



Primary School History Education Pack

A teacher and student aid to interpreting the passage tombs, archaeology and landscape of Brú na Bóinne World Heritage Site

The first part of this document is intended for teachers. It outlines Brú na Bóinne as an exceptional archaeological landscape into which aspects of the history syllabus can be explored in a practical and accessible manner.

The second part of this document is intended for students during and after their visit to Brú na Bóinne.

Please print on both sides and print monochrome for the clearest image quality.



United Nations
Educational, Scientific and
Cultural Organization

Eagraíocht
Oideachais, Eolaíochta
agus Chultúir
na Náisiún Aontaithe



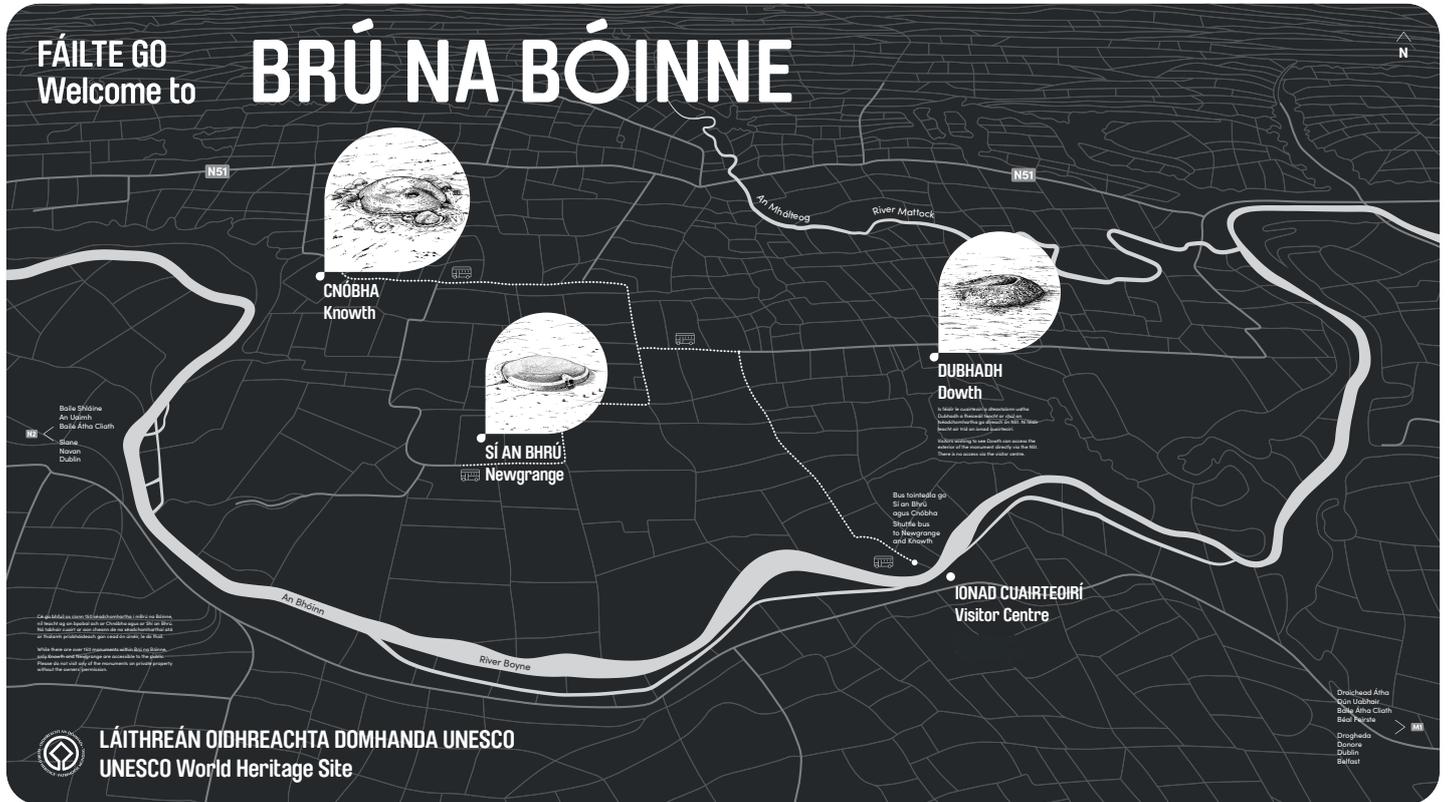
Brú na Bóinne –
Archaeological Ensemble
of the Bend of the Boyne

Brú na Bóinne –
Cnuasach Seandálaíochta
Lúb na Bóinne



INTRODUCTION

Brú na Bóinne or the Palace of the Boyne, is Ireland's richest archaeological landscape. It is located in County Meath, eight kilometres inland from Drogheda and describes an area where the river Boyne meanders into a dramatic loop or bend. Over one hundred and fifty monuments have been identified by archaeologists within this bend of the river but not all of these are visible today. The most prominent of the visible monuments remaining are passage tombs. About forty of these can still be seen. These are dominated by Knowth, Newgrange and Dowth, the largest passage tombs in Europe.



A UNESCO World Heritage Site

World Heritage Sites are places that are important to and belong to everyone regardless of their nationality. They are deemed to be of outstanding universal value to humanity and are approved on the basis of their merits as the best possible examples of cultural or natural heritage. In recognition of its international importance, the United Nations Educational, Scientific and Cultural Organisation (UNESCO), inscribed Brú na Bóinne on the list of World Heritage Sites in 1993. The list also includes some of the world's most iconic and important cultural and natural sites like the Great Wall of China, the Taj Mahal and Uluru.

The passage tombs, associated monuments and Visitor Centre at Brú na Bóinne are in the care of the Government of Ireland

Study and Research

Brú na Bóinne has been intriguing and attracting visitors for centuries. The passage tombs were often understood and explained through the myths and legends told about them. In the 18th and 19th Centuries the monuments attracted the curiosity of scholars called antiquarians and more recently were subject to systematic and scientific archaeological investigations.

Much of the information we have on the monuments at Brú na Bóinne is as a result of such investigations. Excavations at Newgrange and Knowth began in 1962 by Professor Michael J. O'Kelly and Professor George Eogan respectively. Investigations at Newgrange lasted thirteen years, while those at Knowth lasted nearly forty. Study and research is still ongoing at Brú na Bóinne and technological advances aid the science of archaeology and our understanding of life and death in Brú na Bóinne in ancient times.



LIFE IN NEOLITHIC BRÚ NA BÓINNE

The earliest inhabitants of Ireland arrived around 8000 BC. They were hunter-gatherers and had a nomadic lifestyle, hunting wildlife such as red deer and wild boar and gathering naturally occurring foods like nuts and berries. This was the Mesolithic period and lasted from 8000 BC – 4500 BC. By 4000 BC the introduction of new people bringing farming techniques brought a huge change in lifestyle.

This was the beginning of the Neolithic period which lasted from approximately 4000 BC – 2500 BC.

Farming

When the first farmers arrived, most of the country was densely forested. In order to commence farming, Neolithic people had to clear small areas of woodland. Once this was done, ploughs were then used to till the land in preparation for the sowing of crops. Crops such as wheat and barley (used in porridge and bread making) were cultivated, while the domestication of livestock such as cattle, pigs and sheep was also being developed. Hunting, fishing and foraging continued to be practised and supplemented the farmed produce.

Stone Axe

Many of these were made from porcellanite, a stone sourced in county Antrim. Some polished stone axes may have been ceremonial as they were so impressive and carefully made. Perhaps they were symbols of power, wealth or prestige.

Adze & Mattock

These versatile hand tools could be used to fell trees but also for carving wood and hollowing out tree trunks to make boats. The stone blade was used to loosen tough earth and assisted in the ploughing process and harvesting crops.

Weapons and Domestic Tools

Arrowheads and blades were made of flint or chert and could be used for hunting and for warfare.

Scrapers and blades made from the same stone were used for skinning animals, cutting hides and cleaning fish.

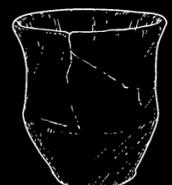
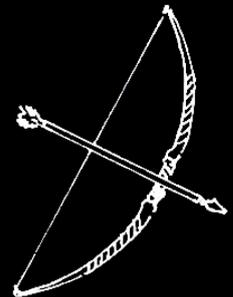
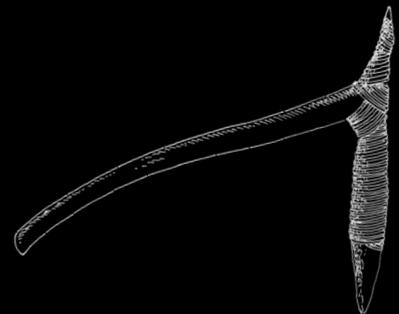
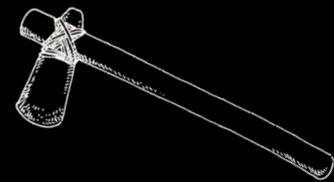
Flint knives, scrapers, arrowheads and bone needles were used in day-to-day hunting and domestic work.

Pottery

The earliest pots were mainly non-decorated round bottomed bowls, although decoration became more common in the later part of the Neolithic period. Pots were handmade and fired in bonfires or firing pits.



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LIFE IN NEOLITHIC BRÚ NA BÓINNE

Plants

Neolithic people utilised the trees and plants around them in variety of ways. Ash tree, hazel, scots pine, hawthorn, bird cherry and guelder rose all grew in Ireland during the Stone Age. The wood from an ash tree could be used to make handles for tools and weapons. Hazel rods are ideal for weaving around fence posts and walls of houses. They are also ideal for making baskets and coracles (a type of small boat). Hazelnuts were harvested in autumn and were a valuable food source for people and animals such as pigs. The leaves and berries of other plants like hawthorn, bird cherry and guelder rose could be used as traditional medicines.

Houses

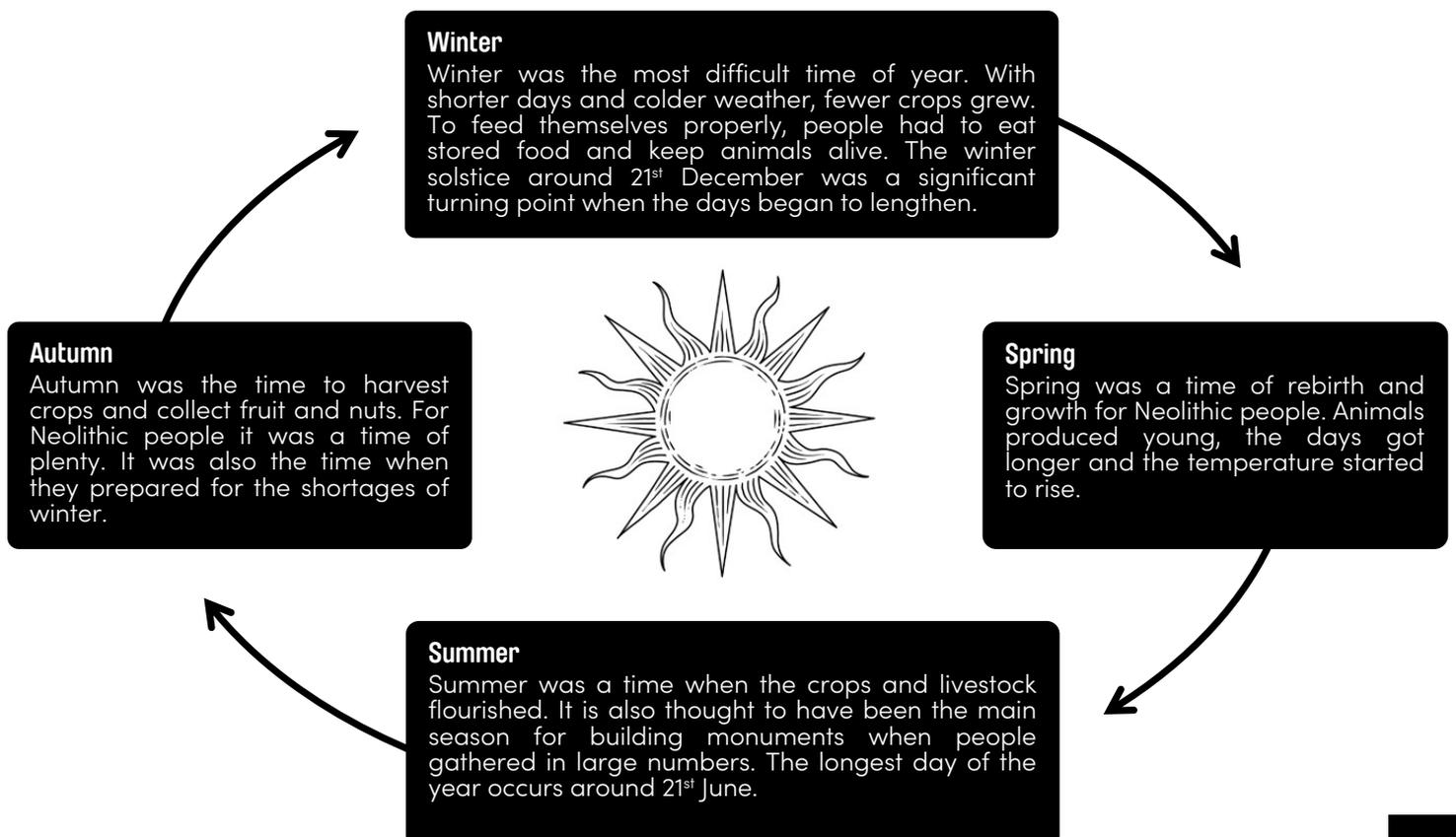
As farming developed, Neolithic people were now able to sustain themselves in one area and it was no longer necessary to be nomadic. Clusters of houses began to emerge. They were built from upright timber poles faced in wattle and daub and thatched with straw or reeds. This led to the establishment of permanent settlements and a growth in population. Hunting, fishing and foraging continued to be practised and supplemented the farmed produce.

