discuss the implications of the development of metalwork for our understanding of how Bronze Age communities were organised.

Junior Cycle

(see Curriculum links pages 24 – 25)

On completion of these activities the students will be enabled to:

– know that metal use developed gradually and involved technological change and innovation.

– explain the processes involved in mining and casting.

– discuss the implications of the development of metalwork for our understanding of how Bronze Age communities were organised.

Resources/Activities

Senior Primary

1. Snowball Brainstorm (see page 27 for directions)

2. Sequencing Activity on process of mining and smelting. (Resource 2a, pages 62 – 63)

3. True or False activity on metal work. (Resource 2b, pages 64 – 65)

4. Enquiry Card and/or Display Cards for synthesis. (Generic Resources at back of book: B, pages 142 – 148; C, page 149; E, page 152)

Sequence answers (pages 62 – 63)

| A:3 | B:8 | C:7 | D:4 |
| E:1 | F:5 | G:6 | H:2 |

True or False matches/answers (pages 64 – 65)

A: True B: True C: True D: True E: False
F:True G: False H: True I: True J: False
K: True L: False M: False

Junior Cycle

1. Snowball Brainstorm (see page 27 for directions)

2. Sequencing Activity on process of mining and smelting. (Resource 2a, pages 62 – 63).

3. True or False activity on metal work (Resource 2b, pages 64 – 65)

4. Synthesis Template (Generic Resource at back of book: D, pages 150 – 151)

Key Questions

– What could copper ore be used for?

– Where would copper ore have been found?

– Why would people use this material?

– How would it have changed their lives?

– Who might have used copper ore?

– How would it have been used?

– What else was used?

Notes on Activities

Senior Primary

1. Snowball Brainstorm
(See page 27 of this booklet for explanation)

2. Resource 2a – Sequencing Activity
This is a chronological Card Sort. Its purpose is to mediate content knowledge in relation to the mining and smelting of copper and to develop skills in sequencing of processes. This activity can be done in pairs and used as a basis for discussion at whole class level. This activity works best when the statements are individually cut out in advance.

3. Resource 2b – True or False
This is a Card Sort. Each card is numbered. Letters E, G, J, L and M are FALSE. This is best organised as a paired or group activity in order to promote discussion. When groups are feeding back in relation to their choices, they should be asked to justify their choice. This activity works best when the statements are individually cut out in advance.

4. Enquiry Card and/or Display Cards for synthesis
This Enquiry Card (Resource C – see page 149) provides a template that can be used for all objects to help students synthesise and communicate their learning. This works best if students have had the opportunity to work through the activities above. In addition, students can use Resource E (see page 152) to create a display card for the object as it would appear in a museum collection. Resource B (Word Hoard) provides support for this activity. See page 29 and pages 142 – 148.

Junior Cycle

1. Snowball Brainstorm
(See note 1 for Senior Primary)

2. Resource 2a – Sequencing Activity
This is a Card Sort activity designed to help students work out the different stages in the processes of mining and smelting copper. This activity can be done in pairs and used as a basis for discussion at whole class level.

3. Resource 2b – True or False
(See note 3 for Senior Primary) Where Junior Cycle students have previously encountered this activity, it affords the teacher a good opportunity to assess the level of student understanding and to help correct serious misunderstanding.

4. Synthesis Template
The Synthesis Template (Resource D – see pages 150 – 151) can be used for all objects to help students synthesise and communicate their learning. This works best if students have had the opportunity to work through the activities above. In addition, students can use Resource E (see page 152) to create a display card for the object as it would appear in a museum collection. Resource B (Word Hoard) provides support for this activity. See page 29 and pages 142 – 148.

Sequence

Work out in what order copper mining and smelting took place during the Bronze Age.

A Copper ores were prised from the rock face using hammers

B From these, weapons and tools were made

C The copper was formed into ingots or 'copper cakes'

D The copper ores were crushed before being smelted

E A fire was set against the rock face

F This part of the process is called 'smelting'

G The sulphurs were separated from the ore by heating

H Water was thrown against the heated surface of the rock face

Match the description cards (A – H) with the correct step cards (1 – 8).

1

2

3

4

5

6

7

8

Decide

True or False?

A   When people began using metal in Ireland they collected copper ore that was lying on the ground. This copper was flexible and did not need smelting. This kind of copper ore is rare today and was probably also rare during the Bronze Age.

False

B   Ireland was arguably one of the most important places in Europe for producing metal in the Bronze Age. This was because it had significant copper and gold resources.

False

C   During the Bronze Age in Ireland people began to make tools from copper ore. Later they discovered that if they added tin to copper they could make a metal alloy called bronze. Bronze was stronger than copper alone.

False

D   It was easier to work with a mixture of copper and tin than with copper alone because when you add tin to copper the melting point is lowered.

False

E   Making tools out of bronze was a very important job. Metal smiths were paid a lot of money.

False

F   Experts believe that people may have used sheepskins to collect gold from rivers. The gold was caught in the fleece.

True

G There were no tin mines in Ireland: instead, tin was imported, probably from Cornwall in the south-west of England.

True

H People continued to use tools made from flint and from other stones such as chert. Not everyone had access to metal and stone was easier to find.

True

I Because they could pan for gold in the rivers, everyone in the Bronze Age owned gold objects and jewellery.

True

J Bronze Age metal smiths worked out that a mixture with about 10% tin created a bronze that was neither too soft nor too brittle. It was just right.

True

K Tin was very expensive and it cost a lot of money to import tin from Cornwall. People had to hire boats and trailers to bring it over to Ireland.

True

L People in the Bronze Age thought that metal objects were much stronger than plastic because they did not break easily.

True

M Tiny nuggets of gold and leafs of gold can erode from the bedrock and be carried by a river and deposited on the river's flood plain. People gathered some of the deposit in a container and used the water in the river to wash away the sand and gravel. Because gold is heavier, it sank to the bottom of the container. This is called panning for gold. People still pan for gold today.

True

Bronze Axehead

Enquiry Question

What do we know about the likely uses of this Bronze Age object?

About the Object

The Bronze Age Handling Box contains a replica of a decorated bronze axehead from Brockagh, Co. Kildare. It was discovered buried twelve feet deep in a bog. The axehead dates from the Early Bronze Age. Due to a prevalence of archaeological finds in wetland areas, it is probable that prehistoric people regarded such places as especially significant. Beautifully crafted Bronze Age objects, singly and in hoards, have been discovered in bogs. It has been suggested that these are ritual offerings to prehistoric gods. Such objects may have been placed in the bogs at times of social, economic and political upheaval. The axehead was found in a leather sheath, which had a long leather thong attached to it. It is the only axehead found in Ireland accompanied by its sheath.

The sheath is a tapering container made from a single piece of cowhide, with the hairy side on the inside. It is stitched up the front with a leather thong.

The original axehead itself is well preserved. It is flat, with slight hammered-up side-flanges. The cutting edge of the axehead splays widely. The axehead may have been attached to a wooden handle or haft but there is no evidence of this.

The axehead is beautifully decorated. Decoration on each face of the axe consists of vertical rows of herring-bone design, which was likely to have been scored. Hammered decoration in the form of diagonal grooves appears on the side of the axehead. This decoration may indictate that the axehead was more a status symbol that a functional tool.

'One obvious reason for the development of the bronze axe was its importance in wood working. Experiment has shown that the … bronze axe is about twice as efficient as the stone axe for tree felling, and it is also better for wood working'

(Waddell, 1994: 71).

Over 2,000 Early Bronze Age axeheads alone have been found, of which the vast majority are in the Museum's collection. The range and diversity of axes in Late Bronze Age Ireland is remarkable. They range in size, weight and hafting methods (attaching of handles). (Waddell, 2005: 189) The main function of axes was for woodworking, though some may have been used in warfare or as highly prized status symbols. Axes would have been valuable objects during the Bronze Age, due to high quantities of metal used in their production. (Waddell, 2005: 190)

Wood was a widely used material in the Bronze Age, as evidence suggests. Wooden artefacts from this period include pieces of logboats, canoes, wooden trackways, shields, bowls and containers. Few of these artefacts have survived due to the organic nature of the material from which they were manufactured. Surviving artefacts tend to be located in bogs or water-logged environments. This is due to better preservation of artefacts in anaerobic environments.

Key Concepts

– **Tools and Weapons**

– **Technology**

– **Casting**

– **Hafting**

– **Moulds**

– **Hoards**

– **Status**

Learning Outcomes

Senior Primary

(see Curriculum links pages 21 – 23)

On completion of these activities the students will be enabled to:

– know a range of possible uses of the object in the context of the Bronze Age.

– demonstrate their understanding of the technology of the Bronze Age axe.

– understand the impact of time and environment on past objects and the implications for historical knowledge.

– discuss the significance of decorations on objects.

