

## **The City In History: Mastering Essential Research Skills**

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### **Abstract:**

This unit's purpose is to teach students proper and effective research techniques. Using cities and their populations as context, this unit starts from square one (what is a Google search?) and works up to students doing their own independent research projects. This unit provides all the background information a teacher needs to know about the cities being focused on (Ur, Rome, and Philadelphia). It also provides a scaffolded approach to teaching students various research skills. First, within the context of Ur, students will learn basic research skills and begin to consider online resources and tools. Next, students will begin to conduct their own research and learn how to analyze the credibility/relevance of different sources, using Rome as the focus. Lastly, students will combine what they have learned and conduct their own research on Philadelphia's history, compiling it into a final project/presentation. This unit ends with an annotated bibliography of resources for both teachers and students. Because of the cross-curricular nature of this unit, it could be adapted for a wide variety of different courses. Originally designed for my freshman Computer Science class, this curriculum could easily be used in a History class with little to no changes.

### **Content Objectives**

At G.W. Carver HSES, every freshman student takes a course that we call Computer Science 1 (CS1), where students learn not only computer science topics such as coding, abstraction, and program design, but students are also exposed to many different applications and software that deal with anything from graphic design to animation. The purpose of CS1 is not just to introduce students to computer science and programming, but even more so to teach students how they can use computers as a tool that will help them solve problems and achieve their goals. Just like a hammer or a wrench, a computer is a tool that when used correctly can enrich, ease, and enhance life, but when used incorrectly or inefficiently, the computer can cause more problems than it solves. To this purpose, the curriculum our school has developed for the CS1 course has branched out in many different ways beyond a "standard computer science course" to guarantee that our students are prepared for the demands of the modern technological age and can effectively utilize computers for whatever it is they may be working on. Students learn Photoshop so that they can understand image editing and design composition, iMovie so they can film, produce, and edit their own videos, the Google Suite so they can write documents, create presentations, and organize/analyze data, and a plethora of other

software and applications that have uses not only in my class but also in other classes throughout the students' rosters.

While I believe that our CS1 curriculum is both broad and deep, there are gaps that need to be addressed. The largest gap that we have identified over the last year is a need for teaching students proper research techniques. What we have found is that while our students might be able to perform a basic Google search, they do not have much of a sense of what is considered a reliable/credible source, what other resources there are other than Google for online research, and what to do with the information once they find it. While my class focuses primarily on computer science and technology-related topics, computers are now being used for every topic and content area under the sun. This leads to another large gap in our CS curriculum which is that there is not enough cross-content focus in terms of giving students exposure to how computers and technology can be used in subjects like History, English, and Science. Regardless of what topic or area of study is being focused on, computers and technology can be used not only to enrich any learning that is going on but also to create artifacts based on what has been learned. These artifacts can then, in turn, be used to promote others' learning about this topic and the whole cycle can continue. The main goal of this curriculum unit is to help to bridge these gaps and provide teachers and students alike with a cohesive plan for learning how to effectively research and how this research can help to bolster learning across subjects.

The seminar "The City in History" provided a rich overview of the history of different cities around the world; an analysis of how they have grown, changed, and evolved to meet the needs of their citizens; and an overview of how geographical, political, and social perspectives are taken into consideration when planning and building a city. Over the course of history, cities have served as hubs for innovation, progress and change; by studying cities around the globe, one can begin to understand how the form and structure of the world around us intimately influences how our society operates and functions. By studying different cities in this seminar, I have begun to better understand why cities are structured the way they are and, historically, what considerations were made as cities were planned and built. I have also seen in a way that I never did before the dynamic between a city and its inhabitants. Again, not being a historian or formally educated about cities, I never fully realized how the inhabitants of a city, their needs and wants drive, civilizations into the future. The story of a city and how it was created and built is just as much a story of the people who did the building as it is of the buildings themselves. While the curriculum will use different cities throughout history as the foundation of the lessons and activities, we will be sure also to look at the residents who lived in the cities and how their lives were affected by the cities they lived in.