The River

The river was an essential resource for this newly emerging farming society. The Boyne, acting almost like a Neolithic motorway, provided transport and communication. However, it also served as a fresh water source for cleaning and drinking while the seasonal migration of salmon would have been a very welcome additional source of food for these opportunistic people. The Boyne Valley provided an excellent environment for these settlements to acquire the wealth, skills and workforce that enabled these early inhabitants to construct their monuments.

The Seasons

As farmers and hunters, Neolithic people were highly dependent on the seasons and were tied closely to the land.





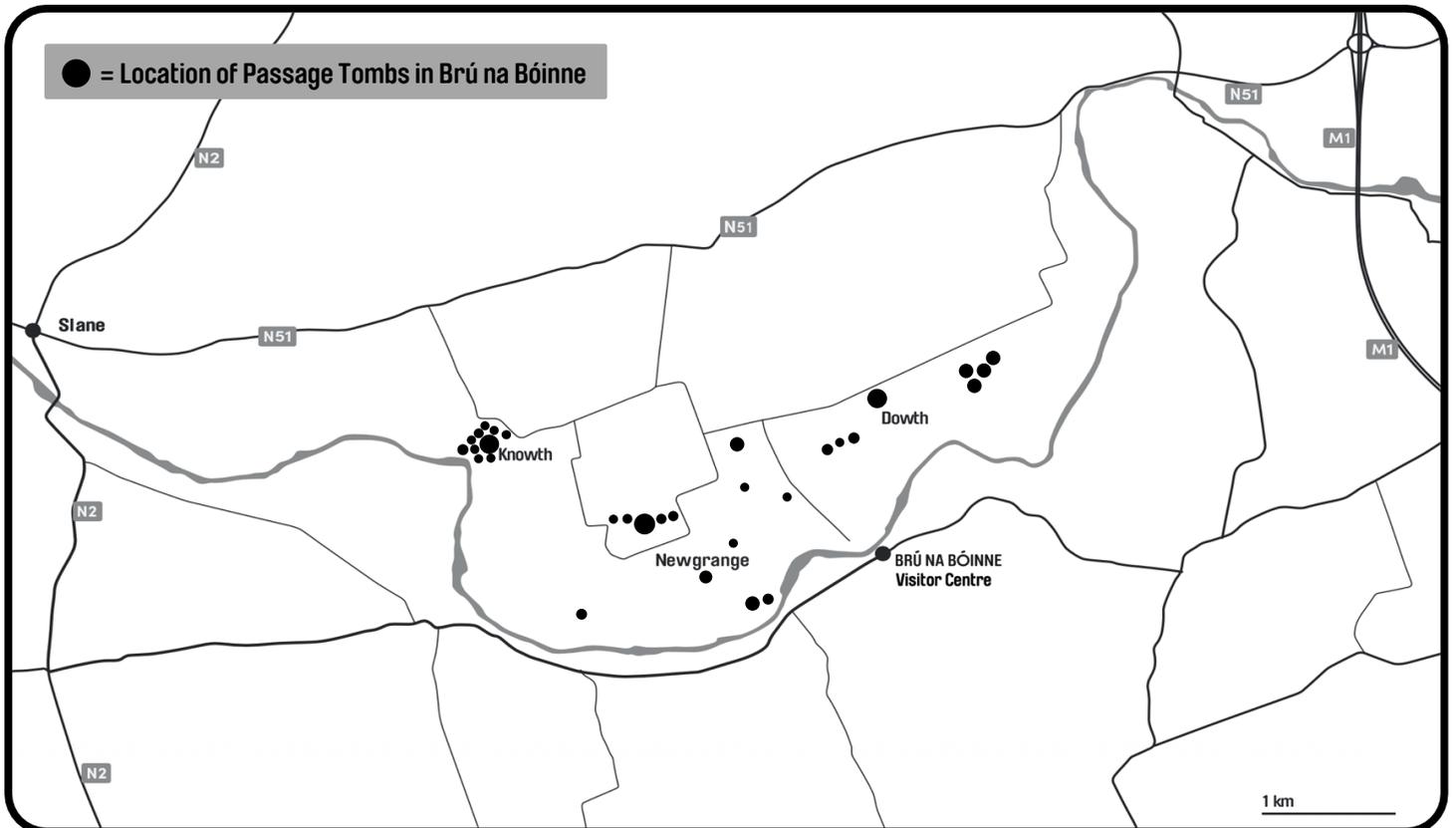
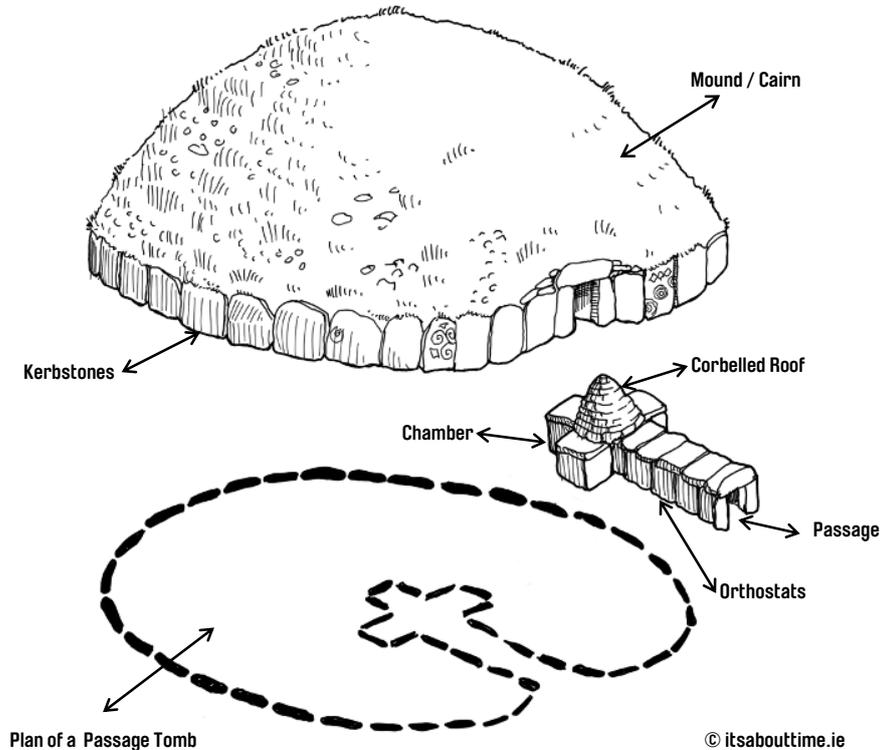
DEATH IN NEOLITHIC BRÚ NA BÓINNE

As the Neolithic society flourished developing their domestic needs, their attentions soon turned to their spiritual needs. Neolithic people must have believed in an afterlife. They began to construct tombs built from stone to place the remains of their dead inside. These tombs initially were relatively simple with portal tombs (also known as dolmens) in the early Neolithic. As their religious beliefs and practices changed, different tombs were developed and constructed in the form of court tombs and passage tombs.

Passage Tombs

Passage tombs are so called because the structure consists of a narrow passage ending in a small chamber where human remains were found. The passage and chamber is then completely covered in a cairn (circular mound of small stones). The cairn is then enclosed at the base by large stone slabs called kerbstones. There are approximately 40 passage tombs in Brú na Bóinne. Knowth, Newgrange and Dowth are the largest passage tombs.

However, these passage tombs were not all built at the same time, 4 distinct phases are evident spanning from approximately 3400BC – 2800BC.





DEATH IN NEOLITHIC BRÚ NA BÓINNE

Building the Passage Tombs

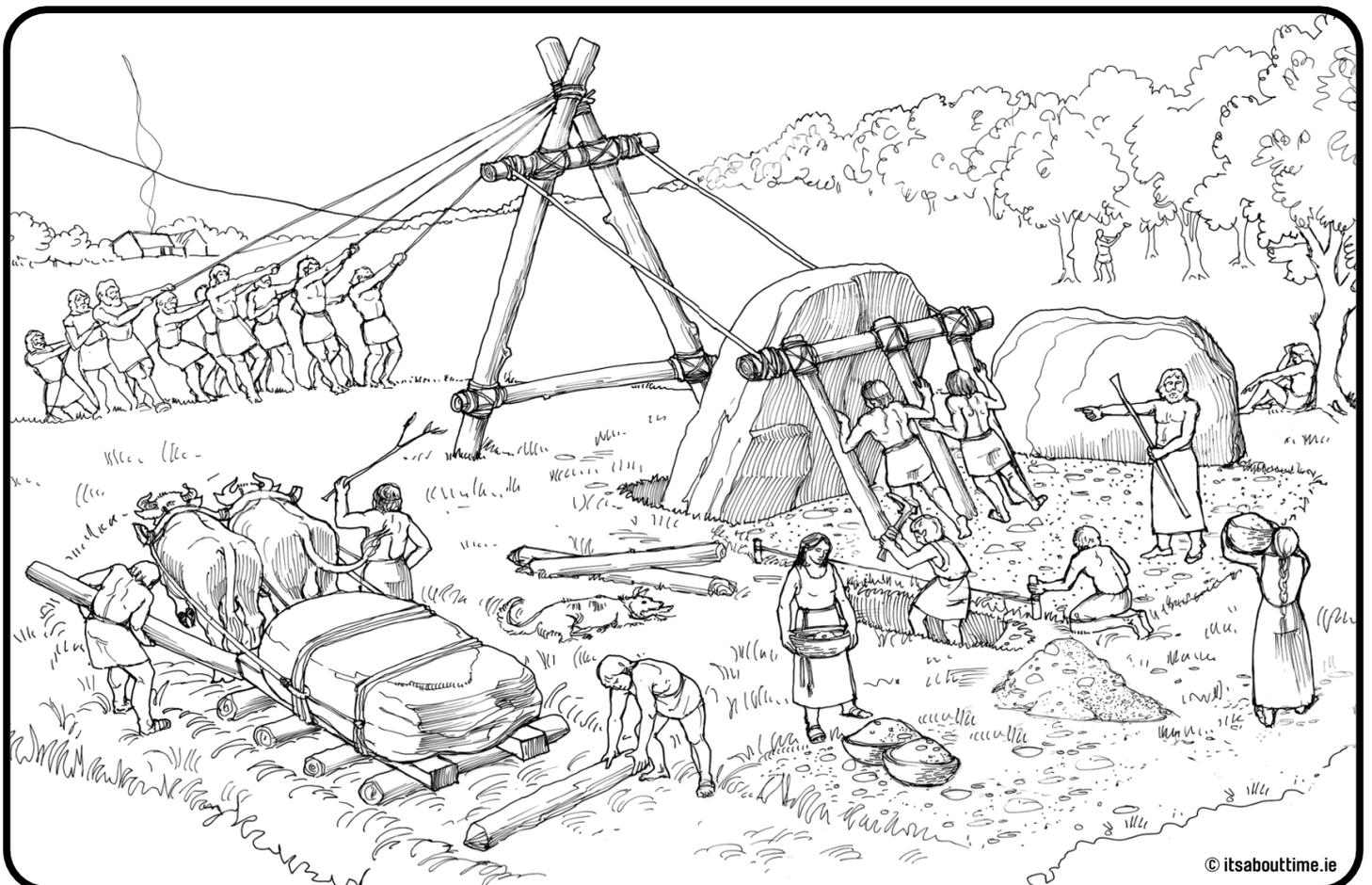
Great effort and time was needed for the planning, gathering of materials and construction of these monuments. This is clearly evident from the vast distances the builders travelled to acquire the particular stone types. The majority of structural stones in the Brú na Bóinne tombs are greywacke. This stone type was quarried in the Clogherhead area, north of Drogheda and transported along sea and river, then finally logrolled from a docking point on the Boyne up to the construction site.

The façade at Newgrange and settings at the entrances at Knowth, consists of white quartz, which has its origins in the Wicklow Mountains to the south of the site.

Granite stones were collected from the North shore of Dundalk Bay. The long distances involved suggest a sea-faring route may have been a more practical choice than travelling across land. The majority of the cairn consists of river rolled stone acquired from the banks and terraces of the river Boyne around 1km below the monument. It is estimated that some 200,000 tonnes of material are present in the largest cairns.



Today we cannot be certain of the building practices used by this Neolithic culture. Archaeologists have suggested various theories. It is most likely that logrolling, the erection of wooden scaffolding and earthen ramps were employed.