Junior Cycle

(see Curriculum links pages 24 – 25)

On completion of these activities the students will be enabled to:

– know a range of possible uses of the object in the context of the Bronze Age.

– demonstrate their understanding of the technology of the Bronze Age axe.

– understand the impact of time and environment on past objects and the implications for historical knowledge.

– discuss the significance of decorations on objects.

Resources/Activities

Senior Primary

1. Hypothesising on the design of the complete object and its possible uses through a Time Travel Brainstorm (see page 27 of this Resource Book for explanation)

2. Casting an Object (Resource 3a, pages 77 – 79)

3. Knowing and Speculating (Resource 3b, pages 80 – 81)

4. Significance Activity (Resource 3c, page 82)

5. Enquiry Card and/or Display Cards for synthesis. (Generic Resources at back of book: B, pages 142 – 148; C, page 149; E, page 152)

Junior Cycle

1. Hypothesising on the design of the complete object and its possible uses through a Time Travel Brainstorm (see page 27 of this booklet for explanation)

2. Casting an Object (Resource 3a, pages 77 – 79)

3. Knowing and Speculating (Resource 3b, pages 80 – 81)

4. Significance Activity (Resource 3c, page 82)

5. Synthesis Template (Generic Resource at back of book: D, pages 150 – 151)

Key Questions

– What might this object have been used for?

– Where was the original axehead found?

– Why was it buried in a bog?

– How was it made?

– Why was it decorated?

– Who might have owned and used it?

Notes on Activities

Senior Primary

1. Time Travel Brainstorm
In a time travel brainstorm, participants brainstorm as people from the historical period. In this case as Bronze Age people who discover the axehead. Perhaps, this is the first replica bronze object they have seen. They might compare it to objects they are familiar with. Are there enough clues in the object itself to suggest what the complete object might have looked like? How might the wooden handle or haft have been attached to the axehead? Are the decorations important on the axehead? What would they tell them about who it might belong to? Would they view it as a working object or one that might have been used for other purposes e.g. rituals or to show status?

2. Resource 3a – Casting an Object
The object can be reconstructed in a number of ways: (1) through drawing and sketching the object, showing what the haft might have looked like, what material would have been used to make it, how it might have been attached to the axehead. (2) The axehead can be recreated using modelling clay or plasticene and a haft attached to it. (3) Use the directions in Resource 3a to reconstruct the axehead through creating a plaster mould. The object can be decorated and hafted.

3. Resource 3b – Knowing and Speculating
This activity focuses on the nature of historical/ archaeological knowledge and the interpretation of evidence. We can make some statements about the past with certainty e.g. bronze was made from a mixture of copper and tin. Other knowledge such as 'decorated bronze objects belonged to important people with higher status' is based on the interpretation of evidence. These activities (Resource 3b) are intended to provoke discussion and debate about the relationship between knowledge and evidence. The discussion itself is more important than a definitive outcome. This activity works best when the statements are individually cut out in advance.

4. Resource 3c – Significance Activity
The axehead is incomplete because its haft was made from organic material that decayed. Survival of organic material depends on the nature of the material and the physical nature of findspot. This activity asks students to think about what might remain of their belongings in the future. To extend this activity, ask the students to consider, as future archaeologists, what those remains would tell them about life today. Students may also want to find out about bog butter and about the Iron Age bog bodies found in Ireland which can be seen in the 'Kingship and Sacrifice' exhibtion at the Museum of Archaeology.

5. Enquiry Card and/or Display Cards for synthesis
This Enquiry Card (Resource C – see page 149) provides a template that can be used for all objects to help students synthesise and communicate their learning. This works best if students have had the opportunity to work through the activities above. In addition, students can use Resource E (see page 152) to create a display card for the object as it would appear in a museum collection. Resource B (Word Hoard) provides support for this activity. See page 29 and pages 142 – 148.

Notes on Activities

Junior Cycle

1. Time Travel Brainstorm
(See note 1 for Senior Primary)

2. Resource 3a – Casting an Object
(See note 2 for Senior Primary)

3. Resource 3b – Knowing and Speculating
(See note 3 for Senior Primary)

4. Resource 3c – Significance Activity
(See note 4 for Senior Primary)
Where not previously encountered – or, at the discretion of the teacher – this activity may also be used productively at first year Junior Cycle level. The activity is designed to help students consider the significance of the Bronze Age axehead. Taking the elements (houses, food, family life etc.) given in the syllabus description of the topic, it asks students to consider the significance, if any, of the axehead to each of these elements. The activity should help students to see the different ways in which the axe informs our understanding of Bronze Age life. Students are then asked to engage in a ranking exercise to determine which points seem – on the basis of the evidence available to us – to be of greatest significance.

5. Synthesis Template
The Synthesis Template (Resource D – see pages 150 – 151) can be used for all objects to help students synthesise and communicate their learning. This works best if students have had the opportunity to work through the activities above. In addition, students can use Resource E (see page 152) to create a display card for the object as it would appear in a museum collection. Resource B (Word Hoard) provides support for this activity. See page 23 and pages 142 – 148.

Casting

Using Plaster to Cast an Object

Casting during the Early Bronze Age was probably done using simple one-piece moulds carved from stone. By the Late Bronze Age, clay moulds were being used to cast a wide range of weapons and tools. While plaster as a medium itself is difficult to use as it sets so quickly, the following activity provides children with the opportunity to experience casting in a safe environment.

Modelling with Plaster

The following guidelines outline how to mix plaster and how to make a simple cast using clay and an object:

1. Using equal amount of liquid to plaster, pour the water into a deep bowl. Allow space for the liquid level to rise.

2. Add the plaster to the water gradually by sifting the plaster through your fingers as you let it fall onto the water. This allows the plaster to dissolve gradually and avoids creating lumps.

3. When the mound of plaster appears above the line of the water, this indicates the plaster/water proportion is adequate. Leave it to stand for a short period, less than 8 mins.

4. Stir the mixture.

5. Check that it is properly mixed by placing your hand in the solution. If it leaves a creamy coating on your hand, it should be ready for pouring. The mould or preparation work has to be ready. See the following instructions on making a clay mould.

Making a Simple Mould

Using an object which is 3-dimensional, it is possible to make a copy of its form by taking an impression of it in clay. If the object is symmetrical it will make the job easier. To illustrate the process there is a sequence of pictures on the following page.

Before you start taking the impression of the object, you need to be mindful of the surface you propose to work on and the risk of inadvertently marking the object.

The surface should be slightly porous, e.g. wooden or indeed plaster. Just in case there are any spillages, a porous surface makes it easier to remove the plaster.

The two pieces must be placed together and a cast of wax, slip or plaster can be made of the object.

Casting

1. Press the object into a clay slab up to the half way point. The object may need a guide marking the half way point.

2. Smoothen the surface of the clay level to the marked object.

3. Create a shape for the mould frame and cut down the slab.

4. Build a wall of clay around the slab. Make sure the wall height allows for the depth of the object plus approx. 1cm.

5. Make sure all edges are well sealed with no gaps for plaster to escape through.

6. Make three small dome-shaped impressions with a finger or small object for mould matching. Pour the plaster onto the mould with the object in it.

7. This is what the plaster mould would look like with a pouring spout also pressed out. The inverse mould can now be made.

8. Lightly rub the surface with soap and place the object in the mould. Seal the edges with vaseline. Build up another wall of clay to frame the mould and pour the plaster as before.

Speculate

The bronze axehead

The axehead was a valuable object during the Bronze Age.	The axehead has a sharp and wide cutting edge.
The axehead had a wooden handle.	Axeheads like these were used for chopping trees.
Axeheads like these were used as weapons.	The axehead is decorated with a herring bone design.
This axehead was owned by a powerful person.	The axehead is made of bronze.
The axehead was better at cutting than an axehead made of stone.	The tin used in making the axehead was mined in Cornwall, England.
The axehead was made by craftsmen in Ireland.	The copper used in this axehead was mined in Ireland.

We speculate that...

If you think the evidence suggests this … place the card here.

We know that...

If you think we can be certain about this knowledge … place the card here.

Predict

What would archaeologists find in 5,000 years' time?

A computer

An apple

A teddy bear

A bicycle

A person

A metal toy

A wooden toy

A cereal box

If you think the object would have fully decayed, draw an X through it.

If you think the object would still be there draw a CIRCLE around it.

If you think some of the object would be there and some of it would not, draw a RECTANGLE around it.

Discuss your choices with your class and explain them.
There are words in the Word Hoard that will help you to explain.

Bronze Spearhead

Enquiry Question

What kind of society is likely to have produced spearheads such as this?

EXHIBITION LINKS at the National Museum of Ireland – Archaeology:

The original spearhead, found in Rathgarret, Co. Westmeath, is on display in the 'Finds from Irish Wetlands' exhibition. This small exhibition features a selection of finds from Irish wetlands including more than 800 reports related to discoveries. Spearheads are also found in the 'Prehistoric Ireland' exhibition which traces the story of Ireland's first inhabitants through the Mesolithic, Neolithic and Bronze Age.