Many of my 9th grade students are proficient with using a computer to do things like watch videos or play games, but when it comes to research, they do not know where to begin. This curriculum will take students through a scaffolded process where they first

find basic background materials for their research that will enable them to answer basic, factual questions (Where is Ur located? What is the population of Philadelphia?). Then we will move on to looking critically at sources and understanding things like bias and credibility (Does this agree with my other research? How can I trust this author/publisher?) Lastly, students will begin to develop their own research questions that look critically at different historical people, places, and events (How have activist movements developed over time in Philadelphia? How was slavery used to build Rome into the massive empire that it was?). For each of these three phases 1) facts, 2) bias, and 3) questioning, students will look at three different cities: Ur, Rome, and Philadelphia, respectively. Along the way, students will gain experience using different online resources and tools as well as developing their sense for asking questions and finding accurate and reliable answers. The skills developed in this unit will help students learn how to use a computer as a tool and begin to understand the abundance of information that is freely available on the internet.

The only tool that I used in creating this unit was my internet-ready computer. All of the sources, videos and links throughout this document were found solely through my computer and the internet. The research that I have done for this is not even a portion of a single percent of the total of what is out there on any given topic. The internet is filled with sources, tools, and applications that help us research and help us learn for ourselves. Furthermore, with access to the Google Suite of tools, which I used when writing this unit, students can save, edit, share, and publish online media of nearly any kind for free. When deciding on what tools to use, I chose the Google Suite because at this point it is so well-used, intuitive, and supported that it makes the whole research process much easier. Instead of having to mess around with file extensions and flash drives, as I had to when I was in high school, everything can just be saved to the cloud and accessed or collaborated on from anywhere.

While there are many goals of this unit, the principal goal is to get students comfortable with using computers to research and present findings and have them build up a "toolbelt" of online resources and tools that they can use in the future. This will help them across all their future learning, not just computer science and History, because it will show them how to use technology to think critically. While this curriculum is designed with a Computer Science class in mind it could *very* easily be adapted for a History or Social Studies class. The content and structure can remain exactly the same and the only changes would be at the teacher's discretion if they wanted to focus on more of the history/social studies aspects rather than the technological aspects. Regardless of subject, this unit provides a very solid foundation for developing students' research skills.

## Background Information:

The story of cities is as old as the story of civilization.

Cities are civilization. Humankind's rise to civilization took tens of thousands of years, but ever since the first true cities arose in Mesopotamia and the Indus and Nile valleys sometime around 3500 BCE, the influence of city-based cultures and the steady spread and increase of urban populations around the world have been the central facts of human history. (LeGates, 2011, p. 15)

While ancient cities like Sumer and Alexandria, may seem like products of the far-distant past, when viewing human existence overall, cities are a relatively modern phenomenon, only really appearing over the last ~6000 years. Furthermore, the structure, function, and purpose of cities has evolved since their onset and while there are certainly similarities between modern and ancient cities, there are also very stark differences. When considering a topic as broad as "cities", there is so much information out there that I needed to focus my own research and lessons on a few targeted topics, otherwise this unit could take an entire year (or more) to get through. Furthermore, in the past I have tried to do more open-ended research projects and my younger students (towards whom this unit is geared) have always struggled with this as many of them have never done research of any kind; they get immediately overwhelmed. I have broken the cities of focus for the curriculum unit into the following structure.

- A. Ancient City (BCE) - Ur
- B. Pre-Modern City (1-1500 CE) - Rome
- C. Modern City (1500-2020 CE) - Philadelphia

Students will do guided research, and eventually their own research, into these different cities and perform various lessons and activities along the way to develop their research skills. I am no historian and had very little prior knowledge about any of the cities in this curriculum and so the following background information will be mostly surface level with very little analysis. Some of the sources that I used are not the most sophisticated sources, but they contained the basic information that I needed to craft this curriculum. The purpose of this curriculum is not to develop novel theories about these old cities but instead to use the cities as the context for a larger focus on research, research-skills, and research-based analysis. I focused on finding relatively easy-to-understand, comprehensive resources that I can use as examples in the lessons of the unit and not overwhelm students who are looking at scholarly materials for the first time. Nevertheless, throughout my research I found a variety of different types and styles of sources (books, encyclopedias, videos, articles, etc.) so that the students would be able to sample all of the different sources available to them through the internet.