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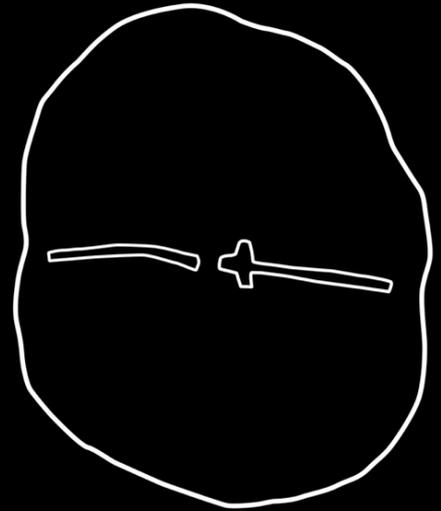
DEATH IN NEOLITHIC BRÚ NA BÓINNE

The three great mounds of Newgrange, Knowth and Dowth are the largest passage tombs in Europe.

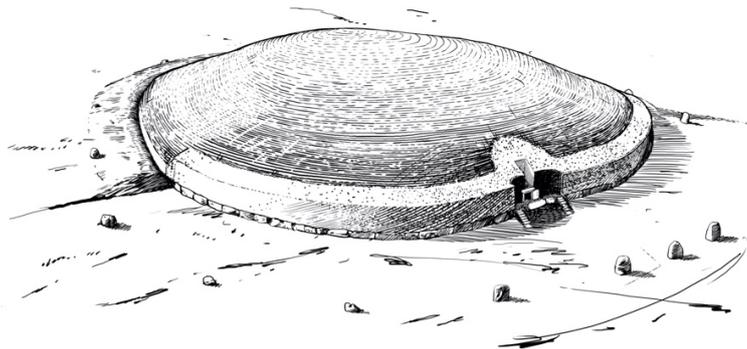
Knowth



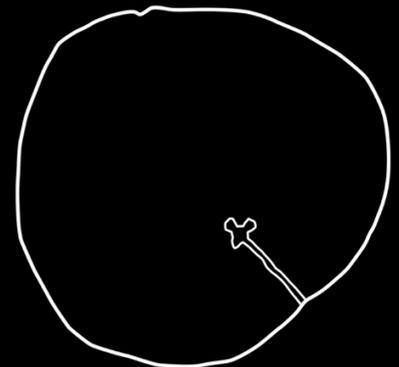
Plan of the mound at Knowth



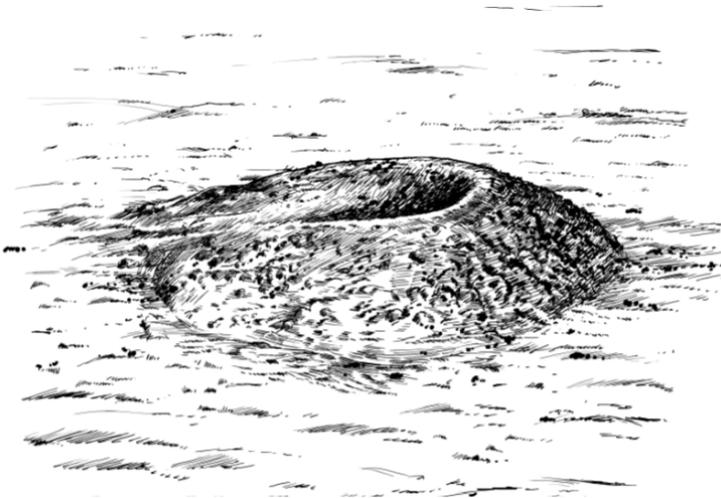
Newgrange



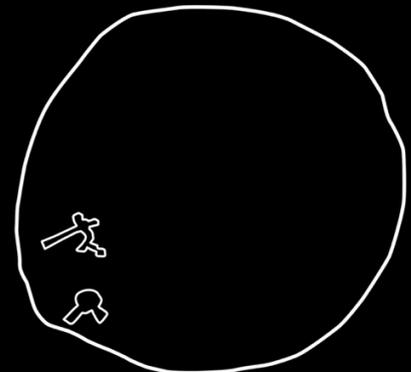
Plan of the mound at Newgrange



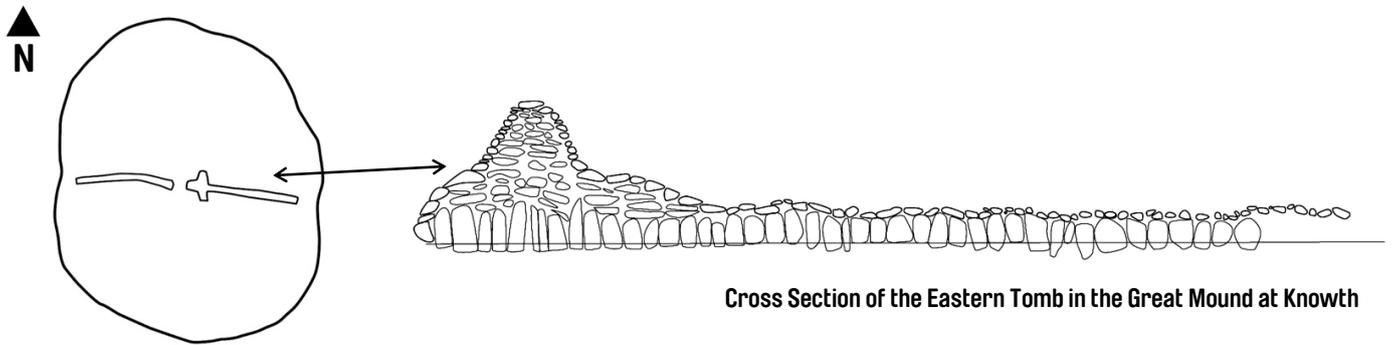
Dowth



Plan of the mound at Dowth



The complex at Knowth consists of one large mound surrounded by eighteen smaller mounds. The large mound is known as Site 1. It contains two separate passage tombs. These face approximately east and west. The tombs do not connect, there is approximately 5m between them. The mound covers over half a hectare and is 95m across at its widest point. Around the entrances to the tombs are settings of unusual stones such as quartz, granite and banded stones. The smaller tombs vary in size, some of which predate the large tomb.



Cross Section of the Eastern Tomb in the Great Mound at Knowth

Knowth's Eastern Tomb

The eastern tomb at Knowth consists of a long passage leading into a chamber with three side recesses and a beehive shaped roof built by corbelling. The combined length of the passage and chamber would originally have been over 40m in length and the capstone of the chamber roof is 6m above the floor. All three recess's contained a basin stone or shaped stones which held the remains of the dead.

Knowth's Western Tomb

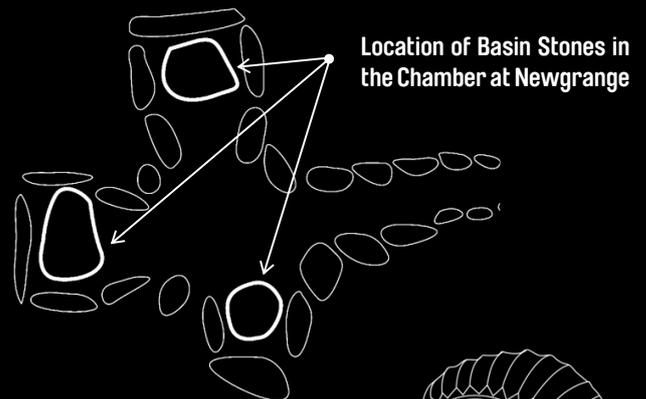
The western tomb would originally have been over 34m in total length. Its narrow passage bends to the right about three quarters of the way into the tomb. Just after the bend, there is a sill-stone and after that the passage narrows to a width of just 40cm. The passage then widens again and finally forms a rectangular shaped chamber about 2m in height and roofed with a huge 2m long stone. The basin stone now lying in the passage would originally have been in the chamber area.

Basin Stones

All three of the great passage tombs of Brú na Bóinne contain basin stones in their chambers. These are carved and shaped stones and in some cases were decorated with megalithic art. Basin stones were placed in the recesses of a chamber.

The remains of the dead were placed on the basin stones. Cremation was the main way of treating the dead and this took place away from the passage tombs. Some of the human remains were not burnt.

Excavations at Newgrange revealed the remains of 5 individuals and at Knowth more than 200. Several objects or artefacts were also found mixed with the remains for example polished stone balls, stone and bone pendants and antler pins. An exquisitely carved macehead was found in the eastern tomb at Knowth.



Location of Basin Stones in the Chamber at Newgrange



Decorated Basin Stones from the Eastern Chamber at Knowth

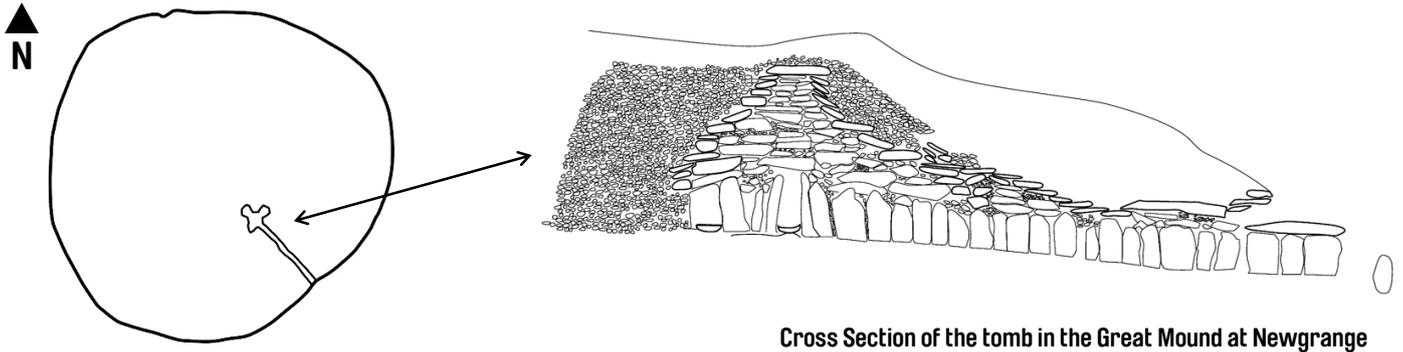


Decorated Macehead found in the Eastern Chamber at Knowth



NEWGRANGE

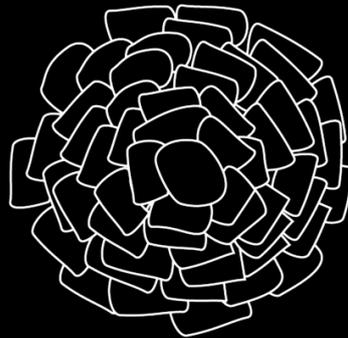
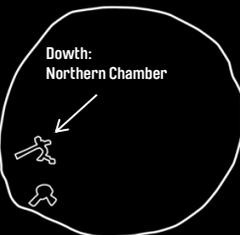
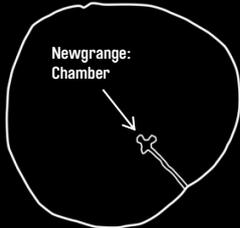
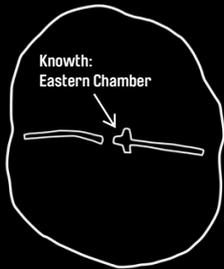
The great mound at Newgrange was constructed in approximately 3200 BC. The cairn covers an area of just less than half a hectare and is around 11m high and has an average diameter of 80m. The cairn is encircled by 97 kerbstones and a further 450 similar large stones make up the passage and chamber structure. The front section (now restored with the original stone found on site during the excavations) is faced with a white quartz wall randomly interspersed with sea-rolled granite boulders. The passage faces towards the southeast and is 19m long. The passage is lined with orthostats, 21 on the right and 22 on the left. The chamber is cruciform or cross-shaped containing 3 recesses or side chambers. The right hand (Eastern) recess is the largest and most decorated, containing 2 stone basins. The roof of the chamber is a corbelled vault, which rises 6m above ground level.



Cross Section of the tomb in the Great Mound at Newgrange

Corbel Vaulting

The chamber at Newgrange, the eastern chamber at Knowth and the northern chamber at Dowth all have corbel vaulted roofs.