About the Object

The Bronze Age Handling Box contains a replica of a Bronze spearhead from Rathgarret, Co. Westmeath. The original spearhead dates from approximately 1000 BC. It is currently on display in the 'Finds from Irish Wetlands' exhibition at the Museum of Archaeology. The spearhead was discovered buried seven feet deep in a bog. It is a good example of the type of spearhead which was widely used in Ireland during the Late Bronze Age.

This object was most likely used as a weapon. To use effectively in battle, it was necessary to mount the spearhead on a long wooden shaft. It was tied securely to the shaft using loopheads. Earlier spearheads were flat dagger-like blades with a tang (see page 93), which could not be efficiently mounted on a wooden shaft. (Waddell, 1994: 71)

Large amounts of weaponry dating from the Late Bronze Age have been discovered in Ireland. On display at the Museum of Archaeology are various artefacts associated with Bronze Age weaponry such as leather and bronze shields, swords and daggers. There are also a number of weaponry hoards on display. The best known example is the Dowris Hoard containing 218 objects. It is thought that this hoard was added to throughout the Late Bronze Age as it was considered an offering to a prehistoric god. These artefacts may be indicative of a period of turmoil and warfare. Perhaps this was caused by unfavourable climate change which led to a shortage in good agricultural land.

Key Concepts

– Late Bronze Age

– Weapons

– Warfare

– Climate

– Hoards

– Resources

Learning Outcomes

Senior Primary

(see Curriculum links pages 21 – 23)

On completion of these activities the students will be enabled to:

– know how the object was constructed and used.

– explain how climate and changing resources have affected human behaviour in the past.

– identify the stages involved in the journey from finding of objects to museum exhibit.

Junior Cycle

(see Curriculum links pages 24 – 25)

On completion of these activities the students will be enabled to:

– know how the object was constructed and used.

– explain how climate and changing resources have affected human behaviour in the past.

– identify the stages involved in the journey from finding of objects to museum exhibit.

Resources/Activities

Senior Primary

1. Using an image to generate questions about objects by brainstorming (Resource 4a, page 92)

2. Use Briefing Sheet to research questions (Resource 4b, page 93)

3. Mystery Card Sort (Resource 4c, pages 94 – 95)

4. Timeline on finding and conserving objects (Resource 4d, pages 96 – 98)

5. Enquiry Card and/or Display Cards for synthesis. (Generic Resources at back of book: B, pages 142 – 148; C, page 149; E, page 152)

Timeline matches/answers (pages 96 – 98):

A: 1951 AD   B: post 1951 AD
C: 2000 AD   D: post 2400 BC
E: post 1800 AD   F: post 2400 BC
G: 1951 AD   H: current date
I: post 900 BC   J: post 900 BC
K: post 1951 AD

Junior Cycle

1. Using an image to generate questions about objects by brainstorming (Resource 4a, page 92)

2. Use Briefing Sheet to research questions (Resource 4b, page 93)

3. Mystery Card Sort (Resource 4c, pages 94 – 95)

4. Timeline on finding and conserving objects (Resource 4d, pages 96 – 98)

5. Enquiry Card (Generic Resources at back of book: B, pages 142 – 148; C, page 149; E, page 152)

6. Synthesis Template (Generic Resource at back of book: D, pages 150 – 151)

Key Questions

– How was this object used?

– Who might have used it?

– Why might it have been used?

– Are there others like it?

– What does it suggest about the
  Late Bronze Age?

– Where was the original spearhead found?

Notes on Activities

Senior Primary

1. Resource 4a – Brainstorm Questions
Working in pairs or small groups of 4/5, students brainstorm questions about the replica object. What do they want to find out about the object? These questions should be the students' own, but if required, prompt the students to think about its design and function and about who might have made and used it. When all groups have finished, share the questions (they could be displayed on the wall giving students time to look at each others' questions). Some will be shared or belong to similar categories, others will be overarching or very detailed. Ask the students to group them into common themes and/or rank them according to key questions and subsidiary questions.

2. Resource 4b – Briefing Sheet
Using Resource 4a, 4b and any other similar resources available in the classroom, the students research their questions in groups.

3. Resource 4c – Mystery Card Sort
This mystery is a Card Sort. Students work in groups to solve the mystery using the cards provided. Directions for mysteries can be found in Section B page 28. As with many historical mysteries, there is no definitive answer to this one. However, there is evidence of climate change during the period leading to colder, wetter and more variable weather. Such climate changes would have resulted in increased crop failures, poor conditions for animals and a decrease in arable land, thereby putting increased pressure on Bronze Age communities. We cannot know for certain that the increase in weapon finds for the Late Bronze Age is evidence of increased conflict or that increased conflict is a direct result of the scarcity in resources. Yet it is a reasonable hypothesis which the students could discuss. Evidence suggests that adaptation to climate change may have resulted in the construction of wooden trackways in the midlands and hill forts. The research into the effects of climate change during the Bronze Age is ongoing and interpretations will change and develop as new evidence emerges. This activity works best when the statements are individually cut out in advance.

4. Resource 4d – Timeline
This timeline activity helps students to consider the relationship between objects they see in a museum context and Bronze Age communities who made and used these objects. It introduces them to the It

introduces them to the process of conservation and provides the opportunity to discuss the Museum's responsibilities in relation to the preservation of historical objects. This activity involves creating your own timeline using time periods on page 96 as a guide.

5. Enquiry Card and/or Display Cards for synthesis
This Enquiry Card (Resource C – see page 149) provides a template that can be used for all objects to help students synthesise and communicate their learning. This works best if students have worked through the activities above. In addition, students can use Resource E (see page 152) to create a display card for the object, as it would appear in a museum collection. Resource B (Word Hoard) provides support for this activity. See page 29 and pages 142 – 148.

Junior Cycle

1. Resource 4a – Brainstorm Questions
(See note 1 for Senior Primary)

2. Resource 4b – Briefing Sheet
(See note 2 for Senior Primary)

3. Resource 4c – Mystery Card Sort
(See note 3 for Senior Primary)

4. Resource 4d – Timeline
(See note 4 for Senior Primary)

5. Enquiry Card
(See note 5 for Senior Primary) When students create a 'people in history' account on a person from the prehistoric period, the result is often vague and lacking in evidential reference points. This activity is designed to help students focus on what we know about Bronze Age people from the evidence, and to use that knowledge to imagine a day in the life of a Bronze Age spear-user.

6. Synthesis Template
The Synthesis Template (Resource D – see pages 150 – 151) can be used for all objects to help students synthesise and communicate their learning. This works best if students have had the opportunity to work through the activities above. In addition, students can use Resource E (see page 152) to create a display card for the object as it would appear in a museum collection. See page 29 and pages 142 – 148 (Word Hoard).

Question

Write your questions about this replica object in the space below…

Bronze spearhead

Research

What was Ireland like during the Middle and Late Bronze Age?

The Middle and Late Bronze Age in Ireland dates from approximately 1500 BC – 500 BC. The Late Bronze Age (post circa 850 BC) in particular witnessed major social and environmental changes. The climate became wetter and colder. Good agricultural land was not as plentiful as before, and the land became heavily forested. Heavy flooding after rain became a regular feature with marshes becoming more common due to lack of drainage. There is also evidence for the expansion of bogs. Many of the finds from this period include weapons. This may be indicative of warfare and violence in Ireland during the Late Bronze Age. This spearhead was most likely used as a weapon.

Why did people bury hoards?

Many spearheads dating from the Bronze Age have been found in Ireland. They are commonly discovered in bogs, rivers and lakes. They have been found on their own and also as parts of larger collections called hoards. It is not known exactly why hoards were buried or left in rivers and lakes. They may have been hidden for safe keeping, or left as a part of a ritual or offering. It is thought that certain rivers, lakes and marshy places were seen as very special by people during the Bronze Age. These places were used for ceremonies and rituals. Hoards may have been buried all at once or may have been built up over many years through people offering items in special places. When spearheads were found in hoards, they were often found with other weapons including axeheads, daggers, swords and halberds (a type of dagger).

Are there different types of spearheads?

There are two loops at the bottom of this replica spearhead. These were used for tying it securely to the long wooden shaft on which it may have been mounted. Earlier spearheads were flat dagger-like blades with a tang at one end. The tang is the sharp part at one end of a chisel, knife blade, or other similar tool that secures it to the handle or shaft. The earliest spearheads were not very well attached to the wooden shaft. This led to the development of alternative techniques to create a better weapon, such as spearheads with loops. Leather straps may have been placed through the loops and tied to the handle. Metalworkers continually improved the design of the shaft of the spearhead to make it hollow and more secure.

