

11,000 YEARS AGO

This is a set of activities which aim to give some idea of how people lived during the Mesolithic. The story is based around two children and their family who move from the coast, somewhere near Scarborough, to Star Carr by the now vanished Lake Flixton.

The story has five chapters. These are meant to be read, either by the teacher or by the pupils. Each chapter has a section of background information on what we think we know about the period, and what the evidence is for this.

There are then some suggested classroom activities based on each of the chapters. Some of these can be done only using the information in the story as well as the background information. Others will involve extra research by the pupils, or will be supported by a stand-alone resource.

The stories are designed so that they can also be used before a class visit to the Rotunda Museum where there is a display about Star Carr. Some suggested activities at the display are also given below each story.

This resource is designed to support the following areas of the key stage 2 curriculum for schools in England.

History

- Changes in Britain from the Stone Age to the Iron Age
- A local history study: of an aspect of history or a site dating from a period beyond 1066 that is significant in the locality

Art and design

- Improve their mastery of art and design techniques, including drawing, painting and sculpture with a range of materials [for example, pencil, charcoal, paint, clay]

Computing

- Use search technologies effectively, appreciate how results are selected and ranked, and be discerning in evaluating digital content
- Collecting, analysing, evaluating and presenting data and information

Design and technology

- Understand and apply the principles of a healthy and varied diet
- Understand seasonality, and know where and how a variety of ingredients are grown, reared, caught and processed

English: years 3 and 4

- Listening to and discussing a wide range of fiction, poetry, plays, non-fiction and reference books or textbooks
- Preparing poems and play scripts to read aloud and to perform, showing understanding through intonation, tone, volume and action

The characters in the story are:

The family

Neska	a girl, 9 years old
Mutil	a boy, 6 years old
Aita	their father, 31 years old
Ama	their mother, 28 years old
Osaba	Aita's brother, 26 years old

Chakur	their dog
--------	-----------

Their friends

Amona	the mother of Emakume and Kusi, 51 years old
Emakume	daughter of Amona, 32 years old
Gizon	husband of Emakume, 38 years old
Senar	son of Amona, 24 years old
Emazte	the new wife of Senar, 16 years old
Lagun	eldest son of Gizon and Emakume, 12 years old
Gazte	younger daughter of Gizon and Emakume, 9 years old
Ume	youngest daughter of Gizon and Emakume, 7 years old
Gorri	youngest son of Gizon and Emakume, 4 years old

Emakume was the sister of Aita and Osaba's mother, and so great-aunt of Neska and Mutil.

These people lived during the Mesolithic Age of prehistory.

The Mesolithic Age (or Middle Stone Age), lasted in Britain from around 11,100 to 5,800 years ago. It was a period of hunting and gathering in the woodlands that grew in Britain and Europe after the end of the last ice age. People also lived on the coasts by fishing and collecting shellfish. At first, the North Sea was still dry land all the way from Bridlington across to Copenhagen. It slowly became flooded by rising sea levels, to disappear at around 8,400 years ago. Archaeologists call this lost land *Doggerland*.

11,000 YEARS AGO

STORIES FROM THE MIDDLE STONE AGE

Chapter 1. Moving home.

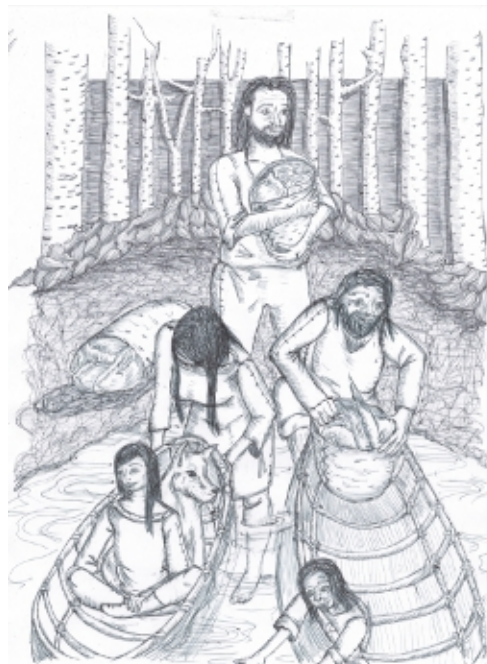
Neska woke first, the morning sunlight coming in through the door of the house. Mutil was still fast asleep next to her. On the other side of the hearth, Aita was snoring as usual, while Ama was beginning to wake too.

Neska was excited. The winter snows had melted and the sun was warmer now. Today they would be going inland to the happy place she remembered from last year. Mutil would remember too but he wasn't quite so keen on going back. Last year, he had wandered away into the woods and startled a family of wild boar. They had squealed and charged at him, making him run back crying to Ama. Neska was looking forward to the different foods she remembered from last time, and the sunlight reflecting on the lake. She thought their home there was the most beautiful place.

By the time the men were awake, she and Ama had begun packing away the food, tools and clothes into bundles they could carry. Aita and his brother Osaba began to damp down the fire in the hearth, to store the flint nodules in the pit they had dug and take the waste scraps of old bones and the bark from the floor to the dump by the edge of the sea. Mutil, as usual, was getting in the way playing with Chakur, the dog.

When all was ready, they set off along the path, away from the coast and into the wood. The spring sun was dappled by the birch leaves as they followed the light grey trunks into the distance. Osaba seemed to know the way, and they walked on going westwards. They walked quietly so as not to disturb the trees nor the animals they glimpsed in the distance. Mutil was worried. Everyone was carrying a lot of heavy things and he knew that no one had thought to bring the flint cobbles with them as they were just too heavy. He didn't know what they would use for tools when they got to their new home.

After a while, they come out of the trees to the edge of the lake. This was not the place she remembered. They would have to walk all round the edge of the lake to other end of the water. Her feet were tired already and her heart sank at the thought. Aita caught her look and smiled. He always seemed to understand what she was thinking. He walked down through the plants to edge of the lake. There, hidden on the bank, were the two coracles he and Osaba had made last year.



She had forgotten. Of course, they went across the lake in the coracles to the other side. So much quicker and less tiring for her feet. Mutil was also happy, splashing his hand in the water as they went along. Ama quietly stopped his arm and gently said "Now don't disturb the spirit of the lake or she won't

send us any fish to eat later!”. Mutil liked the fish. He stopped and happily looked at the birds paddling on the water and flying overhead, playing a game with Ama to see if he could identify what they were called.