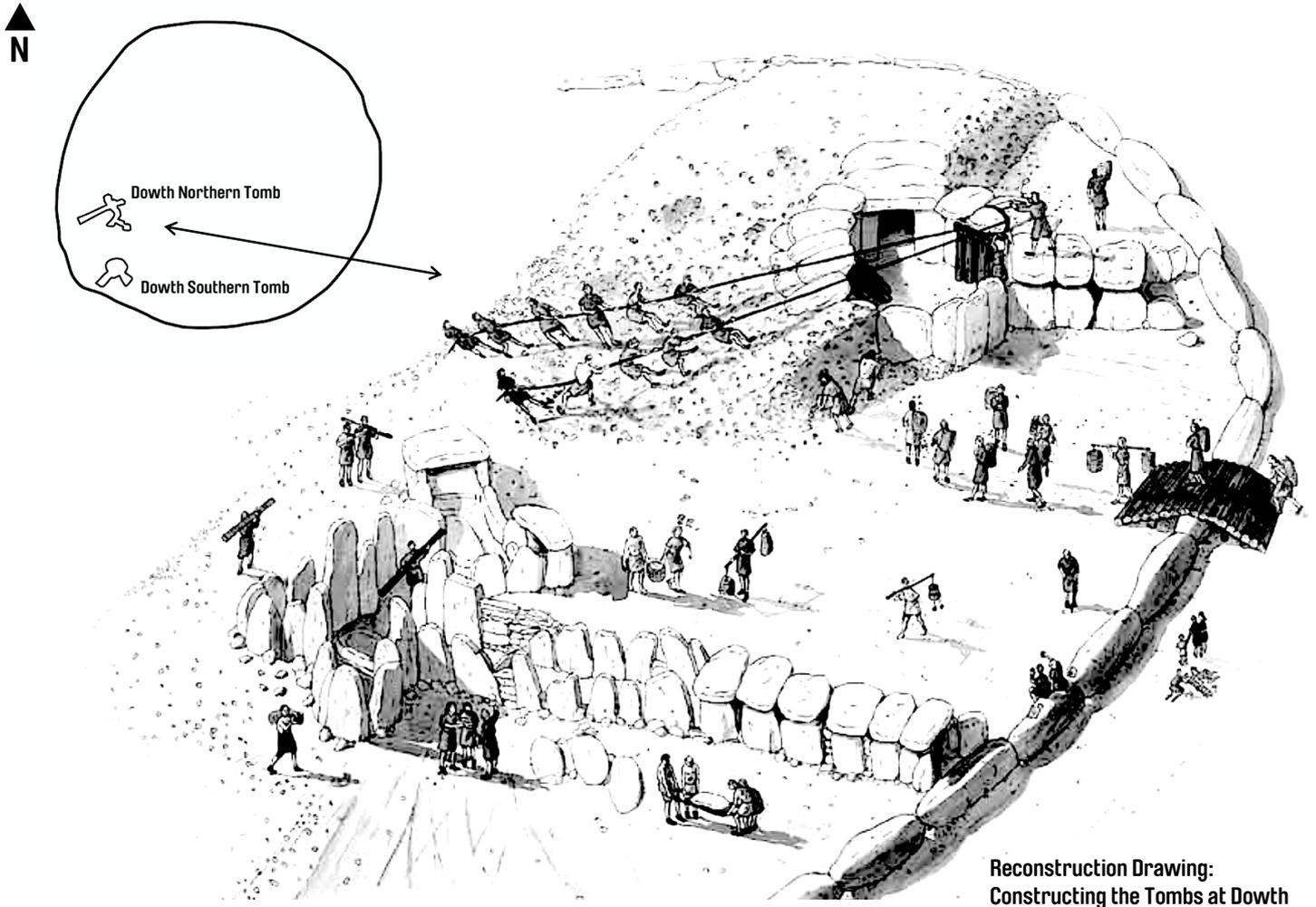
Large slabs are placed in a circle. Another circle of slabs are placed above that.



The circles of stone get smaller as the structure ascends until the opening is small enough to be filled by a single stone called a capstone.

DOWTH

Dowth is the least well known of the three great tombs of Brú na Bóinne. Although as large as Newgrange and Knowth, it has not been excavated in recent times. Like the other passage tombs, Dowth was built over 5,000 years ago. The mound is approximately 85m in diameter and there are an estimated 115 kerbstones, only about half of which are visible. At its highest part, it is over 15m but it is likely that it was lower originally and this high point represents dug up material that was piled up on the mound. In 1847 extensive digging took place on the mound in an attempt to find a central chamber. Subsequently the mound was subject to quarrying. Like Knowth, Dowth has two chambers in the mound located on the same side within 25m of each other. The passages are considerably shorter than those found at Newgrange and at Knowth but the chambers are as large and contain some of the biggest stones found at any of the monuments.



Dowth's Northern Tomb

The passage of this tomb is at present 8.2m long and is divided by three sill stones. The passage leads into a cruciform chamber with three side recesses. There is a low 3m corbelled roof. A large stone basin (1.4m x 1m) lies on the floor of the central chamber. The four huge stones that define the chamber space are almost 3m high. Off the right hand recess is a most unusual feature. It is called the annexe and there are a further two chambers there.

Dowth's Southern Tomb

This is a small tomb in comparison with Dowth North. A short 3.3m passage leads into an almost circular chamber with one recess. The roof of the main chamber is a modern concrete one: it is possible its original roof was corbelled. The recess to the right is separated from the main chamber by a sill stone.



THE SUN AT BRÚ NA BÓINNE

As a farming community, Neolithic people would have observed the sun's movement in the sky. They mapped the sun's arc from sun rise to sun set across the horizon as the year progressed. When the sun's arc was at its longest and highest, it was summer, a time of plenty with long days and short nights. However, when the sun's arc was low and short from sun rise to sun set it was winter, the most difficult time of year when the nights were longer than the days. The link between the sun and how fruitful the earth was must have been very apparent from their observations.

There are 4 significant turning points in the solar calendar – summer and winter solstice and spring and autumn equinox.



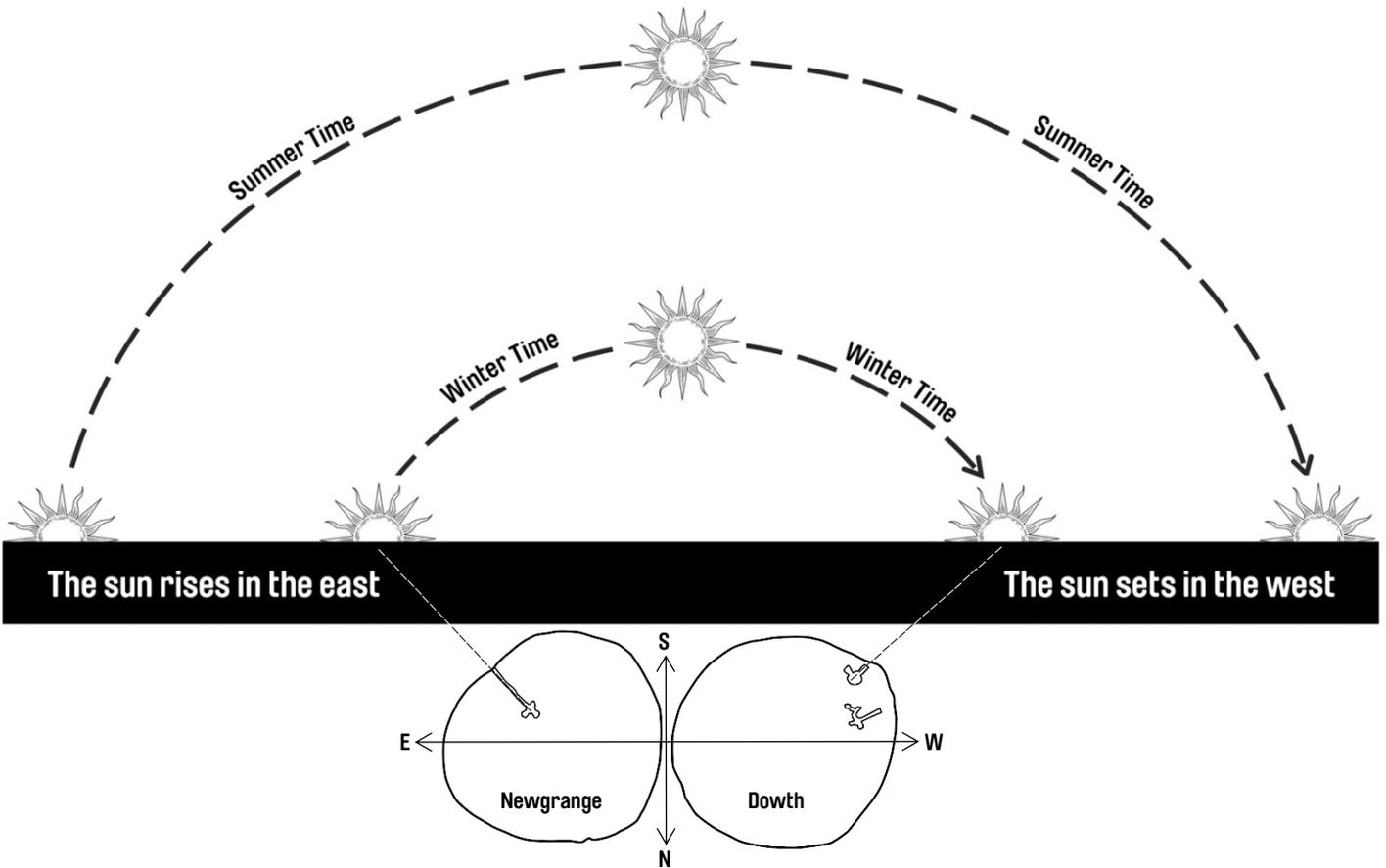
These junctions in the solar calendar were so significant to Neolithic people that they built some of their monumental structures aligned with key points in the sun's journey across the sky.

It is no surprise that solar alignments have been discovered at passage tombs in the Boyne Valley. The passage tombs were multi-functional sites, used not just for burial but for ritual, celebration and worship. The monuments were focal points for a number of social gatherings and religious ceremonies.

There is no shortage of speculation as to why some passage tombs have solar alignments. Was its significance of a practical nature or more spiritual? Many believe that the sun was worshipped as a deity and just as it revives the earth and brings new life at springtime, it may have similarly revived the spirits of the ancestors within the tomb. We may never know what the exact function of these monuments were but we can safely say that this Neolithic society were not only skilled builders and astronomers but also had a respect for their dead and a belief in an afterlife.

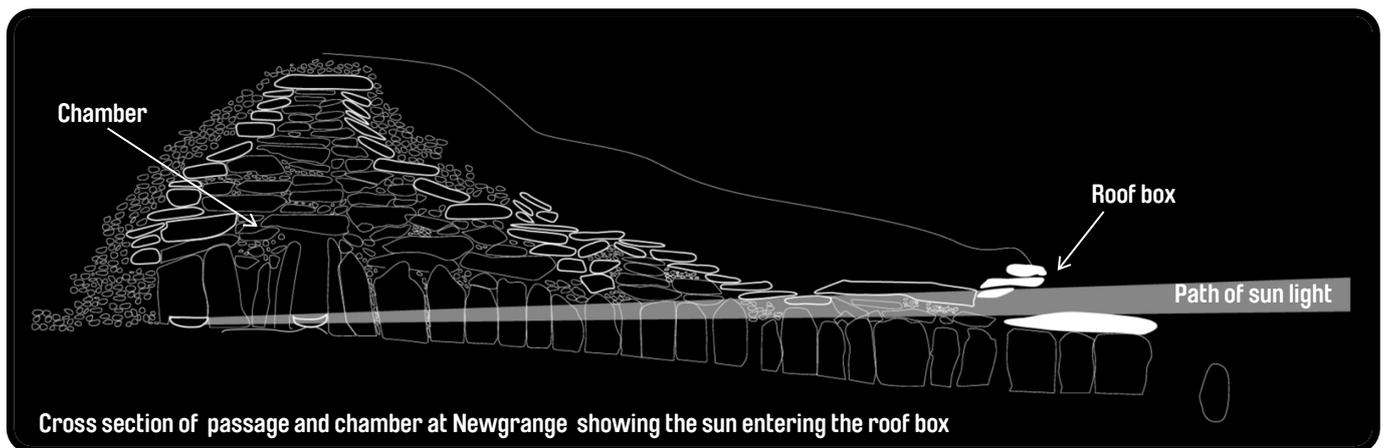


THE SUN AT BRÚ NA BÓINNE



Newgrange

The passage and chamber inside are aligned in a south-easterly direction, facing the rising sun on the winter solstice. A small window-like opening above the doorway known as the roof box allows the mid-winter rising sun to penetrate the central burial chamber and dramatically illuminate it. This event can last for up to 17 minutes depending on weather conditions. The phenomenon is not limited to just one day, but can occur on any morning between 18th and 23rd of December.



Dowth

The southern passage and chamber are aligned in a south-westerly direction, facing the setting sun on the winter solstice. There is no roof box at Dowth. The sun shines through the entrance of the passage. As the passage is relatively short, the alignment isn't as precise in comparison to that of Newgrange and can occur over a number of weeks around the winter solstice. The illumination of the chamber can last for about an hour depending on weather conditions.



MEGALITHIC ART AT BRÚ NA BÓINNE

Brú na Bóinne contains around 60% of all Western European passage tomb art. Many of the structural stones of the monuments are decorated with megalithic art. The word megalithic, derives from the Greek words, *Mega* meaning large and *Lithos* meaning stone.

Flint or quartz chisels were used to create the art, with two main techniques.

