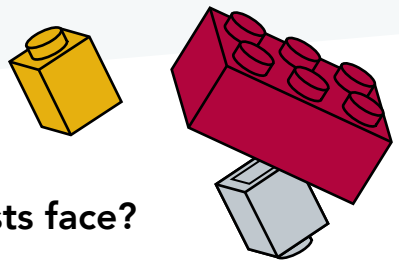
HEY, FIRST® LEGO® LEAGUE TEAMS!

BURKE MUSEUM

Looking for guidance from experts in the field? Our Archaeology Department staff has prepared this info packet to help inspire your project research!



What are some of the challenges that archaeologists face?

1. Surveying Difficult Areas

   Survey work is a huge part of professional archaeology. We often use **pedestrian survey** (systematically walking across an area to look for surface evidence) or **test probes** (small excavation units dug in a grid to sample for buried material). In Washington, thick vegetation on the ground, heavy rain and snow, and submerged areas are all obstructions for archaeologists. The thick forests we have in the Pacific Northwest are a challenge for the accessibility of survey work. Working near power lines, which can interfere with satellite and electromagnetic signals, can make using surveying technologies very difficult.

2. Collecting Tiny Artifacts

   Not every artifact is a projectile point that we can perceive easily. We also want to learn as much as we can from tiny pieces of evidence like seeds, plant material, and bone fragments. We use methods like **screening** the soil through a wire mesh or "floating" it in water so that organic materials come to the surface, but each of these techniques presents its own problems. Tighter mesh screens (1/8th inch) will catch more tiny artifacts but take a lot of time and clog easily with dirt. **Flotation** requires us to agitate the water and soil, which can break delicate materials like bone or basketry. Clay-rich soil, which is common in the Pacific Northwest, can trap artifacts in clumps that sink in flotation tanks and don't sift through screens easily.

3. Public Outreach

   Archaeologists want to share with the public what our work truly involves—our research, our methods, and the laws that guide and protect the field. We have to counter commonly held misconceptions, like that archaeologists dig for treasure, that everything we find belongs to us, and even that aliens were involved with ancient societies! Funding is one of many challenges we face when trying to communicate openly and accurately with the world.

4. Climate Change

   Rising sea levels, intensified by global warming, threaten the archaeological record by submerging sites and causing erosion along the shorelines. In Washington, this is particularly affecting the Puget Sound area and is very problematic since most ancient sites in the Pacific Northwest occur along the waterlines. Climate change presents a wide range of problems for archaeology including the increasing frequency of wildfires, flooding, and landslides.

5. Spotting Soil Changes

   Distinguishing different features in the ground is key to careful excavation! Archaeologists need to be able to recognize very subtle **soil changes**, for example, between a human-made pit and a natural fill, so that we can learn what's going on at the site. It can be really challenging to detect subtle changes in the color or character of the soil when we're in the field, especially if the ground has dried out overnight or is too waterlogged.

6. Collections Management

Archaeology isn't just about digging things up! We have an ethical responsibility to care for the objects we recover for future generations. At the Burke Museum, this means managing and storing collections in facilities with environmental controls and protection against natural disasters. We work hard to protect the objects from tiny pests, off gassing, and other forms of damage, and we often build custom housing for artifacts using special **archival materials**.This work is costly and time-consuming, and archaeologists around the world must deal with the fact that facilities like ours are limited in number and capacity. This is known as the "curation crisis."

7. Telling How Old Things Are

Dating artifacts and sites is crucial for archaeological research but it can be extremely difficult. Besides interpreting the context or **stratigraphy** of a site, one of the most common methods for this is **radiocarbon dating**, but it can be hard to a find a suitable sample to send to the lab. Acidic soils, common in Washington, limit preservation, and samples can be contaminated by modern plants or human hands. The "old wood" problem means that your sample, which may be wood from a tree that is hundreds of years old, might give you a date much earlier than the date that the artifact was made. See how we dealt with this problem when dating the Green River Canoe (now on display in our gallery). Almost all lab dating methods in archaeology, including radiocarbon dating, are extremely expensive and require collecting good, uncontaminated samples.

8. Site Protection

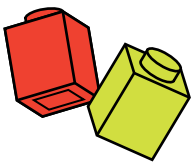
Archaeological sites face all kinds of environmental and human threats to their preservation! In the field, we have to be careful where we step so as not to collapse the walls of our trenches, and we also have to deal with thick roots and animal burrows which intrude into them. Leaving a site over the winter and subjecting it to the freeze-thaw cycle, can damage archaeological features and erode the trenches. We also need to protect sites from **looting and vandalism**, which are both huge problems around the world. We might use physical protections like site guards or fences or coverings, and we also never publicize information that encourage looting, like the exact coordinates of the site or the monetary value of artifacts.

9. CRM and Compliance with Cultural Heritage Protection Laws

In the United States and many other countries, there are laws requiring archaeological work, at least survey and monitoring, to take place ahead of new developments like roads, dams, and buildings. Laws like these are critical for preserving cultural heritage, and the work to comply with them is known as **Cultural Resource Management, or CRM**. Limited funding and project deadlines are huge challenges for CRM archaeologists. They must manage extensive paperwork, meaningful cooperation with stakeholders like government agencies and Tribal Nations, and sometimes polluted or toxic site conditions, all with limited staff and budget. When an infrastructure project threatens to damage archaeological material, CRM archaeologists have to work very fast and hard to complete a **salvage excavation**, where the goal is to remove the affected material safely.