### *Ancient City - Ur:*

When doing my own research on Ur, I encountered many different sources, including articles, books and videos. One of the most useful resources I found was the Penn Museum, specifically their website <https://www.penn.museum/>. The Penn Museum is one of the world's foremost authorities on Ur as they have thousands of artifacts displayed at the museum and even more information online. Not only do they have articles, maps, and images, but they also have a variety of videos that were incredibly useful in getting a general sense of the ancient city of Ur and where I would like to direct my research. Having quick and easy online access to the vast wealth of information found at the Penn Museum, as well as other databases, made the research process for Ur quite easy. Because Ur was inhabited so long ago, there are not photos, videos, or even many paintings of what it was like and so computers offer the unique opportunity to model what we do know about Ur and visualize it on the screen. [This video](#) provides a great visualization of what Ur would have looked like when it was still inhabited. These types of videos/resources were immensely helpful to me in forming a good sense of the city and what learning opportunities it has to offer.

The first timeframe in this unit will focus mainly on the period from about 3500 BCE and on, but it will begin with human beings prior to cities and ask what changes drove humans to begin forming cities and living in them. This period, known as the Neolithic Age, is

defined by the use of polished stone tools and a change from hunting and gathering (the Mesolithic Age) to reliance on the cultivation of plants as a primary food source...the Neolithic [Age] can, roughly speaking, be said to have begun around 10,000 BC and to extend to 4500 BC. (Demand, 2012, p. 13)

During this time period, humans began not only to change how they lived and survived but there was also a general "change in human mentality, a recognition that people could affect their environments" (Demand, 2012, p. 13). Humans started constructing buildings that were meant for more than just residence; many seem to have been places of worship, another indicator that humans were evolving beyond simple hunters and gatherers. Another catalyst of the Neolithic Age was humans' "increasing mastery of pyrotechnology and its various applications" (Demand, 2012, p. 14). Being able to control and use fire allowed humans to do things such as preserve food, create pottery, produce plaster, work metal and perform many other functions that facilitated the construction of buildings and eventually the construction of cities. As humans began settling down, they began developing agriculture as an effective way to sustain life without having to forage for food in the wild. Eventually this led to the domestication of animals. Now humans, with the capabilities to build shelters and sustain life without

having to go far from those shelters, began to create towns and villages that would eventually grow into full-blown cities.

Ur, which was situated in southern Mesopotamia (which is now modern-day Iraq), is one of the oldest cities that we currently know of.

Ur was a significant port city on the Persian Gulf which began, most likely, as a small village...and was an established city by 3800 BCE continually inhabited until 450 BCE...Ur was a city of enormous size, scope, and opulence which drew its vast wealth from its position on the Persian Gulf and the trade this allowed with countries as far away as India...The city began as a small village which was most likely led by a priest or priest-king. (Mark, 2011)

While Ur had many rulers over the thousands of years that it was inhabited, two of the most influential were Ur-Nammu and his son Shulgi who ruled from 2047-1982 BCE. "Ur-Nammu wrote down the first codified law system of the land some three hundred years before Hammurabi of Babylon" (Mark, 2011). By establishing an official rule of law, Ur-Nammu was able to grow the culture and wealth of Ur immensely. "Under Ur-Nammu the great ziggurat [a temple] was built and trade flourished. The arts and technology for which the Sumerians are most famous were all encouraged in Ur during this time" (Mark, 2011). Ur flourished for thousands of years until "in 1750 BCE the neighboring kingdom of Elam breached the wall [that Shulgi built to protect the city], sacked Ur and carried away the last king as a prisoner" (Mark, 2011). Even though the rulers of the city fell,

[Ur] continued to be inhabited [for over 1000 years] ...but due to climate change, and an overuse of the land, more and more people migrated to the northern regions of Mesopotamia or south toward the land of Canaan...Ur slowly dwindled in importance as the Persian Gulf receded further and further south from the city and eventually fell into ruin around 450 BCE. (Mark 2011)

As early as the 17th century, archeologists have taken note of artifacts and writings found in the area that once was Ur. Since then it has been excavated multiple times and countless artifacts, buildings, and inscriptions have been unearthed that have given us an intimate look into the life of a citizen of Ur and the culture of one of the world's first cities.