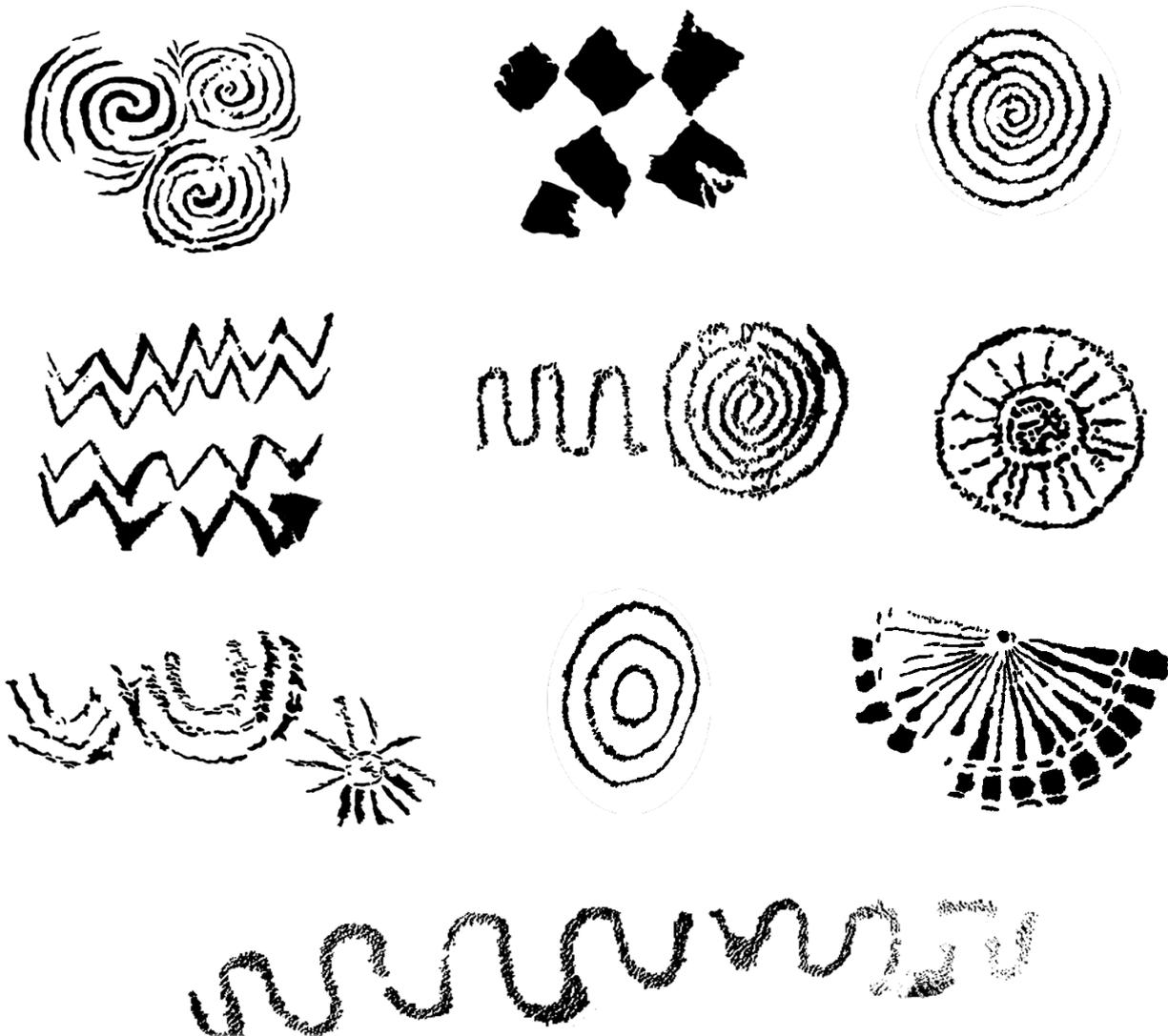
Incision involved dragging an edged stone along the surface of another stone to make a line.

Picking meant striking a stone with a rounded point against another, creating a series of marks.

The motifs are generally geometric and include circles, spirals, zig-zags, lozenges and snake-like forms, sometimes in combination. These abstract symbols expressed the thoughts and ideas of Neolithic people in a code we cannot now decipher.

Many theories have been put forward regarding the meaning of these carvings, anything from simple decoration to a written form of communication has been suggested. Many also believe that the artwork was of spiritual significance to its creators.

Here are some examples of Neolithic art in the Boyne Valley:



Graphics, images, drawings & diagrams ©
OPW - Brú na Bóinne Visitor Centre, K Brady, A Downie &
www.itsabouttime.ie
An excellent additional resource for history teachers and students

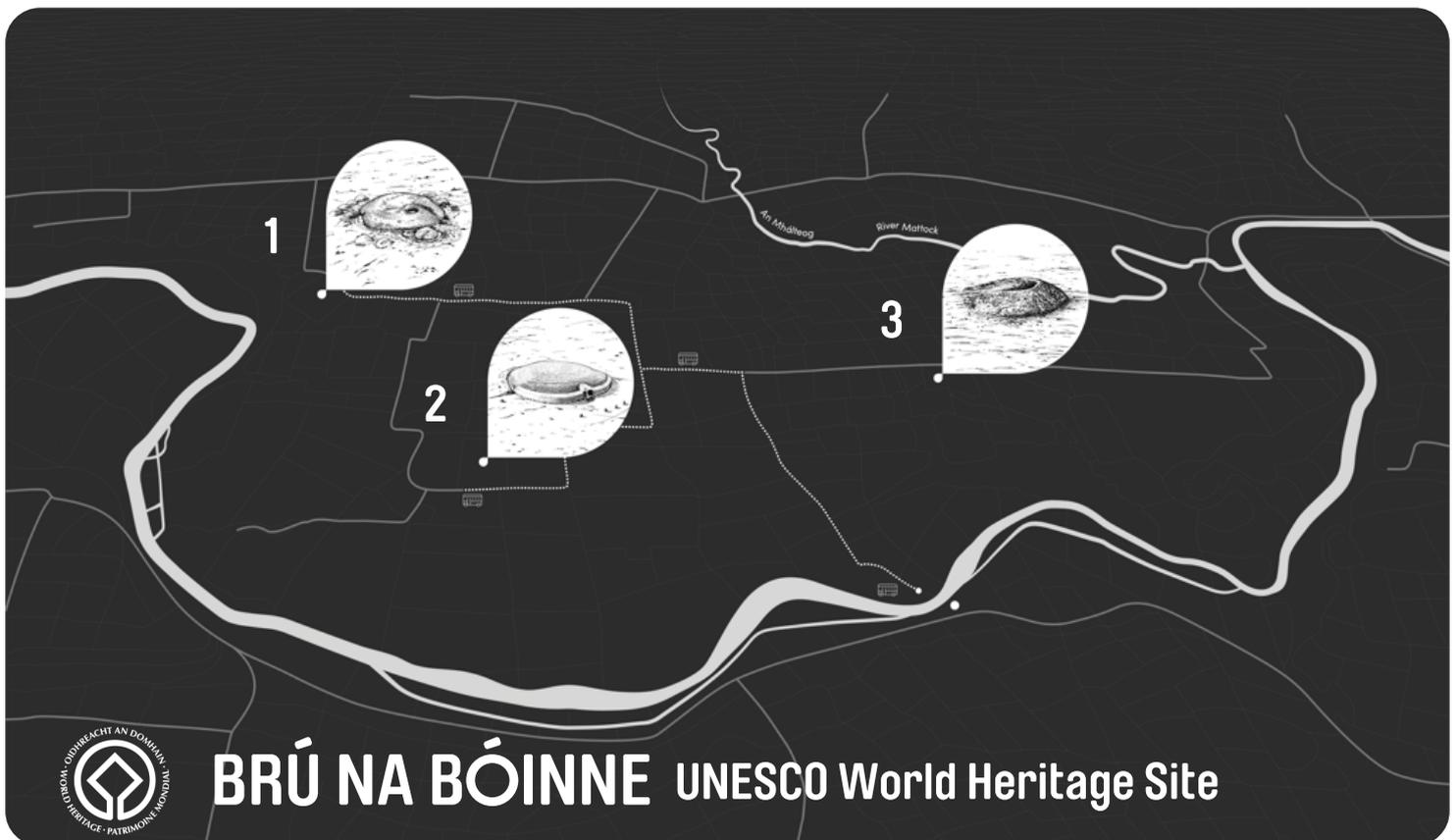


Welcome to Brú na Bóinne Visitor Centre

This work sheet is designed for primary school level.
The answers can be found in the Visitor Centre exhibitions.
There are also activities that can be completed in the class room.

Please print on both sides and print monochrome for the clearest images

ON THE PATH TO THE VISITOR CENTRE



Name the 3 large passage tombs

1 _____ 2 _____ 3 _____

What is the name of the river?

ON THE PATH TO THE VISITOR CENTRE

Here there are plants and trees that also grew in the Stone Age.
Look for the information panels about these plants.

Plant and Use Link

Draw a line from the name of the tree or plant to what it could be used for.

Common Ash

Hazel

Scots Pine

Hawthorn

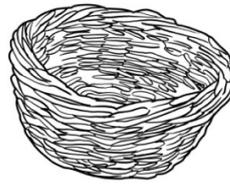
Bird Cherry



Can be used
as a medicine



Tool handles



Baskets



Can be used to
make a glue

The Exhibition: BRÚ NA BÓINNE & THE BOYNE VALLEY



Tick beside the
correct answer



Tick beside the
correct answer

1. What does Neolithic mean?

Big stone

Bright light

New Stone Age

2. What did people start doing in
the Neolithic?

Walking

Farming

Flying

3. What happened between
3500 – 3000 BC?

The Battle of the Boyne took
place

St Patrick's mission in
Ireland

The great passage tombs of
Brú na Bóinne were built

4. The Taj Mahal was built...

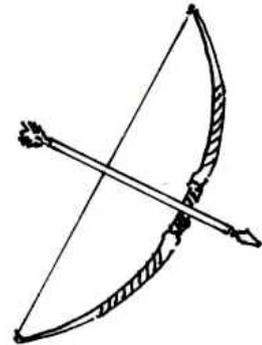
Before Knowth

After Knowth

At the same time

The Exhibition: BRÚ NA BÓINNE & THE BOYNE VALLEY

Draw a circle around items that do not belong in the Neolithic period?



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The Exhibition: WORLD HERITAGE



- What does UNESCO stand for?
- U _ _ _ _ _
 - N _ _ _ _ _
 - E _ _ _ _ _
 - S _ _ _ _ _
 - C _ _ _ _ _
 - O _ _ _ _ _

Can you name another World Heritage Site that is not in Europe?

The Exhibition: WORLD HERITAGE

Can you name the other two Irish World Heritage Sites and what county they are in?

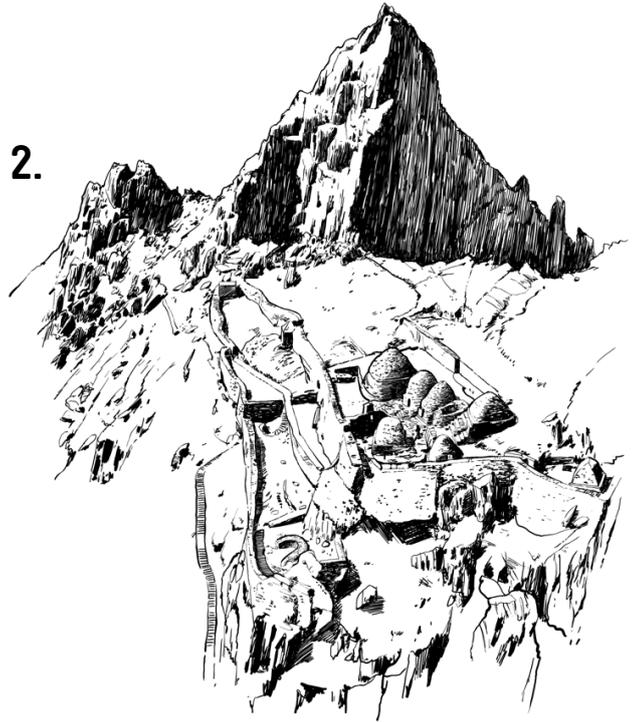
1.



G _ _ _ _ C _ _ _ _ _

County A _ _ _ _ _

2.



S _ _ _ _ M _ _ _ _ _

County K _ _ _ _

Name these other World Heritage Sites



A _ _ _ _ W _ _



U _ _ _ _



S _ _ _ _ _



T _ _ _ _ o _

K _ _ _ _ _

The Exhibition: ARCHAEOLOGY

This archaeology area is divided up into different sections:
Antiquarians, the Late 19th Century, the 1930s, the 1960s and New Discoveries.

Antiquarians

What happened in 1699?

The late 19th Century

In what year did Knowth, Newgrange and Dowth come into State care?

The 1960s

Name two things that happened at Newgrange and Knowth in the 1960s

Newgrange: _____

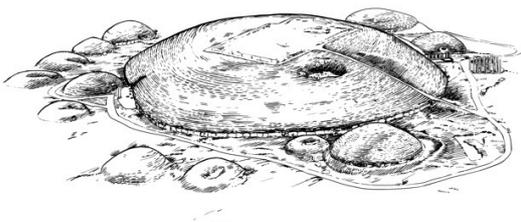
Knowth: _____

Monument and Name Link

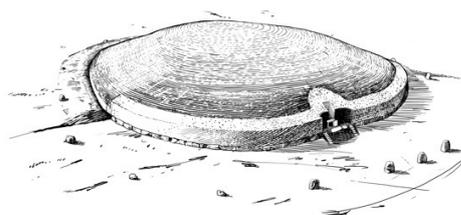
Draw a line from the name of the archaeologist or antiquarian to the monument they are linked to.

(Some may be linked to more than one!)

