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| **Lesson Three: Stone Working & Flint Knapping** |
| This is the first in a series of lessons focusing on how these objects are made. The lesson makes use of a video produced by ARCH of a workshop delivered by an experienced flintknapper and it shows the skill and knowledge required to produce flint objects. While flint knapping is not a part of this lesson it is something the class could try. However, flint knapping is a difficult skill and proper protective equipment is needed and risks of injury need to be considered carefully before attempting it with a class. |
| **Curriculum Links - Social Subjects (People, Past Events and Societies)** |
| Experiences and Outcomes | Benchmarks |
| **I can use primary and secondary sources selectively to research events in the past. SOC 2-01a****I can interpret historical evidence from a range of periods to help build a picture of Scotland’s heritage and my sense of chronology. SOC 2-02a****I can investigate a Scottish historical theme to discover how past events or the actions of individuals or groups have shaped Scottish society. SOC 2-03a****I can compare and contrast a society in the past with my own and contribute to a discussion of the similarities and differences. SOC 2-04a****I can discuss why people and events from a particular time in the past were important, placing them within a historical sequence. SOC 2-06a** | * **Uses both primary and secondary sources of evidence in an investigation about the past.**
* Places an event appropriately within a historical timeline.
* Describes at least two ways in which past events or the actions of individuals or groups have shaped Scottish society.
* **Describes and discusses at least three similarities and differences between their own life and life in a past society.**
* **Contributes two or more points to the discussion (in any form) as to why people and events from the past were important.**
* Places those people and events on a timeline.
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| **Wider Curricular links** |
| **Social Studies (People, Place and the Environment):**To extend my mental map and sense of place, I can interpret information from different types of maps and am beginning to locate key features within Scotland, UK, Europe or the wider world. **SOC 2-14a****Technologies (Awareness of Technological Developments; Past, Present and Future):**I can investigate how product design and development have been influenced by changing lifestyles. **TCH 2-05a** |

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| **Learning Objectives** |
| I can identify the different properties of materials. |
| I can describe and discuss similarities and differences between my life and that of ancient peoples. |
| I know that ancient peoples developed trade routes. |
| I can use a map to locate places within and outwith Scotland. |

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| **Resources and Suggested Reading** |
| **Required Resources - Supplied in the boxes or from ARCH website** |
| Objects: Box 1 objectsInformation Sheets: Carved Stone Ball object sheet, CT Flint Knapping, CT Stone Pecking, Additional image of Polished Neolithic Stone AxesLesson Resources: Object Picture Set, Object Summaries Other Resources: ARCH Flint Knapping Workshop video ([Link](http://www.archhighland.org.uk/experimental-archaeology.asp)) |
| **Additional Required Resources** |
| Hula Hoops, Post-it notes, Google maps, British Isles map  |
| **Essential Reading - Information sheets supplied in the box or from ARCH website** |
| CT Flint Knapping, CT Stone Pecking |
| **Suggested Additional Reading - Information sheets supplied in the box or from ARCH website** |
| Object information Sheets: Microlith, Scrapers, Flint Blades, Stone Axes, Carved Stone Ball, Barbed and Tanged Arrowheads |

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| **Introduction** | **20 minutes** |
| **Flint or Not Flint?** (10 minutes) | Resources: Objects: Stone objects from Box 1 (or Object Picture Set)Other Resources: Hula Hoops |
| * This task is a brief look at the differences between flint objects and those made from other types of stone.
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| Stone working in relation to the objects in the boxes comes in two forms: those objects that are made of flint and those made from other types stone. Display all the stone objects. Place two hoops on the floor with the labels “flint” and “other types of stone” placed inside them. Have the pupils divide the artefacts between the two categories. This can be done in a number of ways:* As a whole class activity with the pupils coming and placing the objects into the correct hoop.
* Split the class into groups or small pairs and hand them each an object. Each group is them to discuss their object and place it in a hoop.
* Using labels or pictures have the class working in small groups, arrange the objects into the two categories and then discuss their answers as a class.