With the growth of Ur as a city (and the overall growth of cities in general towards the end of the Neolithic Age), society, culture, and human behavior began to evolve. Seemingly small changes to the way in which people lived caused a chain reaction of circumstances that ultimately led to what we know as civilization. With

more and more people populating smaller and smaller areas, the concentration of labor began to increase to the point that labor specialization allowed for a vast increase in overall productivity. A person could now dedicate themselves to a single job, for example farming, and generate enough product to not only provide for their own needs but more importantly, sell the excess for profits which could in turn be used to buy products from other businesses. Furthermore, "without having to spend time growing food, [citizens of Ur] could concentrate their activity in new fields of industry, commerce, or administration" (Hafford, 2018, p. 51). As the city grew and the population increased, so did the demand for food. "This meant...that canals had to be dug to bring more water to the fields...Canal digging provided huge amounts of mud that brickmakers formed into bricks that builders then used in construction" (Hafford, 2018, p. 51). A cycle of productivity resulted. As more people moved in there was more labor to create more products and build more buildings, which in turn allowed more people to move into the city, thus continuing the cycle. As Ur produced more and more things, trade and industry naturally developed.

Cloth and finished garments - made from the wool of sheep raised outside the city - were extremely important exports. They were used in long-distance exchange to provide the resources that [Ur] lacked, such as metal and stone... Other industries were equally intense. Many, such as firing pottery and smelting metal, created so much smoke that they were located well outside the city. (Hafford, 2018, p. 56).

In Ur, "the commercial system was much more complex than barter. In fact, a clear concept of abstract money and physical currency existed by 2500 BCE" (Hafford, 2018, p. 56). Most of the trading and value of labor and products was tied to silver, which carried various equivalencies and standards that allowed laborers to get paid for their work, business to be conducted, and even loans to be given out. Not only did business, economy, and population flourish from this cycle, but so did leisure, entertainment, and culture.

Just as today, then, daily life involved both work and play. Apart from the evidence of board games and gaming pieces, archaeologists have also uncovered toys, such as clay model boats that could be pulled along the ground...along with many animal and human figurines that may have been dolls (Hafford, 2018, p. 54).

Furthermore, the citizens of Ur "created some of the first written literature and poetry in the world. They enjoyed music as well...People sang and danced often, celebrating life whenever they could" (Hafford, 2018, p. 55). Religion, ritual and worship also flourished in Ur.

Many [Ur] houses had their own private chapel complete with incense and altar. There were also neighborhood shrines to local deities and major temples to the primary deities of the Sumerian pantheon...Temples dedicated to these gods might not be accessible to all people at all times, but there were lesser deities and shrines to help the common people...People curried favor with many gods, dedicating objects or food offerings at shrines in hopes of gaining otherworldly protection, while also discussing local issues with their neighbors and priests (Hafford, 2018, p. 54)

As you can see, while it was a long time ago in a completely different environment, Ur in many ways is not much different than modern day cities and the urban citizens of both ancient and modern times live life in similar ways.

Men and women got up, ate breakfast, and went to work. That work might have been building, digging, metallurgy, pottery, carpentry, weaving, tending to ritual observance, writing, or buying and selling. Although many of these jobs are largely mechanized in modern times, we still see them in our cities. A worker might have a bit of time in the day to play a quick game with a friend or stop off at the local chapel to discuss neighborhood issues, then, after work, go home for dinner with the family and probably a bit of music or story-telling before going off to bed. (Hafford, 2018, p. 56).