Eventually, they came to the far end of the lake and the coracle turned to the right to come in on the near side of small headland that jutted out into the lake a little way. Now Neska was happy. This was her happy place. Mutil was quieter, looking at the trees as they spread back away from the shore. They landed, got out and upturned the coracles on the bank. The tall rushes by the edge of the lake were high this year. Neska and Mutil felt like they were a little forest, built just for them. They never liked it when the adults set about burning the rushes away to make a clear shoreline for their new home. Ama was the guardian of the fire, keeping hot embers of fungus in a leather pouch so they could easily restart the fire. Last year, the embers had gone out and Aita was cross. He never liked making fire from scratch as it took a lot of hard work, especially as that year, he did not have a good firestone to strike and had to use a bow drill instead.

It was mid afternoon by the time they got round to repairing their houses from last year. Aita had brought the flint axe with them to cut down new branches and trim the wood for mending the walls and roof of the house. Ama and Osaba together started unwrapping the rolls of animal skins they had carried to cover the outside of the house with. Neska and Mutil helped Ama with setting the hearth in the middle of the house and unpacking the items they had brought from the coast. Aita and Osaba went off to make and set new fish traps. Ama spotted the wooden post they had placed in the ground last year. This marked where they would place the skull of the first of the wild cattle they caught to watch over and protect them.

Mutil went round looking at everything, searching. Ama wondered what he was searching for. He looked so worried. He said he was trying to see if anyone had brought the flint with them. He thought they were all going to run out of tools and then they wouldn't be able hunt and he would not have any more food. She smiled at him. Then she took him to a tree they had marked last year. It had a set of parallel lines cut into the trunk. She quickly dug a hole at the base of the tree with her digging stick and found the small pit in which, last year, they had placed the flint they needed to make new tools. Mutil smiled and laughed. He hadn't known that the trees would give them new flint for the year.

By the time evening came, they were all tired. The smoked and dried food they had brought was nice, but they all looked forward to having good roasted meat to eat and succulent fish. Mutil especially liked the long green fish in the lake. Neska loved the roots of the bog bean and the mushrooms they found in the woods later in the year. They both went to sleep next to each other excited at what the next few days would bring.

Background information

Environment and society

Mesolithic people were hunter-gatherers. They moved around the landscape from place to place, wherever was best for finding food. Some moved around a lot, while others stayed longer in one place or only moved around between a few regular places. People had to move on foot, walking long distances (how far could you walk in one day?) or by boat on the rivers, lakes and seas. Boats could be either dugout tree trunks or, like a modern coracle, made of a framework of wooden branches covered in waterproofed leather.

All settlements had to have access to fresh water, fuel for the fire and materials to make houses. Particular locations were good for different kinds of foods:

- coasts: fishing at sea, shellfish on the shore, seaweeds and seashore plants to eat, flint cobbles on the beach and in the cliffs, minerals like pyrite (for making fire) or haematite (for making red ochre) and the eggs of seabirds;
- lakes: fresh water, fish, plants by the edge, easy access to the forest;
- rivers: fresh water, fish, flint cobbles in the river bed;
- woodland: wood, animals to hunt, nuts, berries and mushrooms.

People would probably have lived in small family groups. Women would have married in their late teens and had children from then into their mid to late 30s. Each child would not have been weaned until the age of 2 or 3. The family would have met up with others from time to time to exchange news, trade in objects and raw materials, and marry. They may have belonged to named clans, with rules on which clans could marry and which could not. Some in the wider clan would be shamans, powerful individuals who knew how to commune with the world of the spirits. They could help to ensure successful hunts by appeasing the spirits of the animals. They may also have been skilled in the lore of plants and in treating illnesses.

A major factor in where people could live, and when they might have to move, would be the passage of the seasons. In the Early Mesolithic, winters would have been colder than today, with snow a regular feature. Summers would have also been cooler but still pleasant. We might imagine a climate similar to that of the middle of Norway (Trondheim) or Sweden (north of Stockholm) today.

Mesolithic houses have been excavated at a number of sites in Britain. Some are early, and some late, but they share some common characteristics. They were roughly round in shape and between 3 and 7 metres wide, with an open hearth in the middle. The entrance or door could face to the west or south to make the most of the sunlight during the day. Some think they had domed roofs, others that they were conical, like a kind of teepee. There were no separate rooms, although some sort of screen could be put up to shield parts of the house from the rest. Most of the activities we now do at home may have been done outdoors if the weather was good, such as preparing and cooking food, making tools, sitting chatting or telling stories.

How do we know all this?

We don't really know all of this from archaeology. There is much that does not leave archaeological remains for us to interrogate. We can look at other hunter-gatherers who have lived and had their lives recorded in the last 400 years, and especially by anthropologists in the last 100 years. These modern hunter-gatherers are not exactly like Mesolithic people. Their environments are often different and they are often in contact with modern societies. But there are broad patterns and similarities within the hunter-gatherer way of life. We are left with possibilities for how Mesolithic people live rather than hard certainties.

Classroom activities

Activity 1 (guided questioning)

Moving home

Ask the pupils some key questions after reading the story, such as:

- what would make you move from the coast to the lake?
- where else could you move to, and would it be better or easier to get to than the lake?
- If you were Mutil or Neska, how could you have helped during the day?

Activity 2 (pupils' investigation)

Making camp

Get the pupils to work out how much space they need for a round, one room house with a central hearth

Mark out a space on the floor that is 5 metres long by 4 metres wide and see how many could sleep or sit in the space

How many activities take place in their modern home and which of these activities would also be done in the Mesolithic, and where might they be done (in the house or outside)?

Activity 3 (creative expression)

Your experience of the day

Choose one of the characters and write your own account of the day and what it would have been like for you.

Draw one aspect of their activities that day, as though you were taking a photograph of them.

Link to The Rotunda Museum display

Can you find the following in the display? If you can, have a go at drawing them.

The skull of a wild bull. In the story, this could have been placed on a pole to protect their new home.

- What is the proper name for wild cattle?
[Answer – aurochs, scientific name *Bos primigenius*]
- Why do you think they might have used this skull as protection?
[Answer – the fierceness of wild cattle and the size of the skull with its horns]

A flint axehead that Aita could have carried to the lake from the coast

- What kind of handle would they made for the axehead?
- What would the handle have been made from?
- What would they have used the axe for?