10. Archaeology Takes Time!

Learning as much as we can from evidence in the ground takes a huge amount of time. Archaeologists on an academic excavation, troweling the ground carefully and recording everything as they go, might only get down 10 or 20 centimeters a day in their trenches. Because professors and students are in class most of the year, and excavations are very expensive, a site might only be worked on for a few months per year. Projects in CRM often have much less time even than that. Once those materials are removed, careful and thorough management including cataloging and analysis of the collections also requires a lot of time. As a result, archaeologists are always looking for ways to make their work more efficient.



Some of the Frequently Asked Questions we've gotten from teams:

1. "What kinds of work do archaeologists do in the real world?"

   Archaeologists aren't always just digging in the ground, and we certainly aren't often running from giant boulders! Cultural Resource Management is actually the field that employs the majority of professional archaeologists in this country. Besides CRM, many archaeologists teach or research at universities, some conduct analysis for labs, some manage institutional collections or work with archives, some are professional illustrators, photographers, or surveyers and mappers. Archaeologists work as conservators, educators, and media figures, and some work on behalf of Tribes and governments.

2. "What are some of the tools and technologies used in archaeology?"

   Besides digging tools like trowels, hand-picks, and shovels, archaeologists employ a wide variety of technological solutions for our work. For measuring depths and coordinates, we often use a total station, which records GIS data. LiDAR, ground penetrating radar, magnetometry, and drones are all exciting technologies that are beginning to be implemented on some projects. These have been making archaeology vastly more efficient, and can even help us map sites that would otherwise have been inaccessible or invisible from the surface (for example, in the Amazon rainforest). Labs also use all kinds of advanced technologies for analysis, like Accelerator Mass Spectrometer (AMS) and X-ray Flourescence (XRF).

3. "How do you find archaeological sites?"

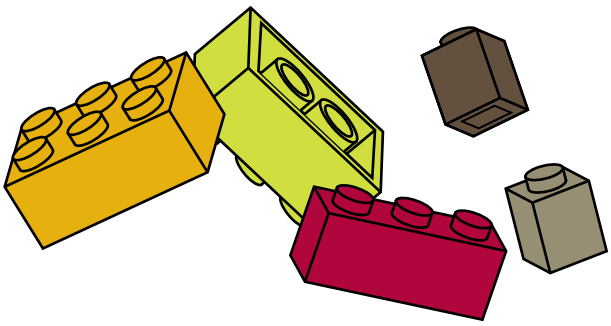
   Archaeologists do a lot of historical, ethnographic, and ecological research to learn about where possible archaeological sites might be. This can involve reading old maps and documents and consulting oral histories from descendant communities. In Washington, many sites are found incidentally during monitoring or survey by CRM archaeologists, as new bridges and roads are being constructed.

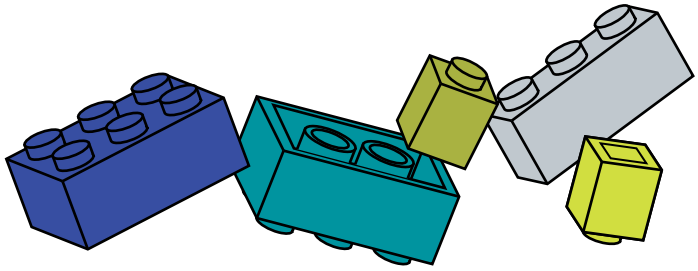
4. "How old does something have to be to count as archaeology?"

   Archaeology is the study of the human past through material remains. But how old is "the past?" There is no firm line, so archaeologists and government institutions have to come up with a practical definition that meets the needs of research and cultural heritage protection as well as the development of the modern world. According to the Washington State Department of Archaeology and Historic Preservation (DAHP), a building, site, and other materials must be at least 50 years old to be considered archaeological.

5. "Do archaeologists work underwater?"

   Yes! Underwater archaeology is a very exciting field, and there are many examples of archaeological projects that have arisen in response to climate change and rising water levels which put coastal cultural resources and heritage at risk. Unfortunately, underwater archaeology is always very expensive and logistically challenging, so it doesn't occur very often in Washington State.





MORE RESOURCES FOR YOUR PROJECT RESEARCH!

Find blog posts and more on the Burke Museum website:
burkemuseum.org/archaeology

Visit the Burke Museum

– Roam the archaeology gallery and see archaeologists at work
– Try out the *Burke Work* coloring and activity book available at the Burke Store

UPCOMING BURKE ARCHAEOLOGY EVENTS

October 3 | Ask an Archaeologist: Live Webinar

Ask members of the Burke Museum archaeology team about their work in the field.

Learn more »

Subscribe to our email list for Burke Museum Archaeology news and updates, and find out when registration opens for this event.

Sign me up! »

November 16 | Archaeology Family Day

Join us at the Burke for a day of archaeology activities for all ages.

Learn more »

Support the Burke — Become a Member!

Membership includes 12 months of unlimited admission and experiences, along with other fun perks.

Join now »

Watch a recorded Q&A session for FLL teams from the Archaeological Institute of America

Watch now »

Have more questions? Email us at archy@uw.edu