As for the actual structure of the city, I have found a few different maps that give a very good idea of how the city was set up and what it would have been like to live in one of the world's first cities. These maps, found in the Annotated Bibliography below, provide a solid base for students to learn about Ur and can be used throughout the lessons that have to deal with Ur. Additionally, the ziggurats (temples) of Ur also provide an incredibly rich context for students to learn the basics of research.

### *Pre-Modern City – Rome*

Rome is one of the most famous cities in all of history and there are nearly unlimited resources on the city available online. When I first started my Rome research, I was very overwhelmed as I did not know what was important to my unit or where to begin. One of the most helpful tools was using the "Filter" and "Find" function of the Temple library search engine. A simple search for Rome yielded 10,000's of results. However, limiting my search by using more specific terms and keywords, choosing publication date ranges, and filtering out paid and inaccessible (i.e. physical books, during the pandemic closing of the library) I was able to vastly reduce the search results. Once I found some resources that I thought would be useful (mostly pdf/eBooks), I performed various searches of the



text to see what information that resource had that was relevant to my unit. In this way I could quickly skim through entire books and just focus on the small amounts of information that I needed. Without a computer, I would have had to visually scan each page of each book which would have taken hours and hours of time just to find a few pieces of information. The use of a computer for my research made the process far more efficient.

During the time period that Ur was inhabited, cities began emerging all over the world. By the time that Ur fell, around 1000 BCE, the population of the world is estimated to have been about 50 million people (U.S. Census Bureau, 2018). With this many people inhabiting the earth, it was only natural that the cities became larger and more sophisticated. One of these cities was Rome, located in modern day Italy. "According to legend, Ancient Rome was founded by the two brothers, and demigods, Romulus and Remus, on 21 April 753 BCE" (Mark, 2009). While we do not know if this is a true story, we do know that Rome was

originally a small town on the banks of the Tiber, [which] grew in size and strength, early on, through trade. The location of the city provided merchants with an easily navigable waterway on which to traffic their goods...Greek culture and civilization, which came to Rome via Greek colonies to the south, provided the early Romans with a model on which to build their own culture. From the Greeks they borrowed literacy and religion as well as the fundamentals of architecture. The Etruscans, to the north, provided a model for trade and urban luxury...From the start, the Romans showed a talent for borrowing and improving upon the skills and concepts of other cultures. (Mark, 2009).

Rome quickly grew as a city and about two hundred years after its birth, "Lucius Junius Brutus reformed the system of government and established the Roman Republic" (Mark, 2009) which expanded beyond the city of Rome into outlying territories, most of which were gained through warfare.

The wars with the North African city of Carthage (known as the Punic Wars, 264-146 BCE) consolidated Rome's power and helped the city grow in wealth and prestige. Rome and Carthage were rivals in trade in the Western Mediterranean and, with Carthage defeated, Rome held almost absolute dominance over the region. (Mark, 2009)

The Roman Empire constitutes an entire curriculum to itself and so I will focus strictly on the city of Rome and its inhabitants. Unfortunately, "the city of Rome began to suffer from the effects of corruption, greed and the over-reliance on foreign slave labor...The wealthy elite of the city, the patricians, became ever richer at the expense of the working

lower class, the plebeians" (Mark 2009). The contrast between the lives of the elite and the lives of the plebeians in ancient Rome was so stark that

it is possible to write...two histories of the city...One is the history of the Roman elite and the way in which the city formed a privileged stage for their political rivalries, played out both in the formal settings of the Senate and the popular assemblies and in less formal but equally important contexts which included the display of their wealth, influence, and distinction through the construction of houses and public buildings, the entertainments they organized for the Roman populace, and the tombs they set up on the roads which led into the city. The other is the history of the mass of the People of Rome: how the city's population expanded dramatically...as large numbers of slaves were brought to the city and individuals migrated to Rome from all over Italy and, increasingly, beyond; the implications of the crowded and unsanitary conditions in which, for the most part, the inhabitants of Rome below the level of the elite had to live; and the strategies devised to supply the growing city's population with food and water. (Patterson, 2006, p. 345).