Solve

In 1825, two farmers in Dowris, Co. Offaly, started to dig a potato trench. What they found can help to solve this mystery:

Did bad weather lead to bad tempers in the Bronze Age?

Can you help to solve this mystery? Use the information in the cards to solve your case.

In the Late Bronze Age, some people had items made of metal and gold to show off their wealth and power.	The hoard found in Dowris included 5 swords, 44 spearheads, 43 axes, 26 horns, 3 bronze buckets, 48 crotals, 1 cauldron and other objects such as knives and razors.	In the Late Bronze Age, most people depended on the land to survive. They grew crops and grazed cattle.
If too much rain falls, crops are more likely to fail and animals could get sick.	For hundreds of years after 1500 BC Ireland's climate became wetter and colder.	Over 600 swords dating from the period 1500 BC to 700 BC have been found in Ireland.
Peat bogs do not contain much oxygen. Objects do not rot or decay easily.	As the weather gets wetter, land becomes marshy and good land becomes scarce. Trees grow more easily and quickly.	Ireland's landscape was very different in the Bronze Age to what it is now. Much more of the land was covered in trees.

During the Late Bronze Age, people began to build strong forts on hill tops which could be easily defended. The hill forts helped people to look over the surrounding area easily.

Potatoes were introduced into Ireland in the sixteenth century. By the nineteenth century they were a very important crop.

Peat is a soil that is made up of the remains of dead plants which have pressed on top of each other in waterlogged places for thousands of years.

Copper was mined in many places in Ireland.

Potatoes can grow on poor or boggy land.

People may have buried objects in hoards to keep them safe from their enemies or as part of a ritual.

Rivers and lakes appear to have been important places to people in the Late Bronze Age. They may have had ceremonies or rituals in these places and left items that were important to them.

During the Bronze Age people may have used spears as weapons and for hunting animals. Decorated spears may have been used as offerings or given as gifts to important people.

Areas where peat is found are called peatlands or bogs. Some bogs in Ireland were once lakes or very marshy places.

Sequence

Create your own Timeline dating from 2400 BC to the present day including key time references marked below.

c. 2400 BC

c. 1500 BC

c. 900 BC

1800 AD

1951 AD

2000 AD

2013 AD

Place the letter belonging to each statement on pages 91 and 92 to match a year or time period on your timeline.

A

Turf cutters discover the original spearhead about 7 foot deep in a bog in Co. Westmeath. The spearhead is found on its own.

B

The spearhead is strengthened and cleaned to reveal its surface decoration.

C

Archaeologists look for more evidence about the past in the area where the spearhead is found. They find evidence of a wooden platform, causeways (toghers) and leather shoes.

D

There is evidence of copper mining in Ireland at Ross Island, Co. Kerry.

E

During this time many hoards of Bronze Age precious items and weapons are found around Ireland, especially in rivers, lakes and bogs. Many of the items are sold to collectors.

F

Metalworkers first began to add tin to copper to make bronze.

G

The original spearhead is submitted to the National Museum of Ireland and is identified and cataglogued by the relevant curatorial department, in this case, the Irish Antiquities Division.

H

The spearhead continues to be on display in the 'Finds in Irish Wetlands' exhibition in the Museum of Archaeology, Kildare Street, Dublin.

I

There is evidence that around this time a long period of conflict and turmoil began in Ireland. Over 600 swords from this time have been found. Many of the items are left or hidden on land or in water. They may have been left as offerings to prehistoric gods or hidden for safe keeping.

J

The spearhead is made by a metal smith. The two loops were used to tie it securely to a long wooded shaft to make an effective weapon.

K

The spearhead is kept in a safe environment to slow down or stop any damage occurring. The air temperature, moisture level in the air and levels of light are carefully controlled. Handling is avoided.

Sheepskin

Enquiry Question

What can this object tell us about economic activity in the Bronze Age?

About the Object

The Bronze Age Handling Box contains a fragment of a sheepskin. Farming was introduced into Ireland from Europe during the Neolithic period (c. 3700 BC). It was 'mixed' farming in Ireland, meaning that people kept domesticated animals such as cattle, sheep, goats and pigs, and also grew crops such as barley and wheat. This tradition of farming continued into the Bronze Age.

Sheep were used by Bronze Age farmers in many ways. Domesticated sheep were sources of meat and dairy products. By-products such as bones, hides and wool were also valuable commodities. The hide, once removed from the animal, could provide warmth in the form of clothing or coverings. It was also used to make tents and containers. Flint scrapers were used to clean the skin. Curing agents like ochre, grit and urine may have been added. These would help keep the hide supple and vermin-free.

Sheepskin may have been used to help collect gold. Metalworkers used gold from the beginning of the Early Bronze Age to craft beautiful objects such as lunalae, gold discs and torcs. The Museum has a dedicated exhibition to Bronze Age gold entitled 'Ór – Ireland's Gold'. It is one the largest collections of gold artefacts from the Bronze Age in Western Europe.

One of the main sources of gold available to goldsmiths was from alluvial deposits, which are small pieces within gravel found in rivers. Weathering of the bedrock caused gold to be displaced and washed down rivers and streams. Panning was the primary technique used to collect these gold deposits. Panning can be quite effective at collecting very small particles of gold. Bronze Age people may have used natural sieves such as sheepskins to trap gold particles. There is evidence of this method of panning in other parts of Europe. This suggests that this method was the primary means of sourcing gold in the Early Bronze Age. The Middle and Later Bronze Age also saw mining of the raw material. (Warner et al, 2009) The techniques used to mine gold were similar to those used to mine copper during the same period.

In the Early Bronze Age objects were simply produced by hammering small ingots or nuggets into thin sheets of beaten gold which were cut or trimmed to various shapes. The range of objects made at this time was very restricted: basket-shaped earrings, gold discs and lunulae. The crescent-shaped neck ornament known as the lunula is perhaps the most characteristic Irish Early Bronze Age gold object. There are 50 examples in the Museum's collection. The restricted nature of the output during the Early Bronze Age reflects the restricted availability of gold. Larger amounts of gold were available during the Middle and Late Bronze Age resulting in increased production of gold objects.

Key Concepts

– Mixed Farming

– Curing Hide

– Primary and Secondary Products

– Panning

Learning Outcomes

Senior Primary

(see Curriculum links pages 21 – 23)

On completion of these activities the students will be enabled to:

– know that mixed farming was characteristic of the Bronze Age and the varied uses of animals, not just as a food source.

– understand that making connections between sources can help us to develop a better understanding of what life might have been like.

– explain the significance of finds of gold objects.

– identify finds that are characteristic of the Bronze Age in Ireland and understand that technology changed over time.

Junior Cycle

(see Curriculum links pages 24 – 25)

On completion of these activities the students will be enabled to:

– know that mixed farming was characteristic of the Bronze Age and the varied uses of animals, not just as a food source.

– understand that making connections between sources can help us to develop a better understanding of what life might have been like.

– explain the significance of finds of gold objects.

– identify finds that are characteristic of the Bronze Age in Ireland and understand that technology changed over time.

Resources/Activities

Senior Primary

1. Use Writing Frame 1 to explore ways in which sheep contribute to the Bronze Age economy. (Resource 5a, page 108)

2. Use Writing Frame 2 to identify the areas of work generated by each product/use of the sheep (Resource 5b, page 109)

3. What would you find in a Bronze Age enclosure? (Resource 5c, pages 110 – 112)

4. Enquiry Card and/or Display Cards for synthesis. (Generic Resources at back of book: B, pages 142 – 148; C, page 149; E, page 152)

Junior Cycle

1. Use Enquiry Frame to explore ways in which sheep contribute to the Bronze Age economy. (Resource 5d, page 113)

2. Use Mind Map to identify the areas of work generated by each product/use of the sheep (Resource 5e, page 114)

3. What would you find in a Bronze Age enclosure? (Resource 5c, pages 110 – 112)

4. Synthesis Template (Generic Resource at back of book: D, pages 150 – 151)

Key Questions

– What does this fragment of sheepskin tell us about life in Ireland during the Bronze Age?

– Were sheep important to the Bronze Age economy?

– What do finds of gold objects tell us about Bronze Age communities?

– What kind of skills and talents were needed to make gold objects?

– How did things change during the Bronze Age?

Notes on Activities

Senior Primary

1. Resource 5a – Writing Frame 1

This activity sheet (paired or group activity) provides the opportunity for students to think about how people's relationship with domesticated animals changed over time. While sheep would have been used primarily for meat, hide and possibly bone, over time their use for secondary renewable products emerged i.e. wool and milk. The gradual clearance of forest would also have facilitated more pastoral farming. Through discussion, prompt the students to think about the changing relationship.