Chapter 2. Making things.

Osaba sat outside crosslegged on the birch bark mat. He had lumps of the flint they kept from last year, and was weighing one in his hand, looking for a suitable flat surface to strike with the smooth pebble in his other hand. A quick motion of the hand later, the surface was struck and a small flake of flint fell to the ground off the cobble. He looked at the scar showing the inside of the flint and grunted with satisfaction. This was a good cobble of flint, smooth and dark grey inside. He began knapping the nodule, quickly making a lot of small flakes.

Neska loved watching her uncle making tools. He had made the lovely wooden paddle for the coracle last year and covered it in beautiful designs. She liked the skill of his hands as they worked, and the sound of the hammerstone hitting the flint. Mutil was with her, equally entranced. He reached out to pick up one of the small flakes. Neska smiled, remembering when she had done that. She would let Mutil find out for himself how dangerous that was. Osaba finished making the flakes and picked up the antler prong he kept in the leather pouch hanging from his belt. He then used this to press the sides of the flakes, shaping them into the tools he wanted. Some of these were precious ones called 'aitchiki', the little stones.

Ama was off searching the fish and small animal traps, while Aita had gone off into the wood to find firewood and good timber for tools. Neska was hoping Osaba would teach her how to knap the flint like he did, coaxing the right shapes out of it by hitting it just right with the pebble or the antler. She loved making things and was good with her hands. She took after her mother that way. Aita was a good hunter and kind to his family, but awfully clumsy and really not very good at knapping. It was one reason he was glad his brother Osaba had stayed with them this year.

Aita came stumbling back into camp. He was limping and holding his leg with one hand. They could all see the blood that had seeped down his leg. Ama and Neska rushed to help him and they got him lying down in their house by the hearth. He had accidentally startled a boar and her piglets in the wood. The boar had attacked him and her sharp tusk had pierced his leg. Boars really were dangerous. Ama collected the herbs she kept in a bag and pressed them to the wound, tying them in place with strips of leather. Aita was brave but let out a cry of pain. Neska was worried. If Aita lived, then it would take a while for him to get better. She didn't like to see her father hurt, but she also wondered how Osaba would manage to hunt on his own.



After eating, Osaba began sorting out the hunting equipment, while Ama and Neska sat together making tools. Ama had nimble hands and began cutting slits into the smooth wooden shafts they had brought with them. Neska helped to heat the birch resin they had, for Ama to glue one of the tiny 'aitchiki' at the point, and others along the edge at the end of the shaft. These would make fine arrowheads for hunting with. Neska was entrusted now with adding the feathers at the other end of the

shaft that would help the arrow fly straight through the air. Tomorrow, she would help her mother make knives by fitting 'aitchiki' in a different way into a wooden handle.

They had found plenty of shed antlers when they had all gone through the woods a few days ago. Osaba though had some antler taken from the store in the pit they had left on the site last year and was working the ends with a stout flint tool. He carefully cut pointed teeth along one edge, all pointing in one direction backwards from the point. He had some already prepared, and began tying two of them to the end of a long wooden haft. The two were angled slightly apart and, of course, had their teeth pointing backwards. Mutil would be happy Osaba had made these as they would enable him to enjoy his favourite food.

Mutil was playing with the dog again, throwing sticks for it to catch, but being careful not to throw a stick in the water in case it should disturb and make angry the water spirit. Ama watched over him while she took the smellier organs from the latest deer they had caught – the stomach and intestines. These had already been washed and cleaned. She took them off their stretching frame. They would make good bags and containers, or even hats now that they were stretched and dried.

Later, during the evening, they all sat around the hearth while Ama told stories of the forest and the spirits of the trees – how each spirit had its own personality. She told of how some trees and plants were kindly spirits, while others were not and did their best to harm people. Most of the others listened while they twined the fibres of plants they had taken a few days ago, twisting them to make string and cord: some thick, some thin, some long and some short.

Osaba though was working on some flat pieces of grey shale. He cut them into round discs and then began drilling holes through the middle. With some string, they would make a nice necklace. One larger piece of shale would be cut and coloured with red ochre to be a pendant to wear. He would carefully scratch on the design of a tree, a special symbol of the woodland that gave them so much. The trees watched over and protected them. He would give the pendant to Aita to wear so the trees would protect him in future from the boar.

In time, as they grew sleepy, they went to bed happy that they had had a good day and achieved a lot.

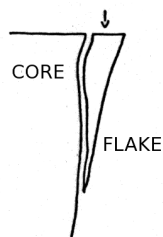
Background information

Making tools

People need all kinds of tools to live their lives. The most important are tools for cutting and shaping, which then had to be made out of stone. Making stone tools goes back at least 3 million years in human evolution. By the Mesolithic, tools had become very sophisticated.

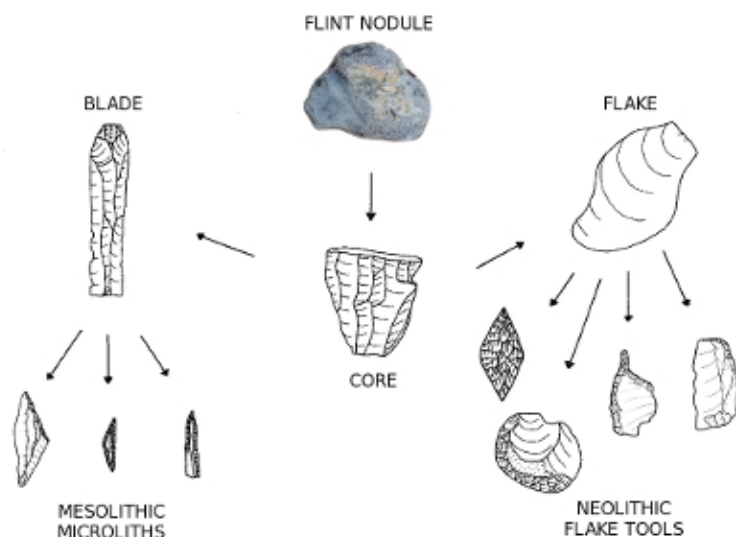
Not all stone is good for making tools. The stone needs to be very fine grained and smooth. It must also be easy to shape, but hard enough also to keep a working edge. Around the world people have used stone like obsidian (a volcanic glass), quartz and hardened volcanic ash or lava. In southern Britain, the most important stone is flint and its coarser relative, chert. These are forms of silica which occur in limestone (chert) and chalk (flint). The flint for making tools at Star Carr comes from two places. The local chalk of the Yorkshire Wolds has a whitish grey, opaque flint. A brownish-black to dark grey, translucent and much finer flint is found in the clay cliffs and beaches of the east coast. This was left behind by the ice sheets of the last Ice Age which scraped up flint from farther north and east, out in the North Sea.