The relationship between the Roman elites and the plebeians is quite complicated. Archaeologists have found "funerary epitaphs recorded in literature and on stone from this period [recording] the desire of individuals to be remembered as 'first, best, and greatest'" (Patterson, 2006, p. 347). The competition between wealthy Romans was fierce and typically centered around warfare and conquest.

The culmination of an aristocrat's military career was a triumph: awarded by the Senate, this was a celebratory ritual procession through the streets of Rome...it became common practice from the late fourth century for generals to vow temples to the gods in hope of achieving a successful outcome of the campaign in which they were involved...The temples thus served not only to express the gratitude of the city, and of the generals who dedicated them, to the gods for a successful military campaign, but commemorated this success for posterity, in a way which contributed to the distinction of the general's family and might be borne in mind by the voters when his descendants stood for public office (Patterson, 2006, p. 347).

The actual construction of Rome was largely driven by the wealthy's attempts to both please the gods, as well as the public, with temples, "arches, porticoes, and basilicas" (Patterson, 2006, p. 347). These beautiful structures and buildings provided spaces for the populous to gather, worship, and meet, in general. This, in-turn, pleased the citizens of Rome who ultimately gave power back to the elite in the form of public support, and

voting (it is important to note that only Roman male citizens were allowed to vote). Much of the architecture of ancient Rome was constructed to this purpose.

The concentration of wealth and power in the hands of a few exceptionally wealthy and ambitious individuals in the first century...had a significant effect on the appearance of the city. Individual temples and other monuments were still being built, but increasingly these were subordinated to large-scale projects that were to transform the cityscape of Rome...The monuments of the city were thus both a stage for and a product of the political struggles of the Republic, reflecting the increasing levels of competition within the Roman elite and the central importance of their relationship with the Roman People for the aristocracy (Patterson, 2006, p. 350)

As Rome grew in wealth and size, so did it grow in population.

By any standards Rome of the late Republic was an extremely populous city. At the time of Augustus [around 10 AD], it is estimated that it had a population of nearly a million people...between 200,000 and 320,000 received cash handouts or grain on various occasions during Augustus' principate (RG 15). These numbers represented a privileged category of male citizens within the urban population: when account is taken of free women and children and in addition ex-slaves of both sexes, foreigners, soldiers, and slaves, the total adds up to 800,000 - 1,000,000 (Patterson, 2006, p. 350-351).

And while the elite of Rome lived in the lap of luxury adorned by riches and feasts, the everyday Roman lived a different and more difficult life. "The prevalence of [malaria, pulmonary disease, and gastrointestinal problems] aggravated by the cramped and unsanitary conditions in which Rome's inhabitants lived... may have resulted in an average life expectancy at birth of less than 20 years" (Patterson, 2006, p. 351). Due to "poor housing with inadequate sanitary facilities, high levels of contamination of food and drinking water, and overcrowding" (Patterson, 2005, p. 352), the general population of Rome was constantly in-flux. While people were quickly dying, the immigration and importation of slaves grew to keep pace, causing a constant ebb and flow of people coming and going from Rome.

Without continuous migration to Rome, the city's population would have dwindled as a result of the disparity in numbers of births and deaths... Many of these 'migrants' were slaves, brought to Rome in the aftermath of Roman victories; others came of their own volition, drawn by the

attractions of the capital and/or problematic circumstances at home (Patterson, 2006, p. 351).

Once the hundreds of thousands of slaves and migrants arrived in the city,

most of them would have slept rough, living in shanties or in tombs on the outskirts of the city. Those of the poor who had a regular, if limited, income were able to rent rooms in taverns or on the upper floors of apartment blocks...The buildings were liable to fire, collapse, and other hazards. Slum property might let out to poorer tenants, with rent paid on a daily basis, while the more affluent occupied the better apartments on a longer-term basis (Patterson, 2006, p. 353).

Newcomers to Rome who had no pre-existing connections or family living in the city, they had essentially three options to attempt to integrate into Roman life. They could

seek to exploit the possibilities offered by patronage to find a place to live...[,they could] exploit networks provided by those from one's own town or region who were already installed in [Rome]...[, or they could] become involved in and seek the support of a *collegium* - a popular association linked with a particular cult, neighborhood in the city, or trade (Patterson, 2006, p. 353-354).