2. Resource 5b – Writing Frame 2

Converting the sheep into meat for eating, preparing hide for shelter and clothing and possibly using sheep's bones for bone tools required a range of tasks to be done. Likewise, using wool for textiles (sorting, washing, teasing, carding, spinning, dyeing, weaving) and milk for dairy products had multiple tasks attached to them. With the help of the mind map (Resource 5e), this writing frame (Resource 5b) facilitates students' thinking through the kinds of tasks associated with each product. This can be extended through research into each of the processes involved.

3. Resource 5c – Bronze Age Enclosure Activity

We know what domestic animals were found in Irish Bronze Age settlements from the archeological evidence. In this activity, students use that evidence to populate a Bronze Age enclosure with animals.

4. Enquiry Card and/or Display Cards for synthesis

This Enquiry Card (Resource C – see page 149) provides a template that can be used for all objects to help students synthesise and communicate their learning. This works best if students have had the opportunity to work through the activities above. In addition, students can use Resource E (see page 152) to create a display card for the object, as it would appear in a museum collection. Resource B (Word Hoard) provides support for this activity.
See page 29 and pages 142 – 148.

Junior Cycle

1. Resource 5d – Enquiry Frame

This enquiry frame requires students to locate speculative evidence from archaeology that suggests how sheep could have been used during the Bronze Age.

2. Resource 5e – Mind Map

(See note 2 for Senior Primary).

3. Resource 5c – Bronze Age Enclosure Activity

(See note 3 for Senior Primary).

4. Synthesis Template

The Synthesis Template (Resource D – see pages 150 – 151) can be used for all objects to help students synthesise and communicate their learning. This works best if students have had the opportunity to work through the activities above. In addition, students can use Resource E (see page 152) to create a display card for the object, as it would appear in a museum collection. Resource B (Word Hoard) provides support for this activity.
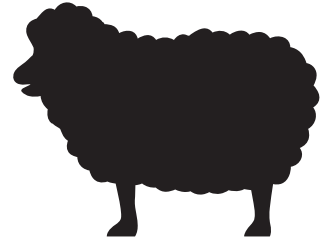See page 29 and pages 142 – 148.

Think
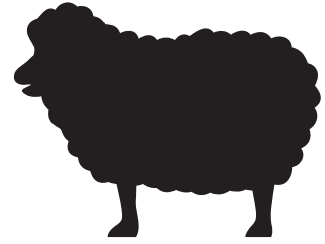
What can sheep give you…

Once…

Several times…

Think

What do you have to do to turn a sheep into…

Food…

Clothing…

Shelter…

Speculate

Populating a Bronze Age enclosure.

It is believed that one or more families lived in each Bronze Age farmstead. Inside a wooden fence or palisade there were houses, storage huts and pens or enclosures for the livestock. Outside the palisade there were fields in which crops such as wheat and barley were grown.

(Adapted from *Discovering the Bronze Age*. The Discovery Programme, 1997.)

Use the archaeological evidence given on the next page to populate the livestock pens (page 105) with animals that are most likely to have been kept there during the Bronze Age. Write the names of the animals inside the pens (page 106).

A. Can you tell which animals might have been there in the greatest numbers? Put them in the largest pens.

B. There is a fulacht fiadh where food was cooked. What animals might have been cooked in the fulacht fiadh? Write the names of the animals inside the fulacht fiadh.

C. The enclosure is surrounded by a wooden fence to protect the family and its animals. What animals might have posed a threat to their safety? Write the names of the animals outside the fence.

Research

Archaeological Evidence

DOGS

At Chancellorsland in Co. Tipperary, the bones of a small dog (about the size of a sheepdog) were found. Dogs were probably used to help people to hunt from the time the first settlers came to Ireland.

SHEEP

Bones found at Dún Aonghusa on the Aran Islands indicate that sheep were one of the most important animals kept there.

WILD BOAR

Wild boar was hunted in Ireland from the Mesolithic period (Middle Stone Age) when, according to the evidence available, the first people arrived. In an excavation at Rathinaun, Co. Sligo, a wooden box was discovered containing bronze objects as well as amber beads and a boar's tusks. Some sources say they may have been extinct by the end of the Iron Age.

GOATS

Goats were brought to Ireland by the first farmers during the Neolithic period. Small amounts of bone have been found at several Bronze Age sites including the Bronze Age site at Newgrange, Co. Meath.

PIGS

There is evidence that pigs were kept near forest areas where they could forage for food. Pig bones were the second largest group of bones found at a Bronze Age site at Newgrange, Co. Meath.

HORSES

Horses became extinct in Ireland during the Ice Age and had to be introduced by man during the Bronze Age. Evidence of domesticated horses is rare, though cremated horse bones were found at a Bronze Age site at Newgrange, Co. Meath and horse bones at Ballyveelish, Co. Tipperary.

CATTLE

At most Bronze Age sites, there is evidence of the keeping of cattle. At a Bronze Age site at Newgrange, Co. Meath, cattle bones outnumbered all other animal remains found. Animal bones discovered in an excavation at Ballyveelish, Co. Tipperary, show that cattle were the most important livestock there.

DEER

There is limited evidence of the hunting of deer during the Bronze Age. At Ballinderry, Co. Offaly, a few bones of wild animals such as red deer were found.

HARE

Finds of food debris show that wild hare was hunted and eaten in Ireland from as early as the Mesolithic period (Middle Stone Age).

WILD CAT

Evidence from the Kilgreaney cave in Co. Waterford and Newgrange, Co. Meath shows that wild cats such as the lynx roamed the Irish countryside during the Stone Age and Bronze Age.

WOLVES

Bone fragments found in quarry works outside Dungarvan in the nineteenth century confirm that wolves were roaming the country during the Ice Age, before the first people came to Ireland. They were a common feature of the Irish landscape for thousands of years. The last Irish wolf is thought to have been killed towards the end of the eighteenth century.

Speculate

Fulacht Fiadh
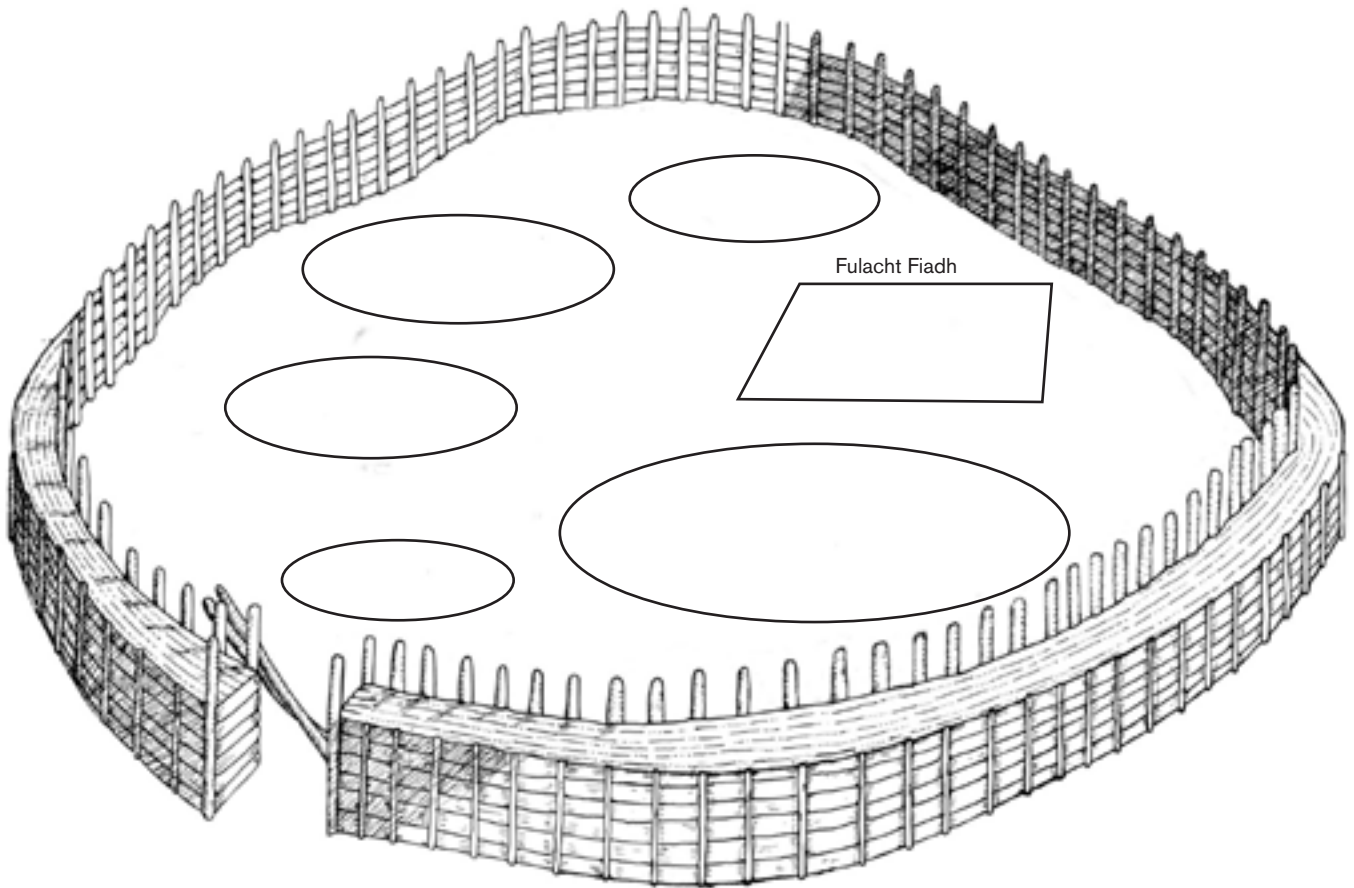
Explain

What do archaeologists think were the likely uses of sheep by Bronze Age people under the following headings…

Food…

Clothing and shelter…

Other products and uses…

Identify

Use a mind map to identify the range of jobs or areas of work generated by sheep under the following headings…

Wool…

Hide…

Meat…

Milk…

Bone…

Amber

Who might have owned amber jewellery in the Bronze Age?