As *a think-pair-share* exercise ask the pupils ***What are the common features of the flint objects?*** Colour, shape, sharp edges… are all possible answers they may give. Show the class the flint nodule and scraper. Explain that this is also flint and therefore not all the flint objects are grey. |
| **What Are They?** (10 minutes) | Resources: Objects: Selected stone objects from Box 1Lesson Resources: Object SummariesOther Resources: Post-it notes, paper |
| * This task requires the pupils to look for clues to the objects’ uses - for example the sharp edge on the flint blades suggest they were used like a knife.
* Some pupils may find this difficult and will need support to generate ideas.
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| Form the class into small groups. Hand them an object to consider. **Caution is need with some of the flint objects as they are sharp and it is easy for someone to cut themselves if the object is mishandled.**Ask the class ***What is your object?***And ***What is it used for?*** Their answers could be recorded on a piece of A4 paper or post-it notes and placed next to the object.After a short time (one or two minutes) have the groups stand and move to another object; repeat the above process with the same questions. Continue this for as long as you wish.Information about each object can be found in the sheets provided in the box or downloaded from the ARCH website. However, a summary of each object has been included in the box for ease.At the end of the activity collate the class’s ideas and give them the current established archaeological information about each object based on the summary provided. |

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| **Main** | **55 minutes** |
| **Axes** (20 minutes) | Resources:Objects: Stone axes (Box 1)Other Resources: British Isles map, Google maps |
| * This is an exercise designed to encourage pupils to begin considering where people in the past would have sourced their materials.
* The task involves a brief look at maps, but this section could be incorporated into a much bigger geography based lesson.
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| Show the pupils the different axes in the box and pass them around. Ask the class ***Which do you think would be better for chopping wood?***Experience shows that some children will believe the sandstone axe is better because it looks smoother and more uniform while others will think the flint axe is better because of how sharp the flint appears to be. In reality both are effective. Many axes polished to a glassy smoothness (which could take over sixty hours to achieve) wouldn’t be used for chopping wood or felling trees but were used for ceremonial purposes.Ask the pupils ***What do you really want for your birthday or Christmas?***Either have the pupils share their answers with a partner or as a whole class.Ask ***What thing, that you already own, would you be willing to swap for it?***Again have them share their answers with a partner or as a whole class.Explain that in the era that these axes came from, there was no money. If you wanted something you had to trade for it or make it yourself. The only problem is there is very little naturally occurring flint in Scotland.Hand out the map of the British Isles, one between two, and ask them to point to where they live on the map. Display a map on the board.Ask them to place their finger on these following places and then explain the significance of that place to the pupils:**Edinburgh** – purely to get a better understanding about their geography knowledge.**Perthshire** – some axes have been found made from stone quarries near Killin in Perthshire.**Cumbria** – some axes have been found made from stone sourced near Great Langdale in Cumbria.**Northern Ireland** – again axes have been found in Scotland made from stone from Co. Antrim in Northern Ireland.**Yorkshire** – Flint axes have been found from flint sourced here.Show google maps on the board. Using the directions section find out the distance from the school to the flint source (Yorkshire). Make sure the mode of travel is set to recommended - the arrow in the diamond. This will show the number of miles and the length of time it would take to get to the flint source using either a car, train or an aeroplane.Ask the pupils **G*iven that they had no cars in prehistoric times, how would people travel?***(Walking or sailing). Explain to the class that they are going to work out how long it would take to walk to the flint source.Using the DST triangle, the mileage calculated with google and an assumed walking pace of two miles per hour, ask the class to calculate the time taken. For example to walk 600 miles it would take 300 hours! Once they have worked out how long it has taken in hours you can then have them convert it into days.You can also repeat this exercise for other prehistoric quarry sites listed above.Explain to the children that it is very unlikely someone would travel that far for flint. Instead they would trade with their neighbours, who would trade with another group close by and through that process the flint would travel across the country.However, ask ***If we didn’t have cars, or trains, or planes, how else could you get about?***Using boats to transport goods was common even in prehistoric Britain.Finally explain that the flint axes were often blanked at the quarry. Instead of just transporting a lump of rock, someone would knap the flint into a rough axe shape and trade those instead. Presumably they were ‘worth more in trade value’ as they saved people time and also were much easier to transport whether on foot or by boat. |