A cobble of flint would be struck (knapped) with a hammerstone (any kind of hard pebble). It had to be struck just right. Where you strike should be on the top above a face of the cobble. The face should run at an angle of less than 90 degrees downwards from the top.



A small flake of flint will fall away from the cobble. Cobbles with flakes taken off them are called cores. The flakes may well have sharp edges and can be used straight away as cutting tools. Often they will be shaped further using a small pebble, the tine of antler or a hard wooden point. This is called retouching. Archaeologists give names to the retouched flakes according to their shape and possible purpose, such as scraper, knife, awl, graver (also called by its French name of burin), arrowhead etc.

Mesolithic knapping aimed at making flakes that were long and had parallel sides, which we call blades. The blades could then be snapped into small segments and retouched into various shapes. We call these microliths (literally 'small stones'). They are characteristic of the Mesolithic and came in various shapes, often geometric such as triangles, rhomboids and trapezes. They were used as small component parts to be fitted into bone, antler or wooden hafts to make tools like arrowheads or knives. In later periods, like the Neolithic, people made tools on wider flakes all in one piece.



Flint is the most usual find to survive on a Mesolithic site, but most of the really useful tools they had were made of other materials that have rotted away, such as wood, bone and leather. As well as clothes, shoes and the tools to cut and sew them with, they would need pouches, bags and baskets for carrying and storing things, musical instruments, tools for digging in the ground, implements to help with cooking and eating as well as lines, rods, nets, traps and snares for catching small animals, birds and fish.

Wood would be all around them in the forest, and each kind of tree would have its own properties and uses, some better as fuel for the fire, some for making handles, some for making bows etc. For example, birch makes good firewood and produces a tar that can be used as a glue, while willow is bendy and fibrous and so is good for weaving into baskets or for making string, rope and nets. Birch bark can be peeled away in big strips for use as flooring for the houses, sewn as baskets and boxes or in small rolls as lamps. Antler would come from the deer, either from hunted deer or collected as the deer shed their antler every year in early spring. Horn could come from the aurochs. Bone would come from the bodies of the animals they hunted, which would also provide skins (and leather made from the skins) and sinew for making tough fastenings and bowstrings. The soft tissues like the stomach and intestines would make good light coverings and containers.

How do we know all this?

Archaeologists find various tools on sites. Some of which have an obvious use, but many do not. We can look at the edges of the tools under a microscope to see the traces of scratching and polishing left as wear from the use of the tool. We can also do chemical analysis of any deposits left sticking to the tools which can help to narrow down the substances they might have been used on. Archaeologists will also use experimental archaeology, where they make a copy of the tool and use it in different ways to see what use-wear or chemical traces are left. A big help is to use ethnographic analogy, looking at similar tools used in more modern times. Ethnography is especially good for telling us the types of tools we may be missing because they do not survive on the archaeological site.

Classroom activities

Activity 1 (guided questioning)

A day in camp

Ask the pupils some key questions after reading the story, such as:

- why would Mutil be happy with Osaba's tools?
- why would he not want to anger the water spirit?
- which of the activities would you like to have done, and why?
- how would Ama make a knife out of the microliths?

Activity 2 (making)

Making tools

Using easily available materials, get the class to make their own Mesolithic tools. See *Tools R Us* in the *Life in the Mesolithic* activity resource pack. [Link to the Tools R Us activity]

Activity 3 (pupils' investigation)

Making and using tools

Get the pupils to do research on some of these questions.

- What tools would you need for preparing, cooking and eating food?
[Answer - think about cutting, skewering, pounding, grinding]
- What would the tools be made of?
[Answer - flint and stone knives and pounders, wooden skewers]
- What would you need containers for?
[Answer - boiling and carrying water, making porridge]
- How would you make containers?
[Answer - sew together birch bark or make baskets out of willow and plant stems]
- What could you use to dig up the roots of plants or to make pits in the ground?
[Answer - a wooden digging stick with a pointed end]

Link to The Rotunda Museum display

Can you find the following in the display? If you can, have a go at drawing them.

Rolls of birch bark.

- Do some research and find out what else you could use birch bark for.
[Answer – the rolls can be set alight as a taper, they can be heated to yield tar for use as a glue, strips can be sewn together to make a container, large pieces can be use as mats on the floor]
- What do we use today for these things instead of birch bark?
[Answers – candles, glue, pottery, carpets]

The small flints they called 'aitchiki'.

- What do archaeologists call these flints?
[Answer – microliths, which comes from Greek for little stones]
- How would you fix them into a handle to make a knife?
[Answer – cut a slit into the side or end of a stick, glue the microliths in a line into the slit using a glue made from birch bark or pine resin, you could tie them also into place with thread made from animal sinew]

Chapter 3. Food.

Mutil was hungry. He sometimes felt he was always hungry. He loved the fish that came from the lake. But, he was beginning to think perhaps the smoked venison they sometimes ate was almost as good. What was Ama cooking today? More roots and leaves. He was not happy.

Neska had come back from along the lake shore with some different green leaves she had tried to tempt Mutil to eat. He made such a face though as he tested one in his mouth before spitting it out. Never mind. She liked these leaves, trying to remember what Ama had called them last year. It may have been mint. She would have to tell her where she had found a clump of them growing.

Ama and Osaba had already gone when she got back. Ama had been firm, telling Osaba that she too could use a bow and would help with the hunt now that Aita was injured and still too ill. Neska was annoyed. She felt she was old enough now not to get in the way and had desperately wanted to go and help with the hunting. Mutil was still too young. He would make too much noise and scare off the prey. Perhaps Osaba would take Mutil out fishing in the lake tomorrow, testing his new fish spears carved out of antler. She would leave that to Mutil. Once Aita had taken her out in the coracle and she had tipped out into the lake and had to be pulled back on board spluttering and half drowned. She had always felt the water spirit did not like her and was happier in the woods.