EXHIBITION LINKS at the National Museum of Ireland – Archaeology: Amber beads dating from the Bronze Age can be found in both the 'Prehistoric Ireland' and 'Ór – Ireland's Gold' exhibitions. Amber beads from later can be found in the 'Viking Ireland' exhibition. The 'Prehistoric Ireland' exhibition traces the story of Ireland's first inhabitants through the Mesolithic, Neolithic and Bronze Age. 'Ór – Ireland's Gold' displays Bronze Age gold – one of the most important gold collections in Europe. 'Viking Ireland' examines the arrival and settlement of the Vikings using artefacts from the Museum's Dublin excavations carried out between 1962 and 1981.

About the Object

The Bronze Age Handling Box contains a piece of raw amber and a replica of an amber bead necklace. Such necklaces were worn as jewellery during the Bronze Age, most likely symbolising a person of high status within the community. At the Museum of Archaeology there are sets of amber bead necklaces on display, including finds from counties Offaly and Kilkenny in the 'Prehistoric Ireland' and 'Ór – Ireland's Gold' exhibitions. In the 'Finds from Irish Wetlands' exhibition on the first floor, there is one set displayed that was discovered with a short thin strip of bronze wire that was discovered ten feet deep in a bog at Knockmaroe, Co. Tipperary.

One of the most impressive collection of amber beads discovered in Ireland was found in 1847 in Cogran, Co. Offaly. It is believed that 160 beads were originally found, though less than 120 survive today. The beads are of different sizes, and it is believed that they would have been worn in a graduated necklace. Several clasps of gold and a small gold collar were found with the beads.

Amber is not native to Ireland and was imported from the Baltic region of Northern Europe. It was a highly prized material. It is often found with hoards of gold objects but it has also been found on its own. Amber artefacts indicate trade and commerce between Ireland and Northern Europe during the Bronze Age.

Key Concepts

– Trade

– Craftwork

– Status

– Hoards

– Finds

– Trade and Commerce

Learning Outcomes

Senior Primary

(see Curriculum links pages 21 – 23)

On completion of these activities the students will be enabled to:

– know that amber was imported into Ireland for use in making jewellery.

– discuss the significance of the importation of amber for our understanding of the Bronze Age.

– evaluate the impact of past actions (burying hoards) on our knowledge of the Bronze Age.

Junior Cycle

(see Curriculum links pages 24 – 25)

On completion of these activities the students will be enabled to:

– know that amber was imported into Ireland for use in making jewellery.

– discuss the significance of the importation of amber for our understanding of the Bronze Age.

– evaluate the impact of past actions (burying hoards) on our knowledge of the Bronze Age.

Resources/Activities

Senior Primary

1. Brainstorm Activity on raw amber after which students are introduced to the amber necklace. Students should compile questions they would like to find out about.

2. A 'Finding out about Amber' page outlining interesting facts about amber.
(Resource 6a, page 124)

3. Enquiry Frame 1 based on amber finds and possible trade routes? (Resource 6b, page 125)

5. Enquiry Card and/or Display Cards for synthesis. (Generic Resources at back of book: B, pages 142 – 148; C, page 149; E, page 152)

Junior Cycle

1. Brainstorm Activity on raw amber after which students are introduced to the amber necklace. Students should compile questions they would like to find out about.

2. A 'Finding out about Amber' page outlining interesting facts about amber.
(Resource 6a, page 124)

3. Enquiry Frame 2 based on amber finds and possible locations. (Resource 6c, page 126)

5. Synthesis Template (Generic Resource at back of book: D, page 150 – 151)

Key Questions

- What does the raw amber and the amber necklace tell us about Bronze Age communities?

- How was amber formed?

- Who might have owned an amber necklace?

Notes on Activities

Senior Primary

1. Brainstorm Activity
Having examined the raw amber, students brainstorm on its possible uses. Prompt them to think about its colour, what it could be used for, how it might be shaped. At the end of the brainstorm, introduce them to the amber necklace. Discuss who might have worn it and whether it might have been a common or a valued object. Discuss why its owners might have hidden it and what we can deduce from finding it. Students then compile a list of questions they would like to research.

2. Resource 6a – Finding out about Amber
This 'Finding out about Amber' page (Resource 6a) provides students with interesting facts about amber. It can be used along with other classroom resources to answer questions that may arise from the brainstorming activity.

3. Resource 6b – Enquiry Frame 1
There are no amber deposits in Ireland and amber used during the Bronze Age had to be imported. This Enquiry Frame (Resource 6b) asks students to think about the implications of this. In particular, it asks them to consider how the amber travelled from its source to Ireland.

4. Enquiry Card and/or Display Cards for synthesis
This Enquiry Card (Resource C – see page 149) provides a template that can be used for all objects to help students synthesise and communicate their learning. This works best if students have had the opportunity to work through the activities above. In addition, students can use Resource E (see page 152) to create a display card for the object, as it would appear in a museum collection. Resource B (Word Hoard) provides support for this activity. See page 29 and pages 142–148.

Junior Cycle

1. Brainstorm Activity
(See note 1 for Senior Primary).

2. Resource 6a – Finding out about Amber
(See note 2 for Senior Primary).

3. Resource 6c – Enquiry Frame 2
(See note 3 for Senior Primary).

4. Synthesis Template
The Synthesis Template (Resource D – see pages 150–151) can be used for all objects to help students synthesise and communicate their learning. This works best if students have had the opportunity to work through the activities above. In addition, students can use Resource E (see page 152) to create a display card for the object, as it would appear in a museum collection. Resource B (Word Hoard) provides support for this activity. See page 29 and pages 142–148.

Research

How is amber formed?

When coniferous trees are damaged, they produce a sticky substance called resin to protect them from insects and diseases. This resin falls to the ground and hardens in moist places such as riverbeds, lagoons and seabeds. Amber is fossilized resin that has lain undisturbed for millions of years. Most of the world's amber is between 30 and 90 million years old.

Where is amber found?

Amber is found in many places all over the world – in Europe, the Caribbean, North and South America, China and Malaysia. In Europe amber is found in Sicily, on the east coast of England, and most importantly in the Baltic region. There is no amber in Ireland. The most important source of amber is the Baltic region of Europe. All of the amber used in Ireland during the Bronze Age had to be imported, mostly from the Baltic region.

Did you know?

Insects and plants often became trapped in the resin as it fell to the ground. As amber is transparent, the trapped insects and plants remain visible when the resin fossilized into amber. Sometimes creatures as large as frogs and lizards were trapped in the resin. As they are well preserved in the amber, it is possible to extract the DNA of these organisms. Through studying these trapped creatures and plants scientists can learn a lot about what the earth was like millennia ago.

Is amber valuable?

Baltic amber has been traded since about 3000 BC. Amber trading routes were well established in the Bronze Age and remained important right through to medieval times. Pliny the Elder who lived in Ancient Rome stated, that amber was highly valued and that an amber human figurine, no matter how small, would have cost much more than slaves. Amber remained popular throughout the centuries and is still used today to make jewellery and to decorate precious objects.

How is amber recovered?

During prehistoric times, amber was probably gathered along the shoreline of the Baltic Sea where it was deposited by large waves and strong tides. Amber could also be gathered in lakes and rivers. Today, most amber is mined from the earth, either through open cast mining on the surface of the earth or in tunnels.

What else is amber used for?

Amber has been used as a medicine since prehistoric times. It was seen as a medicine in Ancient Greece and Rome where it was used to treat illnesses such as sore throat and swollen glands. It was commonly used as a medicine up until the early twentieth century. It is still used as part of Chinese medicine practice. Some people believe that amber beads protect them from illness.

Navigate

Draw the journey the amber traders made from where the amber was found to where it was traded in Ireland. Show the different ways of travelling used by the traders and the different kinds of environments the traders travelled through to get to Ireland.