| **Carved Stone Ball** (15 minutes) | Resources: Object: Carved stone ball (Box 1)Information Sheets: Carved Stone Ball object sheet |
| * This is a fascinating object and one that really allows the class to be creative when exploring what it may have been used for.
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| Show the carved stone ball to the class. Take care to show them the decoration and the definite geometric shapes that have been carved into it. If you have the time, allow them to feel the weight of the object.Ask the class ***What is it?***And ***What was it used for?*** Have the class consider their answers individually for thirty seconds. Then, with a partner, have the pupils share their ideas. Each pair is to decide between them which of their two suggestions they feel is the most likely use for the carved stone ball. Ask the pairs ***Why do you think this?***Join two pairs to form a small group. Have each pair share their idea and the reason they came to that conclusion. Each group should now have two suggestions (some groups may have ended up the same suggestion twice). Collate these ideas on the board.Read the information sheet on carved stone balls. Ask the class to listen for the section of the text that explains ***what archaeologists think carved stone balls were used for?***The real answer is… we are not really sure. It is almost definitely not a weapon as carved stone balls tend to be undamaged when they are found on archaeological sites. Maybe one of the classes’ suggestions is correct. |
| **Knapping** (20 minutes) | Resources: Objects: Scraper, Microlith, Flint blades, Barbed and tanged arrowheads (Box 1)Information Sheets: CT Flint Knapping, Additional image of Polished Neolithic Stone AxesOther Resources: ARCH Flint Knapping Workshop video ([link](http://www.archhighland.org.uk/experimental-archaeology.asp)) |
| * This part of the lesson involves watching a video demonstration of flint knapping in process.
* Time stamps are included below to allow you to pause the video for further discussion.
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| Gather the class round and show them the scraper. This object, while small, is one of the most interesting in the box. It was a useful object for a prehistoric person. However, it is the wave shape on the underside that is fascinating as this is known as the bulb of percussion.Show the class the ARCH video of flint knapping in process. This video was filmed during an ARCH workshop and shows the process of knapping a large piece of flint to create one of the axeheads contained within the box.Stop the video at **1:44**. The presenter discusses the bulb of percussion. This is where the force of the strike has travelled through the flint when it was split. Pass the scraper around and highlight the bulb of percussion with the class.Continue the video and pause again at **2:53**. Explain to the class that the demonstrator is carefully choosing where he strikes the flint as he is able to control how much he is taking off each time.Show the class the microlith, scraper and the flint blades. When making an axehead from the large piece of flint there is a lot of excess material which can then be used to make smaller useful objects. Hand the smaller objects around (**some of the flint objects, particularly the blades, are extremely sharp and need to be handled with extreme care**).Before starting the video again, ask the pupils to focus particularly on the importance of choosing the correct place to strike the flint and how this can affect the shape. Stop again at **5:08.** Show the class the flint knives to highlight the demonstrator’s point that the knives come off already sharp, hence their rough shape, and don’t need any further work to be useable.Send around the flint arrowhead, and explain that some of the material that is being taken off was then shaped into objects such as arrowheads. Remind the pupils that in the making of one axehead people could also make a huge range of other tools.Stop at **9:31**. In that last section it shows just how much skill and knowledge is involved in flint knapping. Not only was he able to spot where “problem areas” were which would prevent the axe working effectively, but he had to work around the features of the flint to be able to “set up” a way of solving the problem.Finally ask the class ***How long did that axehead take to make?*** One hour, but it would take another sixty hours to polish the axe to a smooth almost glassy appearance (which is how we find most flint axes). This would be achieved using a rough stone and water for hours at a time. There are pictures of polished flint axeheads included in the box. These are worth referencing with the class as they look very different to the items contained within the box and show the end product after sixty hours of polishing. |