Neska and Mutil did go and inspect the traps. They came back with some fish, and one hare from a trap in the woods. Mutil helped Aita build the fire for cooking them outside the house. He helped place some dry wood on the ground and then some dry moss and fungus, and then piled up some small twigs before putting some bigger branches in a kind of pyramid on top. Aita took a long twig to the hearth, lit the end in the fire and took it to the wood pile, poking it through to the moss and fungus. Mutil knew what to do next, crouching down and blowing gently to let the sparks catch and grow into flame. He loved helping make the fire, often staring into the flames, entranced by their yellow-red dancing in the breeze.



Later that day, the two hunters came back singing softly through the woods, carrying a deer on a long pole between them. The song was a song of thanks to the deer spirit for being kind and letting them take one of his precious deer. Everyone stood up to greet their return, smiling and happy, knowing the deer would provide food for them for some days to come. Chakur ran towards Mutil for a big hug in thanks for his part in tracking the deer and helping the hunt. Neska and the still limping Aita already had their best knives in their hands waiting to help butcher the carcass.

So much of the deer would be used. They hung the doe upside down from a strong tree branch and began to cut it up. The blood they collected in a bowl underneath it to use later. Once they had taken off

the hide, they cut off the meat and took out the internal organs. It was their custom that the animal's liver would be given to the hunters' wife or mother, so Ama was really pleased. She gave the liver to Aita, joking that she was the hunter today, and Aita was her 'wife'. Some of the meat they would eat that day. The rest they would hang over a fire to smoke, so that it would be preserved. The smoked meat would be delicious over the next few weeks. Mutil was looking forward to the breaking of the bones. Inside was the delicious, sticky marrow, full of fat and yummy. Aita and Osaba would fill the long intestines with the blood and some herbs, and some of the fat, to dry and become a delicious black pudding.

Ama had her favourite basket already by the hearth, tightly made and waterproof. Inside, she had a porridge of nettles and dock leaves, soaking in water. Smooth stones were lying in the hearth getting very hot. Using sticks, she picked up each stone when it was hot enough and dropped it into the basket. The hot stones steamed and began to heat the mixture of green leaves and water. By the hearth were some large flat stones. These were also getting very hot. Slices of the deer meat were laying on them, cooking slowly. Ama also placed some of the store of bulrush shoots they had collected a few days ago on the stones.

Everyone was very hungry. But they all stopped and sat together and each gave thanks to the spirits for providing them with food to eat. Ama and Osaba apologised for only bringing back one small and not very good deer. Aita then assured everyone that the nettle and dock leaves this year were really not as tasty as they should be. Secretly, they thought that the meat was good, juicy and succulent. The nettle and dock porridge, flavoured with mint leaves was tasty and the bulrush was a special favourite. Mutil said that he didn't care, the meat tasted really delicious and the marrow was the best he'd ever had. This earned him a stern stare from Ama, but a quiet wink on the side from Aita. Neska was secretly proud she had found the mint to give the nettle and dock porridge some more flavour, and was looking forward to going out tomorrow to see what small animals she could find in the traps and snares.

Background information

Obtaining, cooking and eating food

As hunter-gatherers, Mesolithic people would not have had many of the foods we take for granted today. Many of our modern foods are the products of farming, which has only been part of our diet since the Neolithic or later. The Mesolithic diet did not include any farmed foods such as dairy (milk or cheese) and gluten (wheat or other cereals), and so had no bread, pasta or beer. They also had no cultivated peas or beans. Some of our modern foods were simply not available in Britain, being cultivated elsewhere in the world until more recently, such as potatoes, rice, tomatoes or chocolate. All Mesolithic foods would be gathered from the wild, and most would have to be eaten in season.

We can get some idea of what they might have eaten at Star Carr from the animals and plant remains found during the excavations. Among the woodland animals to be hunted were aurochs (extinct wild cattle), elk, roe deer, red deer, wild boar. Animals that could be trapped included badger, beaver, fox, hare, hedgehog and pine marten. Birds found included buzzard, great crested and little grebes, lapwing, pintail, red throated diver and white stork. The lake would have had fish, although none of the fragile bones were found in the excavation. Common freshwater fish that used to be eaten in Britain include bream, carp, eel, perch and pike.

Many of the plants found at the site could have been used for food. These include seeds of the yellow and white water lilies, great fen sedge and knotgrass, the underground rhizomes of bog bean, common reed and club rush, the leaves of willow, pine (as an infusion), fat hen, bistort, redshank, chickweed and nettle, and berries such as crowberry, hawthorn and rowanberry. Mushrooms would also have been eaten. Hazelnuts became a very common food, when the forest had changed later in the Mesolithic, along with blackberries, raspberries, many kinds of herbs etc.

Today we eat only a selected part of the animals we keep for food. Earlier peoples were less squeamish and many of the soft organs would have been great delicacies. Bone marrow is especially nutritious, as are liver and kidneys. Blood is also highly nutritious, and delicious in its modern form as black pudding.

The coast was a very important source of many different foods. Sea fish such as cod, haddock and halibut were eaten, and estuaries and rivers would provide sturgeon and salmon. Many kinds of shellfish were collected, not only the modern ones of mussels, whelks, cockles and oysters but also limpets. Seaweeds would have been another good source of food, and many edible plants also grow at the coast, such as the tasty samphire.

Dogs were an important aid for hunting. They have a much better sense of smell than humans, and would track game over long distances, especially if the game were wounded. They could gather birds that had been shot down, much like a modern hunting dogs. Dogs could also help to herd or drive animals towards the hunters.

Without ovens or modern pots and pans, the main cooking methods would have been roasting by the fire, baking in the earth or in clay and boiling. Waterproof containers could be made out of basketry or birch bark, and water boiled directly on the fire. More likely would be the use of pot boilers: stones heated and dropped into the water or food.

In spite of the many sources of food, the changes in the weather and the natural variations in the distribution of animals and plants, affected by drought, flooding, disease etc., would make food supply uncertain. Some families would almost certainly face times of starvation or malnutrition. This and the occurrence of diseases would mean that perhaps 20% of babies might die within their first 12 months. Mothers would most likely breast feed their babies for up to two or three years.