Amber is not found in Ireland. During the Bronze Age amber was found in (a) the eastern part of England and (b) around the Baltic Sea. The amber used in Ireland probably came from the Baltic region.

Think and Discuss

How did the amber get to Ireland?

Who might have brought it?

What might have been traded for it?

Who might have turned the raw amber into jewellery?

Who might have owned the jewellery?

Identify

On the map of Europe, mark and name each of the following:

— The part of Ireland where the amber beads were found.

— The amber-producing countries from which archaeologists think the amber was imported into Ireland.

— The sea areas that boats bringing amber to Ireland are likely to have crossed.

Draw a sketch of the type of boat we know was in use in Bronze Age Ireland

The Bronze Age Collection

Enquiry Question

How do these replica objects and raw material help us to understand life in Ireland during the Bronze Age?

The Objects and Raw Material in the Handling Box

– Flint Nodule, Scraper and Waste

– Chunk of Copper Ore

– Replica Bronze Axehead

– Replica Bronze Spearhead

– Fragment of Sheepskin

– Piece of Raw Amber and
  an Amber Necklace

Key Concepts

– **Change**

– **Continuity**

– **Innovation**

– **Technology**

– **Economy**

– **Settlement**

– **Trade**

– **Tool Making**

– **Weapons**

– **Hoards**

Learning Outcomes

Senior Primary

(see Curriculum links pages 21 – 23)

On completion of these activities the students will be enabled to:

– know that the Bronze Age shows evidence of technological, economic and social change and continuity.

– discuss the implications of archaeological finds for our understanding of life in Ireland during the Bronze Age.

– connect archaeological finds to human experience.

– understand that historical knowledge is provisional, incomplete and subject to change.

Junior Cycle

(see Curriculum links pages 24 – 25)

On completion of these activities the students will be enabled to:

– know that the Bronze Age shows evidence of technological, economic and social change and continuity.

– discuss the implications of archaeological finds for our understanding of life in Ireland during the Bronze Age.

– connect archaeological finds to human experience.

– understand that historical knowledge is provisional, incomplete and subject to change.

Resources/Activities

Senior Primary

1. Concept Map 1 exploring what finds represented in box tell us about life in Ireland during the Bronze Age (Resource 7a, page 134).

2. Bronze Age Board Game (Generic Resource at back of book: F, pages 153 – 155).

3. Story Map 1 using all the objects in the box (Resource 7b, page 135).

Junior Cycle

1. Concept Map 2 for linking objects to syllabus elements (Resource 7c, page 136).

2. Bronze Age Board Game (Generic Resource at back of book: F, pages 153 – 155).

3. Story Map 2 using all the objects in the box (Resource 7d, page 137).

Key Questions

- How do we know about life in Ireland during the Bronze Age?

- What do we think it was like to live in Ireland during the Bronze Age?

- What do hoards tell us about Bronze Age people?

Notes on Activities

Senior Primary

1. Resource 7a – Concept Map 1
Concept Map 1 brings together all of the objects in this collection and allows the students to make connections between them in response to the question 'How many connections can we make?'. The map contains an empty set for the students to complete.

2. Bronze Age Board Game
The Bronze Age Board Game is based on the Mizen Peninsula in west Cork, where there is evidence of the use of copper and gold deposits during the Bronze Age. The game centres around is ed copper mining at Mount Gabriel and the journey of a Bronze Age man from his home to the mines to mine copper ore and from there to the sea to meet a boat trading in tin. Progress through the game is determined by the throw of a dice, by directions printed on the board and by the chance cards. Chance cards with a wolf head represent a setback in the journey and the player will be instructed to miss a round, or go back spaces. If the chance card has a sun symbol, something advantageous will happen and the player will be instructed to move ahead. Before the game, put the chance cards in two separate piles with the images of wolf head or suns upwards. All of the incidents named on the cards are informed by archaeological, geological and zoological evidence of the period and by anthropology. The board itself helps illustrate the nature of the terrain and the flora and fauna in Ireland at this time.

3. Resource 7b – Story Map 1
This Story Map provides the students with the opportunity to plan a fictional story about the Bronze Age that is evidence-based. All of the objects in the box should be used in the story. When the story map is created, students can be encouraged to write their story. Using the writing process, students can develop a piece of fictional writing on the Bronze Age for a class book on the Bronze Age that can be illustrated with reference to the evidence. Encourage them to use the Word Hoard (Resource B) to help them in their writing. See page 29 and pages 142 – 148.

Junior Cycle

1. Resource 7c – Concept Map 2
See note 1 for Senior Primary. Concept Map 2 'Making Connections', challenges students to see how many connections they can make between the objects in the box and different aspects of Bronze Age life. (The aspects referred to are based on the topic elements identified in the syllabus.)

2. Bronze Age Board Game
(See note 2 for Senior Primary).

3. Resource 7d – Story Map 2
(See note 3 for Senior Primary). This Story Map provides the students with the opportunity to plan a 'people in history' account of a Bronze Age person that is evidence-based. All of the objects in the box should be used. When the story map is created, students can be encouraged to write their account, using the story map to guide them. The Word Hoard (Resource B) is another resource to help them in their writing. See page 29 and pages 142 – 148.

Connect

How many connections can you make?
Draw lines between the connected objects.

Bronze axehead   **Flint nodules**

Copper ore   **Sheepskin**

Amber beads   **Scraper**

Gold   **Bronze spearhead**

Explain what you think the connections are…

Create

MY STORY…

AUTHOR:

TITLE:

Characters:	**When did my story happen:**
Setting:	**Problem:**
I can use these objects to help my characters solve their problem:	**At the beginning of my story:**
In the middle of my story:	**At the end of my story:**

Connect

How many connections can you make between the objects from the box (list A) and the different aspects of Bronze Age life (list B)?

A

B

Copper ore

Houses

Bronze axehead

Food

Flint

Family life

Sheepskin

Work

Bronze spearhead

Arts/crafts

Amber

Burial customs

Explain the connections you have made…

Create

My account of life in the Bronze Age…

AUTHOR: **TITLE:**

Who is my account about?   **When did my account happen?**

This is what the setting looks like: **What is happening in my account?**

These are the objects in my account: **At the beginning of my account:**

In the middle of my account: **At the end of my account:**

Section D
Generic Resources

Overview

This section includes six generic resources. They are designed to complement the teaching and learning which has already taken place in Section C. Each generic resource can be photocopied.

Create

The Early Bronze Age was from c. 2500 BC to 1500 BC and the Middle and Late Bronze Age were from c. 1500 BC to 500 BC.

5000 BC

4500 BC

4000 BC

3500 BC

3000 BC

2500 BC

2000 BC

1500 BC

1000 BC

500 BC

BC/AD

500 AD

1000 AD

1500 AD

2000 AD

WORD HOARD

Place the words on the following pages inside the wall-mounted Word Hoard resource.

**Bronze Age
Word Hoard**

Bronze Age
Word Hoard

Brainstorm

Flint	**Nodule**
Metal	**Copper**
Tin	**Bronze**
Gold	**Amber**
Sharp	**Solid**
Long	**Wooden**

Brainstorm

Decorated	**Rounded**
Ore	**Blunt**
Narrow	**Soft**
Flexible	**Jagged**
Tools	**Axehead**
Haft	**Spear**

Brainstorm

Clean	**Hoard**
Weapon	**Fulacht fiadh**
Enclosure	**Settlement**
Neolithic	**Slaughter**
Knapping	**Sharpening**
Piercing	**Cutting**

Brainstorm

Scraping	**Decorating**
Wounding	**Casting**
Carving	**Etching**
Shaping	**Mining**
Smelting	**Excavation**
Trading	**Archaeologist**

Brainstorm

Bartering	Artefact
Evidence	Cured
Organic	Conservation
Inorganic decay	Cauldron
Hammering	Burial
Sheath	Jewellery

Speculate

I think this object was made by... **because...**	**I think this object was used for...** **because...**
I think this object was used by... **because...**	**I think this object was called a...** **because...**

Synthesise

Features…
Describe the object…

— What size is it?

— What shape is it?

— What colour is it?

— How rough/smooth is it?

— Does it have any markings/designs on it?

— Are there any other words we can use to
   describe it?

— Is it intact (with no parts missing)? OR

— Has part of it disappeared since the
   Bronze Age?

— How can we tell if the object is intact or not:
   — from its appearance?
   — from background knowledge?
   — from research investigation?

— If part of the original object is missing,
   make a drawing of what you think it might
   have originally looked like

Function…
Do we know what it was used for and how?

— Do we know what it was used for
   (e.g. as a tool, weapon, item of clothing,
   item of jewellery)?

— Did it have more than one use?

— Are we certain in our knowledge of what
   it was used for OR are we making an
   educated guess?