While these options may not have been the most ideal ways to gain favor in the city, the slaves and migrants came in droves and increased the population of Rome to heights never reached by Western cities of that time.

While I could go on and on about aspects of Roman life, culture, and construction, I would like to wrap up this section with a focus on how water was moved and distributed throughout the city to its inhabitants by a sophisticated system of aqueducts. "Aqueducts were a means to transport water from one place to another, achieving a regular and controlled water supply to a place that would not otherwise have received sufficient water to meet basic needs" (Cartwright, 2012). Water is not only something that humans need to consume every single day to survive, but it is also crucial for things like agriculture, cleanliness, and transportation. While the Romans did not invent the aqueduct, the system that they built over the years to supply the city and outlying regions with water is still an engineering marvel to this day.

Hugely ambitious Roman engineering projects successfully mastered all kinds of difficult and dangerous terrain and made their magnificent arched aqueducts a common sight throughout the Roman Empire, supplying towns with water to meet not only basic needs but also those of large public Roman baths, decorative fountains (*nymphaea*) and private villas. Whilst most aqueducts continued to run

along the surface and follow land contours wherever possible, the invention of the arch allowed for the construction of large-span structures, employing new materials such as concrete and waterproof cement, which could ignore unfavourable land features and draw water along the straightest possible route along a regular gradient...Another innovation which allowed for aqueducts to cross valleys was the large-scale inverted siphon. These were made of clay or multiple lead pipes reinforced with stone blocks and with the force of gravity and pressure as the water ran down the valley the momentum gained could drive the water up the opposite side. Arched bridges running across the valley floor could lessen the height the water had to fall and more importantly go up on its ascent. Stopcocks to manage pressure and regulate the water flow, storage reservoirs, settling tanks to extract sediment and mesh filters at outlets were other features of Roman aqueducts. Sometimes water was also 'freshened' by aerating it through a small system of cascades. Interestingly, Roman aqueducts were also protected by law and no agricultural activity was allowed near them in case of damage by ploughing and root growth. On the other hand, agriculture did benefit from aqueducts, as in many cases, run-off channels were created to provide water for land irrigation. (Cartwright, 2012)

The Roman aqueducts were sophisticated and complex, all without the use of modern building materials and equipment such as steel, electric pumps, and sensors. They were also massive. To get an idea of the scale of these projects, "the first aqueducts to serve Rome were the 16 km long Aqua Appia (312 BCE) and the 91 km long Aqua Marcia (144-140 BCE)" (Cartwright, 2012) which is approximately 10 miles and 56 miles respectively. The Roman style of aqueduct were built all over northern Italy and even into southern France, creating a vast network of pipes, arches, and reservoirs that provided plentiful water to the entire region. While a lot of the above information about Rome is relevant to the unit's lessons, the aqueducts provide an especially rich opportunity for students to begin working on developing their own research skills. Not only is there extensive information on the internet on aqueducts, but it is a topic that intersects history, science, and politics. One of the three lessons included below focuses on the Roman aqueducts to give you just one example of how they can be integrated into the day-to-day activities that students will complete as part of this unit.

### *Modern City – Philadelphia:*

For the last section of this unit, the research was straightforward. I knew that the historical focus of this unit would be a bit more disconnected than the previous two sections because for the Philadelphia section, students will be conducting their own research into a topic of their choice. For that reason, I just wanted to get a general sense of the history of Philadelphia and what major events and controversies arose throughout the history of the city, rather than get bogged down in the specifics. Using the same techniques as I did with the last two cities, I used a computer to conduct online research

and to efficiently sift through sources to find the information that I needed. Especially for Philadelphia, because it is the youngest of the cities that I researched, I was able to find all types of multimedia resources such as videos, recordings, and audio files. A detailed and well-produced documentary series, [Philadelphia: The Great Experiment](#) is freely available on YouTube and gives a wonderful history of the city.