Food provides people with basic substances which our bodies need to build their tissues and for energy. The three main substances are proteins, fats and carbohydrates (sugars and starches). Proteins are a big element in meat, fish and nuts. Fats come in a variety of types. Saturated fats are high in meat and dairy products. Poly-unsaturated fats are found in fish, shellfish and seaweed. Nuts also contain a lot of unsaturated fat. There are many kinds of carbohydrates, some of which are used directly by the body like glucose. Others have to be broken down before the body can absorb them. Fruits, honey and fibrous foods like roots and tubers are good sources of carbohydrates. Starches can be fermented to break them down and make them more nutritious for the body. Many of the green plant

foods have vitamins and minerals that are essential for keeping the body healthy.

There would be rules for the sharing of food. Certain parts of an animal may be reserved for particular people. Giving food away, being generous, would be seen as the ideal. All families would rely on others being generous to them in return when times were hard. People were not supposed to boast about their skill or abilities. Being humble, as well as sharing, helped to keep the family and the clan together in the common interest.

How do we know all this?

The first excavator of Star Carr, Sir Grahame Clark, pioneered the excavation of information about the environment, including the remains of the animals and plants on a site. Archaeologists now know a lot about the potential foods available to prehistoric people. Ethnographic studies also show us that people usually eat as much of an animal carcass as they can and throw away very little apart from the bones. People also have a detailed knowledge of plants, such as which were poisonous, which were good to eat, and which had medicinal properties. Experimental archaeology can tell us a lot about methods of cooking. The analysis of human bones and teeth can also tell us a great deal about diet, any vitamin or mineral deficiencies and possible episodes of malnutrition during life. By studying the relative amounts of different isotopes of carbon and nitrogen in human bone, we can tell what proportions of food they were eating: land animal, sea animals, plants etc.

Classroom activities

Activity 1 (quiz)

Identifying food

Using the photographs or drawings of plants and animals tracks supplied [link to the sheets *Which of these could you eat?* and *Whose footprints?*] get the children to:

- work out which plants are poisonous and which we can eat;
- which tracks belong to which animals.

If the class can do the quiz in teams, you could find out which team will find enough to eat, and which will have been poisoned.

Activity 2 (guided questioning)

Mesolithic v modern food

Thinking about how we cook food today, ask the pupils how they might cook particular Mesolithic foods, and which foods they might eat raw.

Look at a range of modern and prehistoric foods [link to the sheet *Foods then and now*] and identify which would not be available in the Mesolithic.

Using the sheets from Activity 1, can they identify which foods available today would also be eaten in the Mesolithic?

Activity 3 (game)

A Mesolithic picnic

Divide the class into groups of 4 or 5 children. Get each group to create a picnic [link to the sheet *The Mesolithic picnic*]. They are only allowed to choose 6 types of foods. They must pack a balanced diet into their picnic basket.

Link to The Rotunda Museum display

Can you find the following in the display? If you can, have a go at drawing them.

Fish spears made of antler

- If you had two of these, how would you add them to a wooden shaft to make the spear so that a fish could not wriggle out of being caught?
- How many ways are there that people can use to catch fish?

Deer bones

- Which are the best bones for marrow?
- As well as cracking bones for the marrow, in later times, people would use deer bones to skate on the ice in winter. How would you make skates from the bones?

Chapter 4. Friends and strangers.

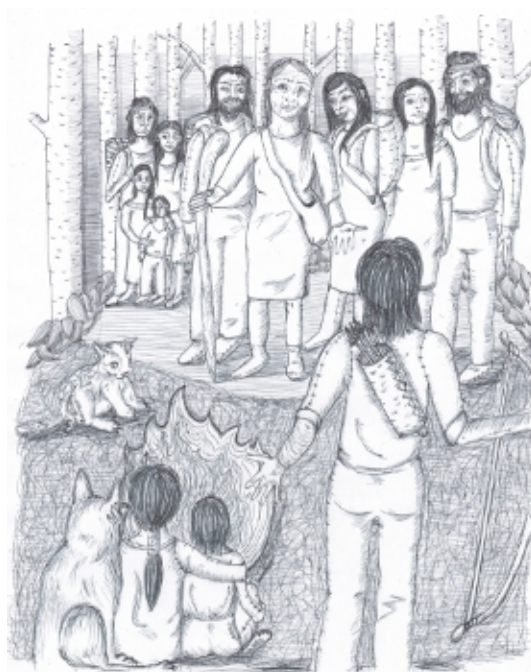
The family had been at the lake now for several days, almost one full turning of the moon. Mutil was out in the coracle helping Osaba with the fishing. Out in the middle, he had a good view of both sides of the lake and the end of the lake where it narrowed into the river. In the morning, he had glimpsed some deer on the opposite side of the lake coming down to drink. Now, he thought he saw some movement in the trees on the same side as the family were camped. There was a patch where the birch trees were thinner, and he could now see that the movement was a small group of people moving towards the camp. He knew it wasn't Aita, Ama or Neska. He had seen five adults and three children.

Mutil nudged Osaba, who turned and also saw the strangers. Quickly, he turned the coracle and began paddling to the shore. Mutil wanted to shout out to warn the family, but then the strangers would hear him too. As the coracle reached the shore, he jumped out and ran to the camp, while Osaba went to retrieve his bow. The strangers could be dangerous.

Ama was out of camp with Aita, checking the traps and hoping to come across an animal to hunt. Ama loved these times alone with Aita, they so seldom had chance just to be together. Neska was tending the hearth and mending some of the arrows. Mutil burst in wide-eyed yelling about strangers. Neska reached out to quieten him and they both nervously looked out of the doorway of the house as Osaba stood in the middle of the camp waiting for the strangers to appear.

The strangers walked to the edge of the trees, standing still while the eldest among them, a grey haired woman came forward. She stood, holding a staff to lean on, with a leather satchel on her left side. Showing an open palm to Osaba, she spoke, saying they had walked far and were glad to come upon the family. Their winter by the river had been mild and they had stayed longer than usual. But now they were come to the lake to join the others.

Osaba also held his palm open and welcomed the group to the lake. He recognised the woman at once. She was his mother's sister, Amona. They belonged to the same clan, the eagle clan, the Arrano. The group was made welcome. They would have to share food with them this evening when Aita and Ama returned, but Amona's family were friends and would share with them on another day.



Neska ran out to greet the newcomers. She recognised the children. The eldest boy, Lagun, was three years older than her, and almost ready to be made a man. They had played together a lot last year and she was happy to see him again. She was nervous this year, wondering if he would be happy to play again or whether he would think she was too young now. Mutil wondered where the other child was. There had been four of them last year, not three. The youngest was Gorri. He had really enjoyed helping to look after him.