— Are objects like this still used by
   people today?

— How do we know what it was used for?
   OR on what evidence are we basing our
   educated guess about its use?

Synthesise

Manufacture…

— Do we know how it was made?

— What do we know or what educated guesses have archaeologists made about how this object was made?

— How do we know how it was made?

— On what evidence is our knowledge of how the object was made based?

— What can we infer from this object about the skill of the object maker?

— What is it about the making of this object that required skill on the part of the maker?

— Is the type of skill involved one that we no longer need in the 21st century or is it a skill that is still in use today?

What can we infer from this object about the following aspects of the lives of Bronze Age people?

— the landscape in which they lived.

— the types of work they did.

— whether they traded with people who lived outside their own area.

— whether their lives were peaceful or violent.

— what was important to them (what their values were).

Record

NAME OF COLLECTION:

NAME OF OBJECT:

TIME PERIOD:

DESCRIPTION OF OBJECT:

HOW IT WAS MADE:

HOW IT WAS USED:

Bronze Age Board Game

This Bronze Age Board Game is based on the Mizen Peninsula in west Cork, where there is evidence of the use of copper and gold deposits during the Bronze Age. The game centres around copper mining at Mount Gabriel and the journey of a Bronze Age man from his home to the mines to mine copper ore and from there to the sea to meet a boat trading in tin. Progress through the game is determined by the throw of a dice, by directions printed on the board and by the chance cards. Chance cards with a wolf head represent a setback in the journey and the player will be instructed to miss a round, or go back spaces. If the chance card has a sun symbol, something advantageous will happen and the player will be instructed to move ahead. Before the game, put the chance cards in two separate piles with the images of wolf head or suns upwards. All of the incidents named on the cards are informed by archaeological, geological and zoological evidence of the period and by anthropology. The board itself helps to illustrate to the students the nature of the terrain and the flora and fauna in Ireland at this time.

Rules of Bronze Age Board Game

The Player
You are a Bronze Age man living in the area now called the Mizen Peninsula.

The Problem
Your goal is to make bronze, which is a mixture of copper and tin. Copper can be mined locally at Mount Gabriel. Tin has to be imported. You know that there is a boat due in at the Spring Equinox at the coast on the other side of Mount Gabriel. You need to mine some copper to trade for tin. You need to travel quickly as the first person who reaches the port with copper to trade will be given the tin. Along the way, good things will happen to you that will speed your journey but some events will slow you down. Good luck in your journey!

The Board
The board represents the territory through which you will travel. There are opportunities to be found along the way; there are dangers lurking; there are friends and enemies waiting. Some of these are written on the board. The board also has sun spaces and wolf spaces. Each of them will either help you or slow you down.

Sun Spaces
These represent good things that could have happened to you in the Bronze Age. If you land on a sun space you pick up a sun card. Follow the instructions on the card and return the card to the bottom of the pile. Some sun cards hold gold nuggets. Keep these cards until you need them. When you are finished with them return them to the bottom of the pack.

Wolf Spaces
These represent bad things that could have happened to you in the Bronze Age. If you land on a wolf space you pick up a wolf card. Follow the instructions on the card and return the card to the bottom of the pile.

Gold Nuggets
As stated above, sometimes when you land on a sun space, you can collect a gold nugget. These gold nuggets can be used to trade for food or information. If you land on a wolf space you can use your gold nugget to get out of trouble and throw the dice again.

The Rules of the Game
Progress is determined by throwing the dice and following the instructions on the board and on the cards.

When you land on a space with instructions on it you must read them out loud or miss a turn.

When you pick up a sun or wolf card, you must read the instructions out loud or you miss a turn.

Dunmanus Bay

Roaringwater Bay

MOUNT GABRIEL

START

Gather here to prepare for your journey. Throw a dice to start your journey.

END

Spring tide brings the boat in. You are the first trader to arrive. Trade your copper for tin.

Rich seam of copper found. Light a fire to heat the rock. Collect ore. Move on 2 spaces.

Seam of copper found, but rain quenches your fire. Only move when you throw a 1, 3 or 4.

Dry Weather light a fire to heat rock. Collect ore. Move on 2 spaces.

Stone Circle You stay for the religious ceremony. Miss a turn.

Find a good hiding place for gathered ore. Bring some with you to trade for tin. Move on 3 spaces.

Seam of copper found. Gather enough ore to continue your journey. Throw the dice again

You are straying into unfriendly territory. Hide and miss a turn.

Fulacht Fiadh Trade a nugget for a meal. Move on 2 spaces.

Full moon gives light. Travel through the night. Move on 4 spaces.

A wolf pack is roaming in the area. At your next throw, follow the stream to avoid them.

Fulacht Fiadh Trade a nugget for a meal. Move on 2 spaces.

You meet another traveller. If you have a nugget to trade for information, he can show you a short cut. Move on 4 spaces.

Wild boar frightens you. Go back 1 space

No sign of boat. Miss a turn

Bad weather delays landing. Go back 3 spaces

Wedge Tomb You stay to honour your ancestors. Miss a turn.

Landslide caused by torrential rain. At your next throw, take the higher path to pass the landslide.

Fulacht Fiadh Trade a nugget for a meal. Move on 3 spaces.

Fulacht Fiadh This belongs to a kinsman. Share a meal. Move on 4 spaces.

A wolf pack is roaming in the area. Hide until it passes. Miss a turn

Stone Circle You stay for the religious ceremony. Miss a turn.

You meet another traveller. If you have a nugget to trade, he can show you a shortcut. Move on 3 spaces.

Stone Circle You stay for the religious ceremony. Miss a turn.

Wedge Tomb You stay to honour your ancestors. Miss a turn.

Stone Circle You stay for the religious ceremony. Miss a turn.

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Learning Programme at the National Museum of Ireland – Archaeology

Exploring the Bronze Age at the Museum of Archaeology

The Museum offers a wide range of tailor-made learning programmes that explore the Bronze Age and encourage engagement with artefacts from prehistoric Ireland.

Tours and Workshops

Designed by the Education team, these activities are curriculum-linked to help students expand their knowledge as well as gain understanding of the chosen theme. Facilitated by Education staff, the tours and workshops on offer are delivered with an emphasis on interactivity, generating a two-way discussion about what the students are investigating.

Go for Gold – Bronze Age Tour

During this 50-minute tour, students will hear about the lives of Bronze Age metalworkers from bronze smiths to gold workers and view artefacts such as the Early Bronze Age gold lunula, the Dowris Hoard of metalworking artefacts, and the bronze shields and weapons of the Late Bronze Age

Prehistoric Ireland Tour

During this 50-minute introductory tour, students will discover more about Ireland's earliest people, from the hunter-gatherers and first farmers of the Stone Age to the goldsmiths and warriors of the Bronze Age.

Make a Prehistoric Pot! Art and Archaeology Workshop

Students will go potty over Ireland's first pottery, as they handle impressive replica pieces and make their own clay pot to take home! The workshop takes place in the newly renovated Learning Resource Room at the Museum and also involves a short tour of the relevant exhibition cases and can be tailored to concentrate on the Bronze Age.

Classroom Poster: The Raised Past

This poster shows how Irish bogs have been a rich source of archaeological evidence for life in the past, including the Bronze Age. Use this poster to discover the dates and find locations of iconic objects, including 35 find locations of Bronze Age artefacts in six different counties in Ireland. All visiting teachers are welcome to one of these posters. Just ask the Education Department at the Museum for your copy.

Activity Sheets

Find our free activity sheets on the 'Explore and Learn' pages of the Museum's website, www.museum.ie. Designed for use within the Museum, these sheets are suitable for primary and second level students and will help focus a group visit. Each sheet encourages students to observe, analyse, record and discover the answers to various questions as they explore the exhibitions. Activity sheets recommended to explore the Bronze Age exhibition displays are:

– My Favourite Object (Suitable for Primary)

– An Rud is Fearr Liom (Suitable for Primary)

– The Winter Trail (covers a number of time periods including the Bronze Age and is suitable for 5th/6th class and post-primary Junior Cert)

More Online Resources

Floor plans, exhibition information, guidebooks and tips for making the most of your visit are all available for free to download from the Museum's website www.museum.ie

The Bronze Age exhibits are on display in two exhibitions: 'Prehistoric Ireland' and 'Ór – Ireland's Gold'. Included on the website pages are overviews of the exhibitions, main traits of the different time periods, names of significant artefacts and techniques used to create them.

More information on the education programme as well as pre-and post-visit ideas for the classroom can be found in the 'Explore and Learn' section of the Museum's website.

Booking a Visit

If you intend to visit with your class, please let the Bookings Office know by emailing **bookings@museum.ie** or phoning us at **+353 1 648 6453**. When booking your visit, mention that you have been using the Bronze Age Handling Box Resource as this will help us tailor your visit.

Acknowledgements

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