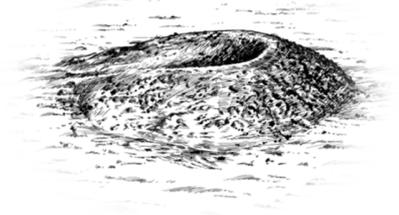
Knowth



Newgrange



Dowth



George Eogan

Claire O'Kelly

Edward Lhwyd

R.A.S Macalister

Michael J. O'Kelly

The Exhibition: PLACE



Walk through the forest and look out for animals.

What animals can you see and hear?
These pictures will help

1. D _ _ _



2. W _ _ _



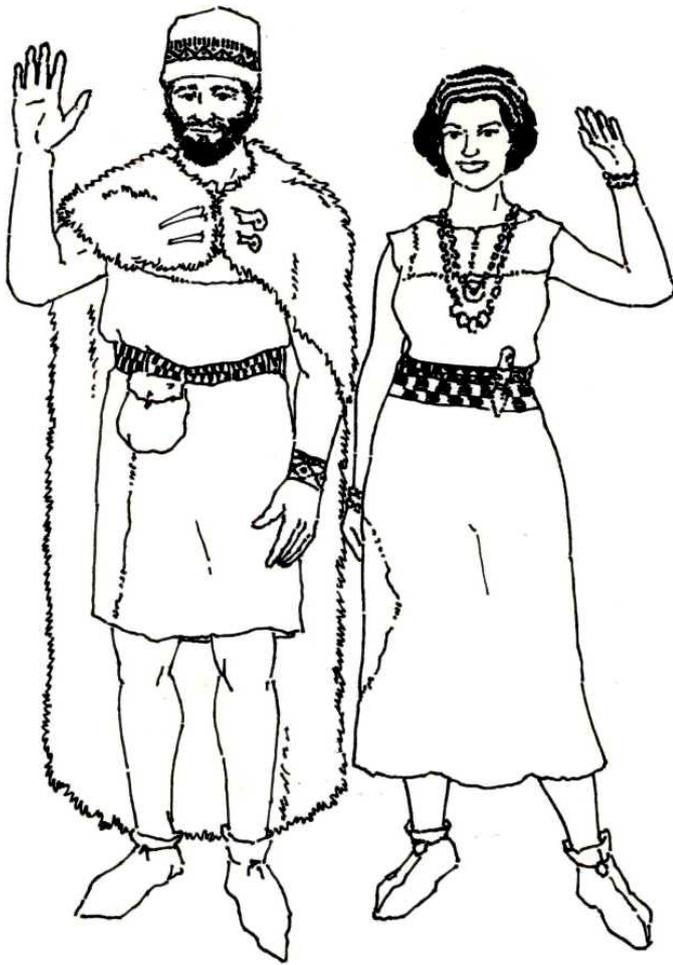
3. B _ _ _

The river was also important to Neolithic people. Give two reasons why?

1 _____

2 _____

The Exhibition: PEOPLE & THE SEASONS



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Colour Picture

✓ Tick beside the correct sentences

Neolithic people lived longer on average than we do today.

Neolithic people were hunters and farmers.

Neolithic people lived alone.

Neolithic people travelled long distances on foot.

Neolithic people didn't write like us.

Neolithic people studied the sun and its movement.

Neolithic people built passage tombs to bury their dead.



Can you name the animals hidden behind the bush?

1. C _ _

2. S _ _ _ _

How do you think these animals helped Neolithic people?

The Exhibition: PEOPLE & THE SEASONS

Seasons Link

Neolithic people did different activities at different times of the year. Match the season to the activity that took place then.

Spring

Built monuments and celebrated the longest day of the year

Summer

Harvested the crops

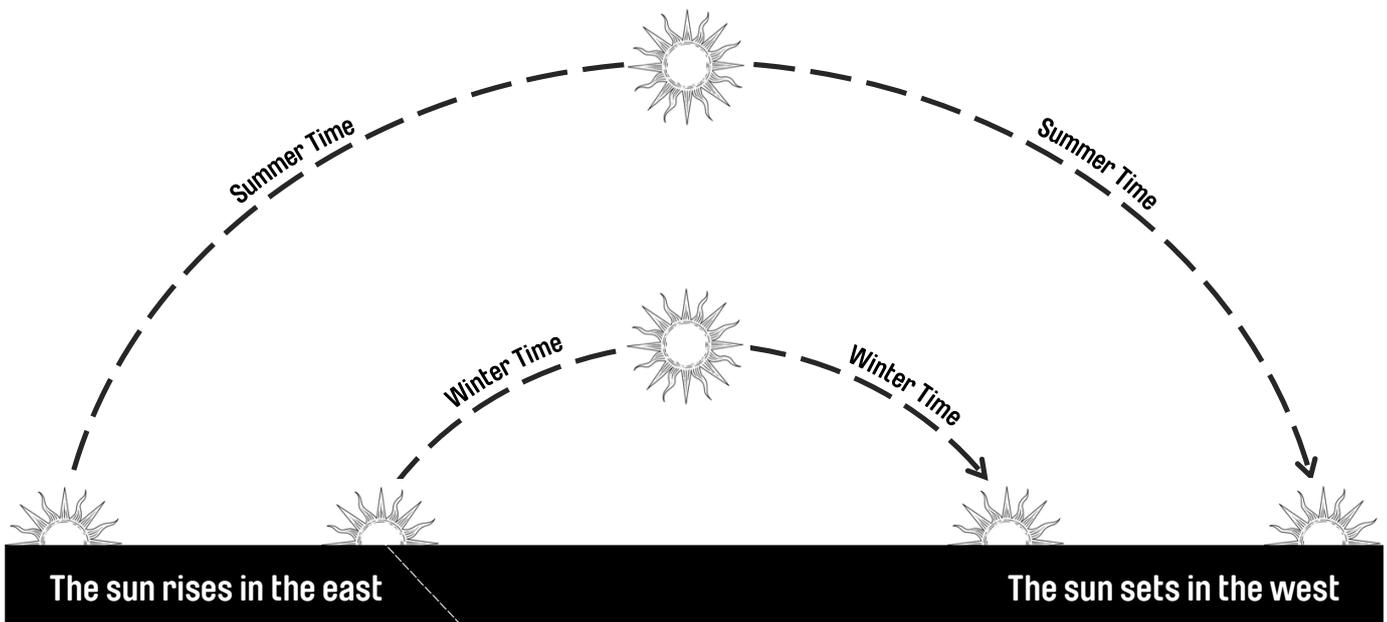
Autumn

Lived off food they had stored and celebrated the shortest day of the year

Winter

Animals gave birth to their young

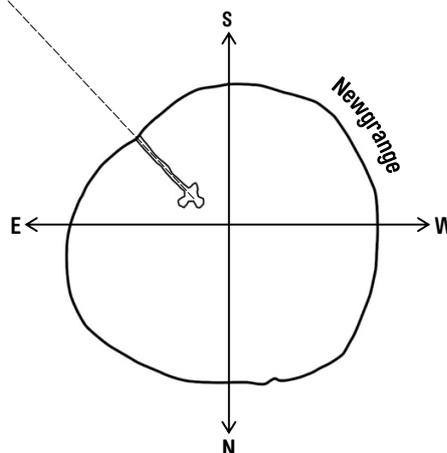
Neolithic people studied the sun's movement. Look at the arcs of the sun below.



The large arc represents when the days are at their longest. This is also called:

S _ _ _ _ _

S _ _ _ _ _



The small arc represents when the days are at their shortest. This is also called:

W _ _ _ _ _

S _ _ _ _ _

The Exhibition: BUILDING THE MONUMENTS



Draw a line from each type of stone to where it was found.

Quartz

Greywacke

Granite

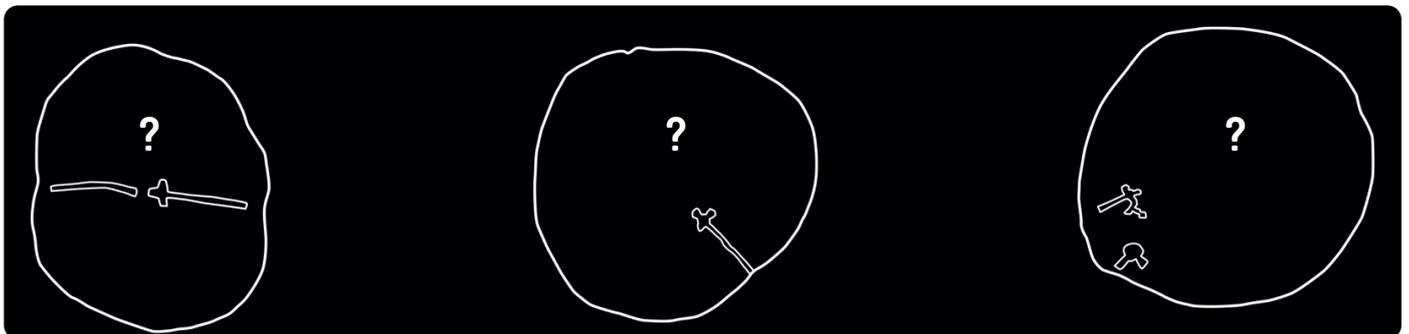
Cairn Stones

Match each Great Mound to its plan

Dowth?

Knowth?

Newgrange?



What was placed inside the chamber of a passage tomb?

1 _____

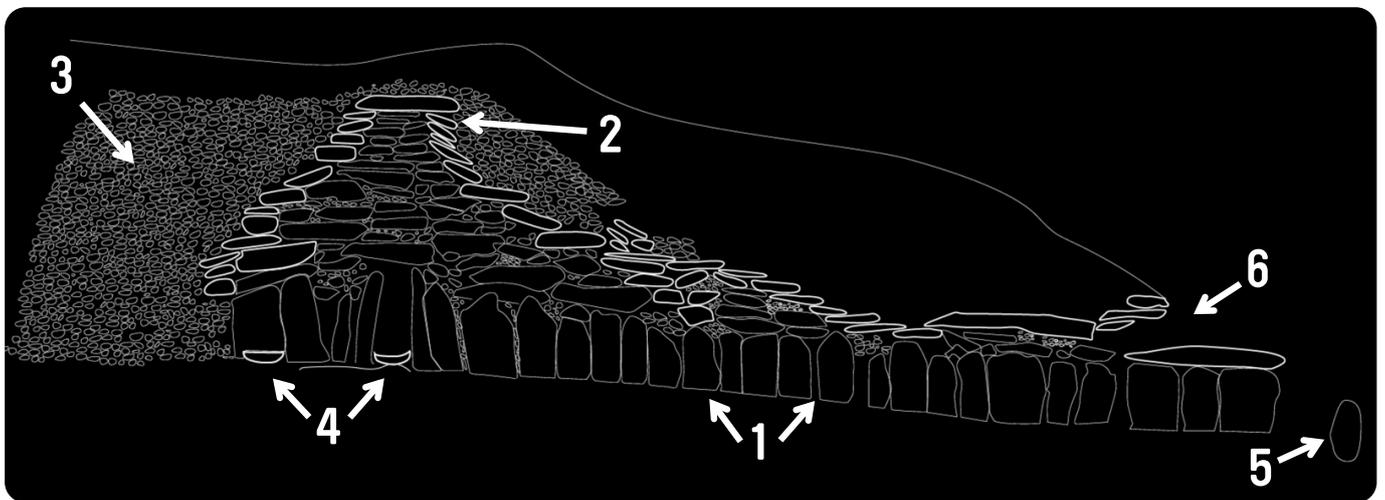
2 _____

The Exhibition: BUILDING THE MONUMENTS

Word Link

Draw a line from the word to its meaning

Orthostats	The mound of stone covering a passage tomb
Corbels	The opening above the entrance to Newgrange that allows the sun to shine through on winter solstice
Roof box	The act of burning the dead
Cremation	Objects found on an archaeological site
Kerbstones	The large stones that line a passage and chamber
Artefacts	The large stones that surround the base of a passage tomb
Cairn	The roof stones of a chamber



Which number is -

The corbelled vault _____

The cairn stones _____

The basin stones _____

The orthostats _____

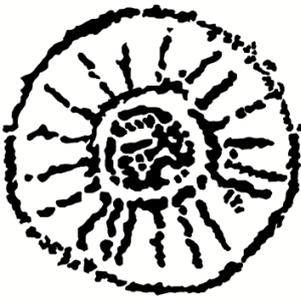
The roof box _____

The entrance stone _____

The Exhibition: MEGALITHIC ART

What is megalithic art?

Which passage tomb do these symbols come from?