Later that day, after they had eaten, the old woman, Amona, gestured to her son Gizon. He sat upright and began to tell their story, of what had happened to them since they had last met. They had left the lake to return to their home in the west, by the river. It had been a good winter there, mild and with plenty of fish in the waters. But, they had met another group of people, strangers they did not know who spoke in a different way and had come from far away in the east. They struggled to understand each other but it seemed like they had left their home when it had been flooded by the sea. Amona thought they said that the sea was rising every year and would soon drown the whole of their land. She wasn't sure she had understood them right and couldn't see how the sea could do this. The strangers had killed a deer in the family's forest. This was wrong to do without first asking permission. They got angry and eventually had to threaten the strangers with their bows and spears. The strangers had disappeared and were last seen heading to the west.

Gizon's voice changed and became sadder. Not long after that, two of the children had become ill. They had become very hot and shivered, not wanting to eat and sleeping all day. Young Gazte had recovered after a few days, but Gorri had not. He had died. Neska and Mutil were sad. They remembered Gorri as a fun friend.

Then Gizon smiled. They had a new addition to the family. Emazte had been married to Amona's younger son, Senar. She had come from the wolf clan, the Otso. Otso and Arrano were allowed to marry. Their clans were long-time allies and friends.

After Neska and Mutil went off to play with Lagun, Gazte and Ume, the elders sat and talked until the sun set. They were eager to meet the other families who would soon be coming to the lake, to hear their tales of the wider world and swap marriage partners and gifts. Ama had a store of the firestone, pyrite, she would give in exchange for some of the baskets that her friends could make better than her. The families would remember those who had died, and celebrate the girls and boys who were to be accepted now as women and men. They would make and share spears and bows, bowls, baskets and clothes.

The next day, Mutil came across an injured young wild cat. It lay shivering and mewling, not moving to run away as most cats did. Mutil carefully took it up and cradled it in his arm. Bringing it back to camp, he announced to everyone that he had found Gorri. Gorri's spirit was reborn in the cat and Mutil would look after it to make sure it got well again. Everyone was pleased, and went over to welcome Gorri back to the family. He did get well again, and Mutil and he played together just like they had last year. The lake truly was a happy place. Mutil and Neska were glad they were back.

Background information

Social life

Most hunter-gatherers live in small groups, usually of a few families who live together. They may move around the landscape together at different seasons, or they may split apart and come back together at different times. There will often be a time when many families get together for celebrations, arranging marriage, exchanging goods etc. Most hunter-gatherers have a clan as well as a family, often named after important animals or plants. There may be rules about which clans can intermarry and which can't. There will also be rules about which clan you belong to – your mother's or your father's.

Children will come of age at puberty, and there will often be a special ceremony to mark this and they are then treated as full adults. This will happen at around 13-15 years old. Marriages will take place between women of around 16, with men aged around 19-25. Wives will have children from around the age of 19 onwards into their mid 30s. They may have 5-6 children in total.

Of the children, around 20% or more will die within the first 12 months of disease or malnutrition. Between a third and a half of all children may die before they reach puberty. Most of those who do live to puberty will live into their 50s, with a few into their 60s or exceptionally 70s.

Hunter-gatherer life was not always peaceful. Arguments between families could be sorted simply by moving away and living apart. But we do have archaeological evidence of violence where fighting must have broken out. This could be because the family or clan might have a territory it would defend. There will be others reasons too.

Marriage between families would create bonds of kinship, which would also help a family share with the others, as they would be related.

Language

We do not know what language they spoke in the Mesolithic. Most of the languages now spoken in Europe, including English, are descended from a group of languages called Indo-European, originally spoken north of the Black and Caspian Seas around 5,000 years ago. The exceptions include Finnish, Estonian and Hungarian which are descended from the Finno-Ugric languages of northern Russia. The other exception is Basque, spoken in northern Spain and southern France at the western end of the Pyrenees. This is not related to any other language and seems to be descended from the language always spoken in that area. It may be the only descendent of what was spoken there in the Neolithic or earlier in the Mesolithic and Upper Palaeolithic. If this is so, the language of the Mesolithic there would have looked very different to modern Basque. Languages change a great deal over time if left to themselves without being taught 'correct' grammar in schools. Modern English is very different after 1,500 years from its original Anglo-Saxon, which looked and sounded more like modern German or Dutch. So Basque would now be very different from whatever 11,000 year-old language it was descended from. If Basque is descended from the Mesolithic speech of the area, it does not tell us what was spoken in Britain as this is a long way from southern France. It may have been a completely different language. Or, if it was the same language, it will have been a different dialect that might have been very hard to understand. Just think how the English of Glasgow is very different to English of Plymouth.

How do we know all this?

Archaeology seldom provides direct information about kinship or social structures. We have to infer a great deal. Many of our ideas about hunter-gatherer society have been obtained through ethnographic study of living hunter-gatherers over the last few hundred years. One problem with ethnography is that modern hunter-gatherers do not live in the same kind of landscape as those in Mesolithic Britain, so their lives may have been quite different. These studies give us a range of possibilities.

A good source of information is Kelly, R L 2013 *The lifeways of hunter-gatherers: the foraging spectrum*, Cambridge: Cambridge University Press.

Classroom activities

Activity 1 (role play)

Friends and enemies

Divide class into groups and have each be a separate family, then arrange the families into 2 or 3 clans. Each clan can decide its own name and what animal or plant it wants to respect.

Have each family live in a different location, with different foods and resources. Get each to come up with a list of what it would have to give to others, and what it would want in return.

Which other families could it cooperate with or compete with? Some clans would be friendly, others would be hostile.

How would each family make sure the others stayed as friends?

Which families would they be hostile towards?

Activity 2 (drama)

Meeting friends and strangers

Based on activity 1, have the class, or a group in the class, create a drama to act out during school assembly based on two families or clans meeting and what would happen.

Activity 3 (creative expression)

Being someone in the Mesolithic

Make a cartoon strip of one day in the life of a Mesolithic person and the people they might meet during the day. Show how each character has a role to play and what they might say or think.

Link to The Rotunda Museum display

Can you find the following in the display? If you can, have a go at drawing them.

The houses that the families lived in.