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| **Plenary** | **10 minutes** |
| **Three Things** (5 minutes) | Resources: None |
| * The exercise below is a simple assessment task to demonstrate the pupils’ learning.
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| Ask the class to individually come up with three things they have learnt during the lesson. Give them thirty seconds thinking time. They are then to share their three points with a partner.Collate their answers as a class and when a learning point is given by a pupil ask the class to raise their hands if they had the same idea. |
| **Favourite Object** (5 minutes) | Resources: Stone objects from Box 1 |
| * While the lesson plans are written in a specific order, they do not need to be followed to the letter. Finding out pupils’ favourite objects can be used to help choose which lessons to deliver.
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| Display the stone objects clearly. Ask the pupils ***What is your favourite object and why?*** Collate the answers as a class.Finally ask the pupils ***Which is the most useful object and why?***Again, collate the answers as a class. |

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| **Total Lesson Time: 1 hour & 35 minutes** |
| **Links and Further Information** |
| ARCH Experimental Archaeology Project: <http://www.archhighland.org.uk/experimental-archaeology.asp>. The flintknapping section has links to a video showing knapping taking place, and to a blog which has various other videos, photos and other on-line references.The Scottish Archaeological Research Framework (ScARF) panel reports in the Mesolithic, Neolithic and Bronze Age sections detail the current summary of state of knowledge (www.scottishheritagehub.com):[Mesolithic artefacts](http://www.scottishheritagehub.com/content/411-artefacts) [Neolithic Small knapped tools](http://www.scottishheritagehub.com/content/521-small-knapped-tools-such-scrapers-and-blades) [Neolithic Axeheads](http://www.scottishheritagehub.com/content/522-axeheads-plus-adze-heads-and-chisels) [Coarse Stone artefacts from the Neolithic](http://www.scottishheritagehub.com/content/523-coarse-stone-artefacts-neolithic) [Neolithic Special Stone Arefacts](http://www.scottishheritagehub.com/content/524-%E2%80%98special%E2%80%99-stone-artefacts-eg-carved-stone-balls-and-maceheads)[Flaked lithics of the Bronze Age](http://www.scottishheritagehub.com/content/432-flaked-lithics-bronze-age) [Bronze Age Coarse Stone Artefacts](http://www.scottishheritagehub.com/content/431-coarse-stone-artefacts) Wickham-Jones, C.R. and Collins, G. 1977-8. ‘The sources of flint and chert in northern Britain,’ *Proceedings of the Society of Antiquaries of Scotland* v. 109, pp. 7-21. This is available online at archaeologydataservice.ac.uk/archives/view/psas/volumes.cfm**Images**There is no one publication which features flint and other lithic tools from the Highlands. SCRAN ([www.scran.ac.uk](http://www.scran.ac.uk)) has a number of pictures of flint artefacts from all over Scotland (free access is possible for schools and many Scottish library accounts). For the Highlands these include:* [Neolithic arrowhead from Little Ferry,Sutherland](http://www.scran.ac.uk/database/record.php?usi=000-100-033-805-C&scache=2ybtk32oc7&searchdb=scran)
* [Bronze Age barbed and tanged arrowheads from burial at Culduthel, Inverness](http://www.scran.ac.uk/database/record.php?usi=000-000-136-604-C&scache=1ybs832oc6&searchdb=scran)

Highland Community Timelines: an exploration of the heritage of eight Highland communities by Susan Kruse (published by ARCH) illustrates a number of stone objects from the Highlands. This is available in the Highland library system.Other Videos:Making a stone axehead by James Dilley (3:45)<https://www.youtube.com/watch?v=VDJ5gJxheRo>How to make a prehistoric flint axe by James Dilley (3:18)<https://www.youtube.com/watch?v=ryMJ3c1gHuw&t=97s>Brandon Flint Knappers producing gunflints (4:34)<https://www.youtube.com/watch?v=7XPEoiY3NnI>Archive film from the 1940s talking about making gun flints**Other websites:**[James Dilley’s website](http://www.ancientcraft.co.uk) [www.ancientcraft.co.uk/](http://www.ancientcraft.co.uk/) has a number of resources relating to flint knapping. |

This Lesson Plan was written by Dave Peers as part of the Experimental Archaeology: Learning about Craft and Technology in the Past project, funded by Historic Environment Scotland and the Heritage Lottery Fund (now National Lottery Heritage Fund). ©ARCH.