1 _____

2 _____

3 _____

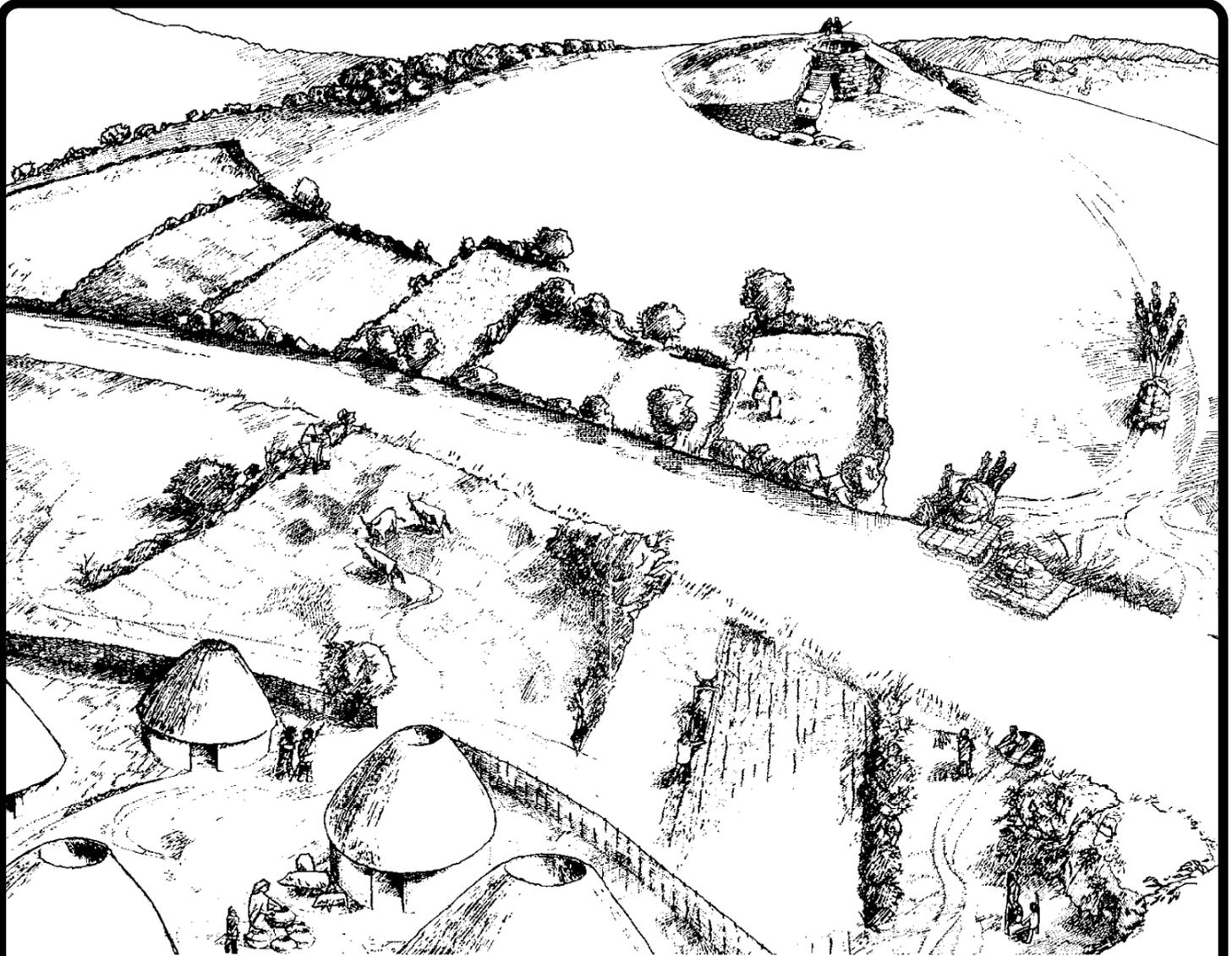
What do you think each of these meant to Neolithic people?

1 _____

2 _____

3 _____

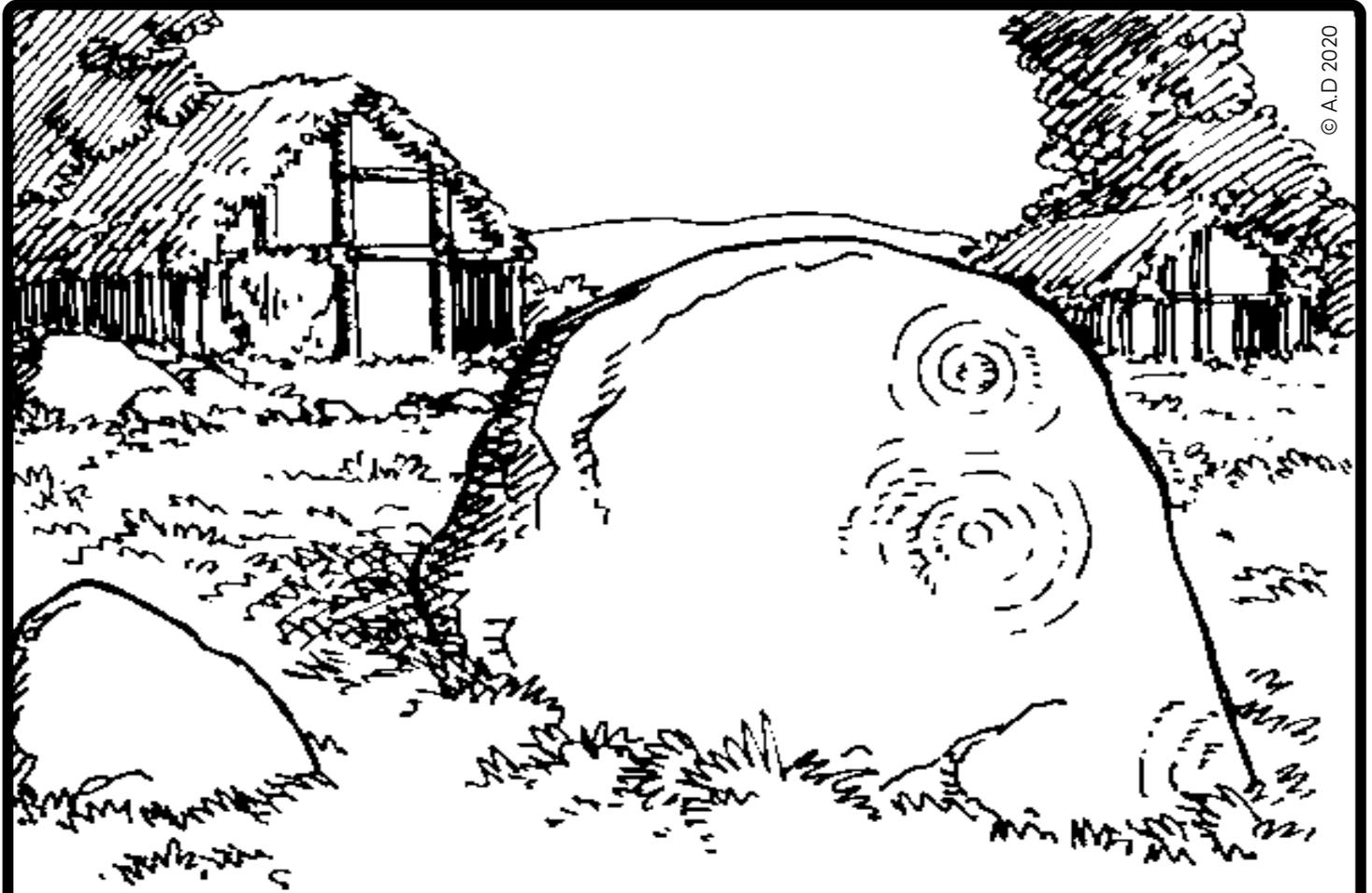
WORK IN THE CLASS ROOM



Colour the picture

Write a story telling what it was like to build Newgrange?

WORK IN THE CLASS ROOM



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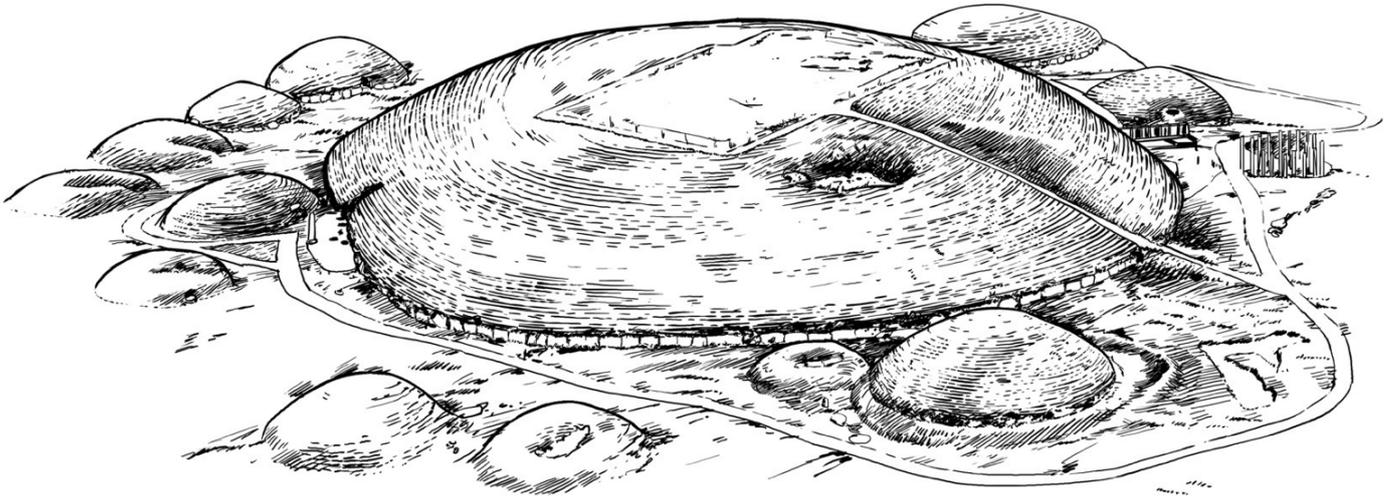
Colour the picture