- How big would the houses be and how many people might live in one house?
[Answer – they average 5 x 3½ metres, but can be from 3 x 2 metres to 10½ x 6½ metres, and most would have one family of at least 4 to 6 people]
- Who would sleep together in the same bed?
[Answer – we don't really know but imagine what the combinations of mother and father, sons and daughters could be]

The people who lived in the camp.

- How many people can you see?
- Do any of them look like Mutil or Neska, or Ama, Aita or Osaba?

Chapter 5. A hint of winter.

It was chilly this morning as Mutil poked his head out of the door of the house. Neska was snoring quietly. Of course, she said she never snored but he knew better. Aita and Ama were already up and about. Ama was checking the fish traps in the lake, while Aita was sitting making new shafts for the arrows. Osaba was nowhere to be seen. Mutil shivered then quickly gave Neska a kick to wake her up before running out of the house.

Neska was annoyed. She hated it when Mutil woke first. She was even more annoyed he had kicked her and woken her out a nice dream about finding a log with loads of juicy snails. Yawning, she went to sit with Aita. Without saying a word, he handed her a wooden stick. She knew what to do. Taking the small notched scraper in one hand she began scraping it down so that it was smooth with no bark left on it.

Mutil was playing with Gorri. He dropped leaves and feathers down for Gorri to try and catch. Ama saw him playing and smiled. She knew this would not last long. There was never enough time to let the children play. After a while, she called him to her and began teaching him once more the names of the different fish in the lake, which tasted best and how best to catch them.

Osaba came walking back. He had spent the morning with Amona's family, helping them make tools and chatting. Both families were keeping an eye on the weather. There were more cold mornings now, and the sun was getting lower down in the sky. The nights seemed longer than they used to be. Everyone had been talking recently about when it might be time to move back to the coast. Amona's family were thinking that they might go there too this year.

... [To be continued]

Background information

Moving or staying

It has always been assumed that hunter-gatherers move with the seasons to go wherever was best for finding food. It was originally thought by Sir Grahame Clark that the people lived at Star Carr from December to April. Later archaeologists have looked at the evidence and come up with different ideas:

- May to July and September to December;
- early summer (March/April to June);
- all summer (April to August);
- all year round;
- visited at different times throughout the year.

Living at the coast has some advantages over living inland. Food is available all year round as fish in the sea, seaweeds and shellfish on the beach and rocks. There may also be birds nesting in cliffs or wading along the coast. Inland during winter, the snows may cover the woodland and lakes may ice over. Animals may be harder to find, and most plants will be dormant with no berries, nuts or leaves. The coast also has disadvantages. The weather can be very cold and stormy. The storms may make it impossible to go out in boats to fish. High tides and storm surges can flood the low-lying coasts. Nevertheless, there is a lot of evidence for Mesolithic camps along the coast, especially in Denmark where the sites are better preserved for archaeologists to find.

Taking decisions

Most hunter-gatherers do not have formal leaders, kings or chiefs. They will have people with great skill as hunters, plant collectors, flint knappers etc. and these people will have prestige. They may also have people with the special skill of communicating with the spirit world to make sure hunting is successful or that sickness can be healed. Important decisions may be taken by discussion, or by the elders who have the greatest experience.

Talking, telling stories and holding ceremonies like coming of age, or working together on a hunt or in gathering plants are important ways of bonding the families. Mealtimes or time sitting around the fire in the evening would be important times for discussing what needed to be done.

Telling the passage of time

The people living in Britain would have seen changing seasons through the year from cold winters to warm summers. Each month would not only have been warmer or colder than the one before. Each would have seen different plants and animals become available to eat. Some months would have seen snow and ice, or gales and storms, or heavy rains. All of these could have made it harder to find food and meant spending days sheltering indoors. How did people know when each month changed into the next? All early peoples used the phases of the moon, over 29 or 30 days to mark out each month. The word month in English is derived from the word moon. This though has a problem. The year as measured by the sun has 365 days. Twelve months of the moon have 354 days, 11 days short. Every year, the phases of the moon would be out of alignment with the year of the sun and the seasons. Knowing how to add extra days, or an extra month to the year to bring to two closer together would be important.

How do we know all this?

Ethnography shows us how hunter-gatherers make decisions and the ways that they organise society. Most move with the seasons and make decisions by group consensus or listening to those with necessary skill or prestige. Only a few live in one place all year round and have hereditary chiefs.

Archaeology reveals the precise plants and animals on a site, and when they might have been gathered and hunted. At Star Carr it also revealed the burning of lakeside reeds, possibly done every year in the spring. Archaeology is still revealing new evidence for the period. A line of 12 pits at Warren Field in Aberdeenshire was probably used to measure the age of the moon as it rose above the hills behind the pits and so align the ages of the moon with the year as measured by the sun. Mesolithic people were more sophisticated than we had thought.

Classroom activities

Activity 1 (creative writing)

Just another day?

Finish the story.

What would each character do the rest of that day? Do you think they would decide to leave camp and go to the coast? How would Neska and Mutil feel about that?

Activity 2 (creative expression)

Talking, learning, making or deciding?

Make a drawing of the family that shows some of what they did that day. Talking within the family, or between the two families might have been important. So might making new arrows. Teaching Mutil about fish or Neska how to make arrows could have been a big part of the day.

They would also have to eat, so cooking food, checking the traps for small animals, picking roots and berries, sharing dried, smoked meat or roasting snails on the fire could have been the highlight of the day.

Activity 3 (guided questioning)

Where to next?

If the families did decide to leave for the winter, where might they have gone?

Look at a map of the Vale of Pickering with the Yorkshire Wolds to the south, the North York Moors to the north, the Vale of York to the west and the coast to the east.

The Moors and the Wolds are high ground, possibly covered in snow and chilly in the winter winds, where food might be hard to find. The Vale of York would have been very similar to the Vale of Pickering. The coast would offer fish, shellfish and seaweed, and perhaps some shelter from the cold westerly winds.

Link to The Rotunda Museum display

Can you find the following in the display? If you can, have a go at drawing them.

A way of travelling on the lake

- What kinds of boats could they have made?
[Answer – either dugout canoes made from a tree trunk or coracles made by tying leather over a wicker frame]
- How many people could have fitted into one of the boats?
[Answer – work out how many could sit in a canoe like those found by archaeologists, which could be up to 12 metres long by half a metre wide]

People hunting in the forest

- How many things are there in the forest for them to eat in summer?
- How might the picture change in winter?