Write a short story about every-day life in a Neolithic village

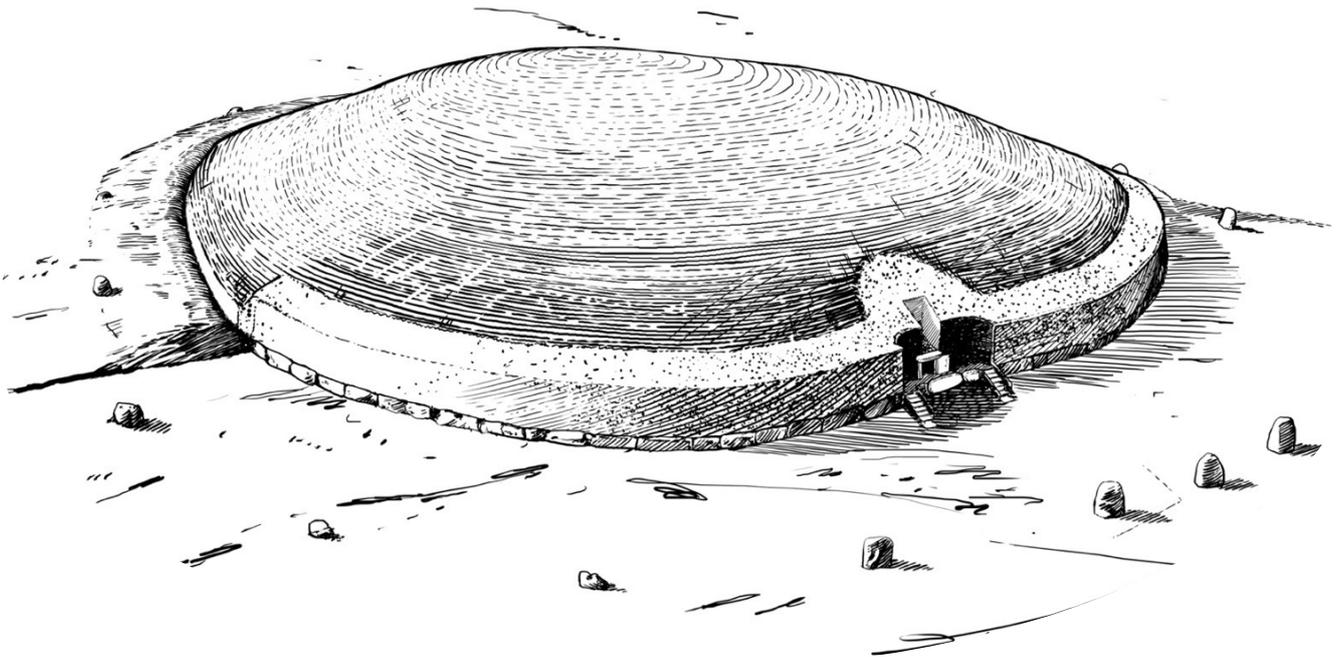
WORK IN THE CLASS ROOM

Join the dots and colour the pictures

BRÚNA BÓINNE



KNOWTH



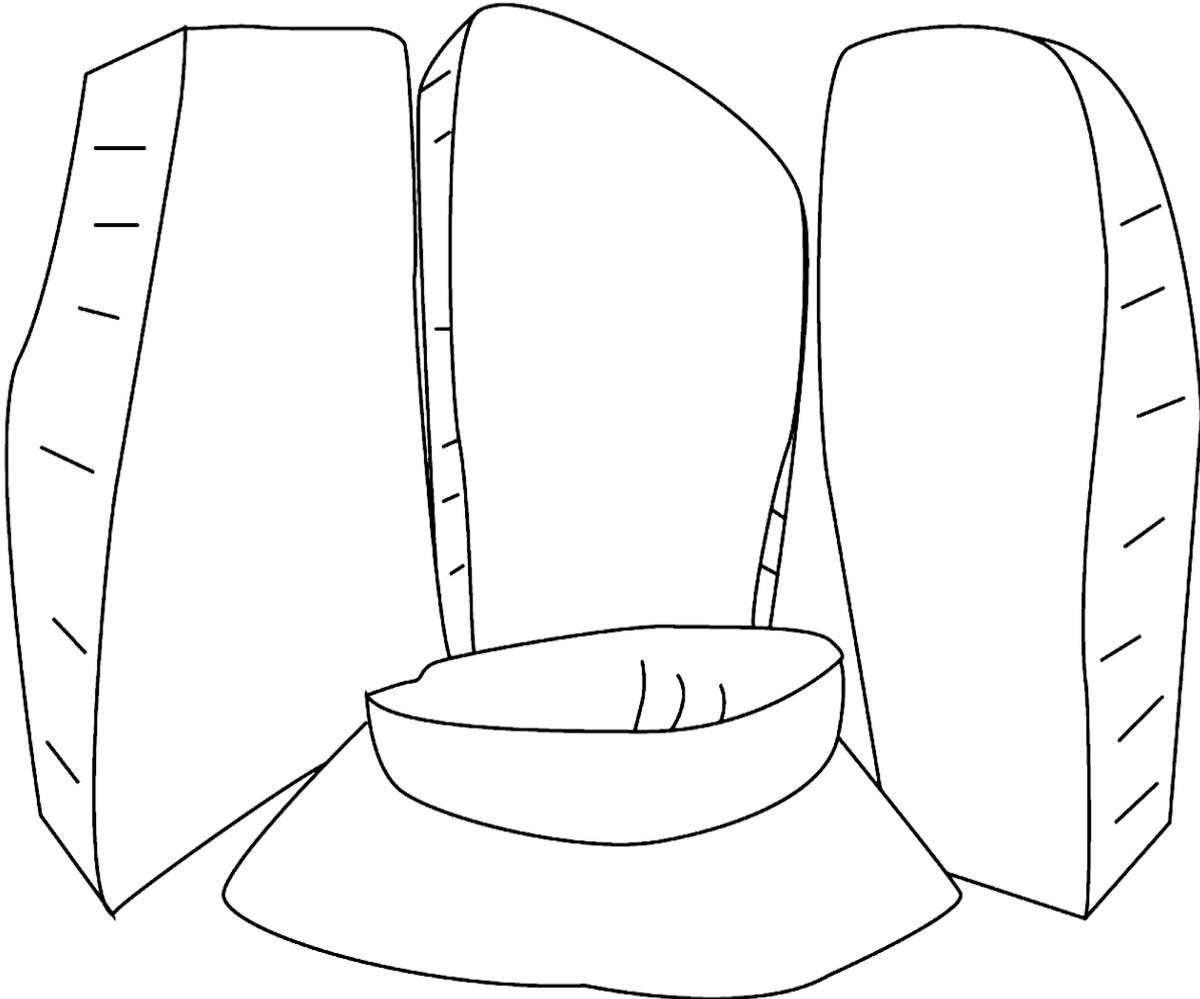
NEWGRANGE

WORK IN THE CLASS ROOM

Use your imagination to decorate the stones with megalithic art



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WORK IN THE CLASS ROOM

Neolithic Maths

Fill in the missing NUMBERS to the sums.

$$\text{Target} = 1$$

$$\text{Cup} = 2$$

$$\text{Axe} = 3$$

$$\text{Target} = 4$$

Example

$$\text{Target} + \text{Cup} = 3$$

$$\text{Target} + \text{Axe} = \square$$

$$\text{Target} - \text{Target} = \square$$

$$\text{Cup} + \text{Cup} = \square$$

$$\text{Target} - \text{Axe} = \square$$

$$\text{Cup} - \text{Target} = \square$$

$$\text{Axe} + \text{Target} = \square$$

$$\text{Target} + \text{Target} + \text{Axe} = \square$$

$$\text{Cup} + \square = \text{Target}$$

$$\text{Target} - \square = \text{Axe}$$

$$\text{Target} + \square + \text{Cup} = \text{Target}$$

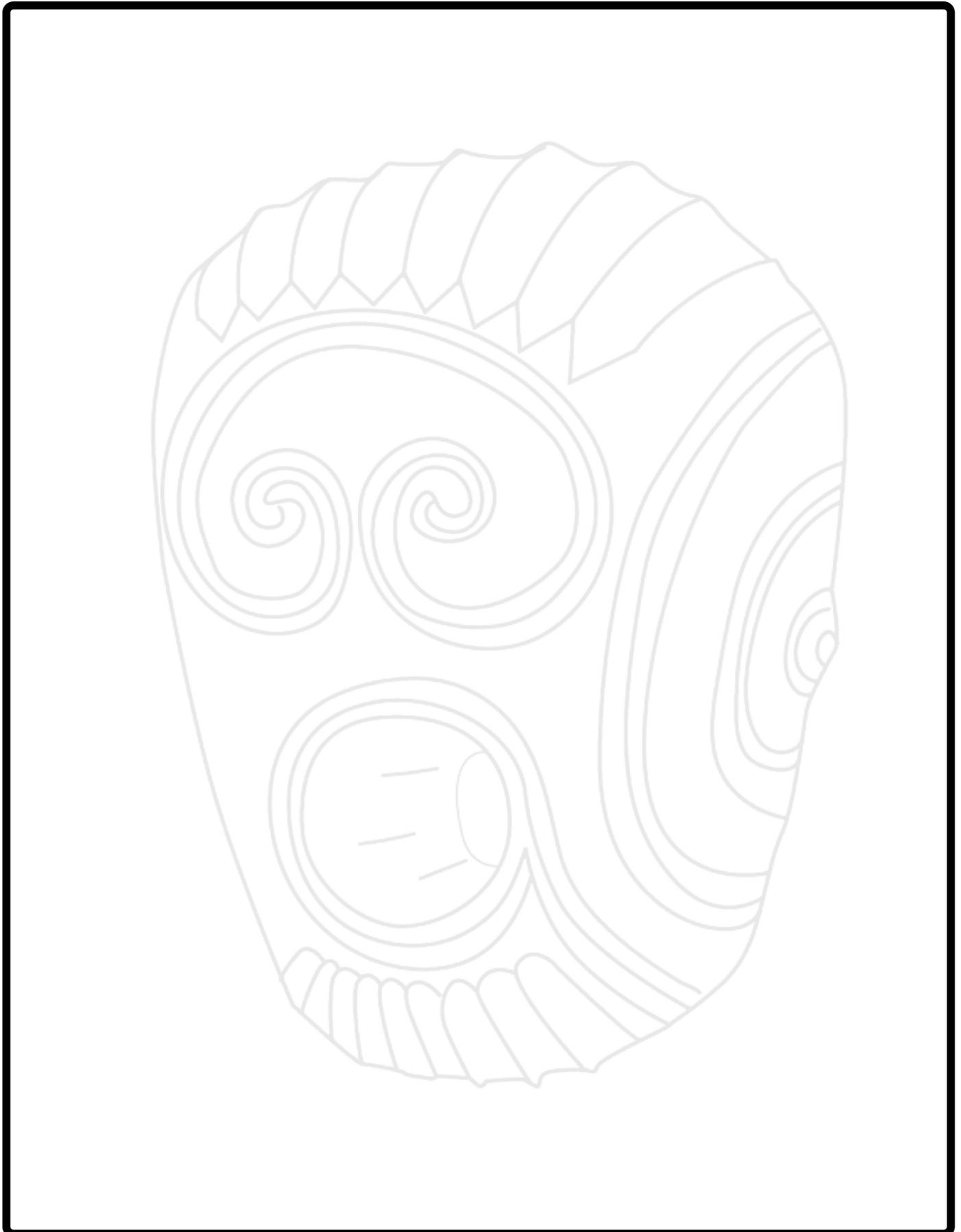
$$\text{Target} - \text{Cup} + \text{Target} = \square$$

$$\text{Cup} - \text{Target} + \text{Axe} = \square$$

$$\square + \text{Target} - \text{Cup} = \text{Axe}$$

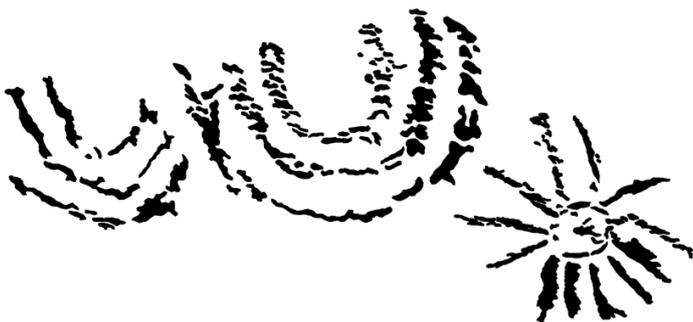
WORK IN THE CLASS ROOM

Can you trace the Knowth Macehead?



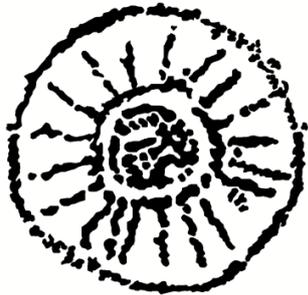
WORK IN THE CLASS ROOM

Copy the Megalithic Art.



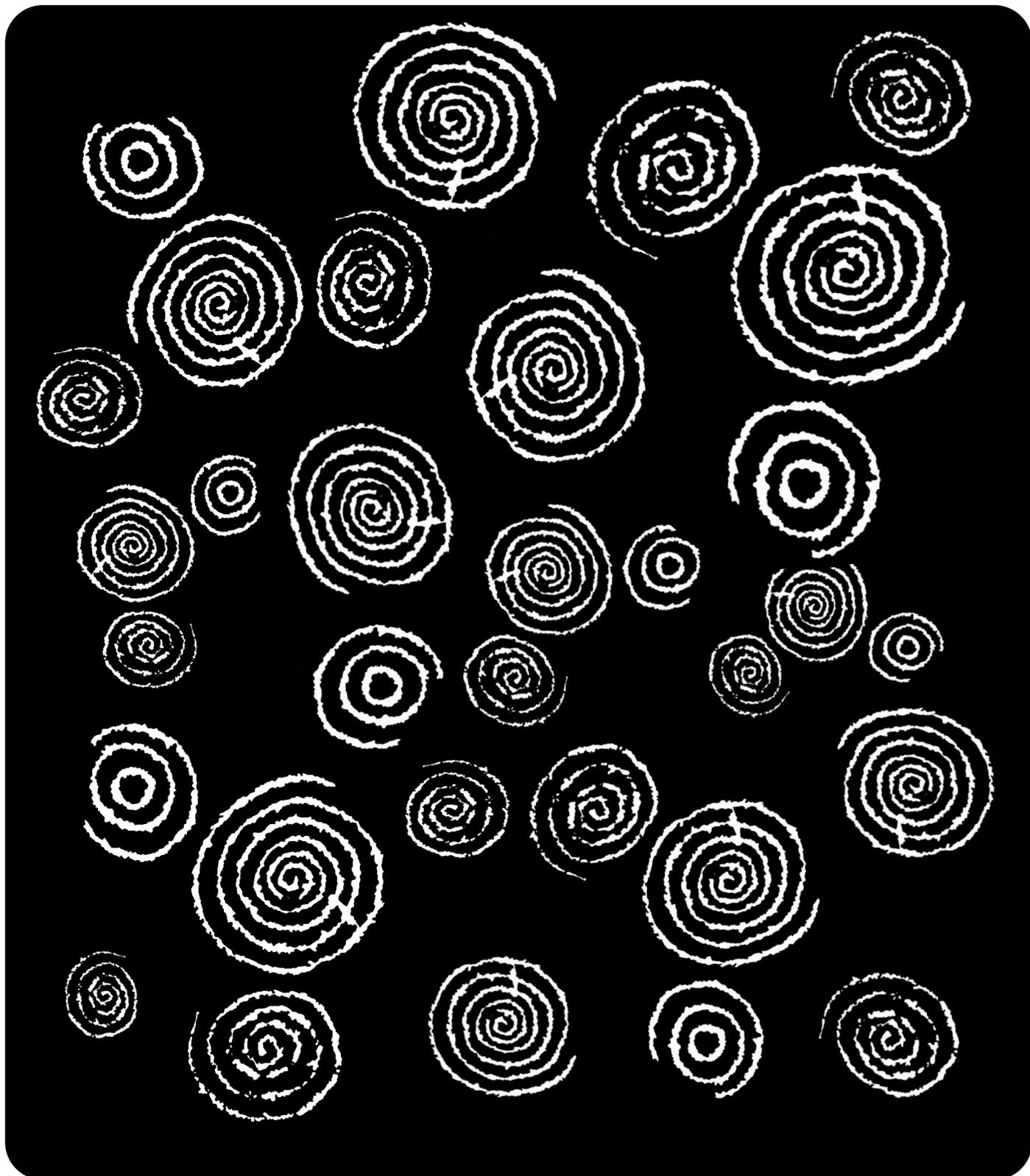
WORK IN THE CLASS ROOM

Copy the Megalithic Art.



WORK IN THE CLASS ROOM

How many spirals are in the picture?



Answer