Philadelphia was inhabited for thousands of years prior to being settled by Europeans. Many Native American tribes lived in the Philadelphia area, most prominently the Lenni Lenape who had moved into the Delaware Valley around roughly 10,000 BCE and "retained their sovereignty and power through 1680" (Soderlund, 2014).

In 1681, Charles II of England granted a charter to William Penn for what would become the Pennsylvania colony. Penn arrived in the new city of Philadelphia in 1682. A Quaker pacifist, Penn signed a peace treaty with Lenape chief Tamanend, establishing a tradition of tolerance and human rights. (History.com, 2019).

"By the early 1600s, Dutch, English and Swedish merchants had established trading posts in the Delaware Valley area, and in 1681, Charles II of England granted a charter to William Penn for what would become the Pennsylvania colony. Penn arrived in the new city of Philadelphia in 1682." (History.com, 2019). Interestingly enough, after granting the charter to establish Philadelphia, William Penn "left for England, never to return" (The History of Philadelphia, 2011, p. 19). Before leaving,

Penn and surveyor Thomas Holmes designed Philadelphia in a grid pattern between the Delaware and Schuylkill Rivers. Their plan included five public spaces, as Penn and Holmes wanted to create a 'green countrie towne.' These tree-lined areas - Washington, Rittenhouse, Logan, and Franklin Squares - still remain today. City Hall now occupies the original 'Center Square' at the junction of Market and Broad Streets (The History of Philadelphia, 2011, p. 18)

During the Colonial era, Philadelphia flourished not only as a major trade hub of the New World but as a city, in general.

As a port city, Philadelphia soon became an important center of commerce, with imports of sugar, rum, and molasses from the Caribbean. As trade flourished, so did manufacturing and shipbuilding. An increase in the number of homes led to a burgeoning community of craftsmen. The city also boasted a paper mill, furnaces, and distilleries, tanneries, and a glass factory. (The History of Philadelphia, 2011, p. 19)

For the first few decades of Philadelphia's existence, the city was quite peaceful. However, as tensions rose between colonists and Native Americans during the French and Indian War, the city became a hot bed for what would evolve into the American Revolution. "On July 4, 1776, independence from Britain was declared in Philadelphia, and in 1789, George Washington was elected the first president of the fledgling nation. [Philadelphia] remained the political heart of the country for a decade, serving as the capital from 1790 to 1800" (The History of Philadelphia, 2011, p. 19). As the country began solidifying into the United States of America, Philadelphia switched gears away from trade and commerce and instead continued to thrive and grow as it "turned to industry and manufacturing, becoming a regional center for textiles, iron and steel, and the shipping of coal" (The History of Philadelphia, 2011, p. 22). All the while, the city continued to grow both in population and size. As the city became more populated, people began to build houses and communities outside of the city limits, such as Germantown and Chestnut Hill. These outlying communities soon became officially a part of Philadelphia "by way of the city consolidation bill of 1854, under which they were incorporated within the city limits" (The History of Philadelphia, 2011, p. 22). During this short period of time the population of Philadelphia exploded, starting at 41,220 residents in 1800 all the way to 565,529 residents in 1860 (Gibson, 1998), partially driven by the overall expansion of the city in 1854 mentioned earlier. With this massive influx of citizens, there naturally came conflict between different groups of people.

Growth also brought social clashes. For instance, there were rebellions against anti-slavery movements, and Pennsylvania Hall, the meeting place of the abolitionists, was set on fire in 1838. The 1840s saw violence against Catholics and immigrants, especially the Irish, with angry mobs burning down St. Augustine's church...in 1844 (The History of Philadelphia, 2011, p. 22).

Over the next decades and throughout the Civil War, Philadelphia continued to prosper as "the need for weapons, munitions, uniforms and warships for the Union forces" (The History of Philadelphia, 2011, p. 22) helped to keep the city's manufacturing facilities busy and profitable.

Around the turn of the 20th century, the city of Philadelphia began a long history of corruption and dishonest politics. "This was a time [early 1900's] of corruption as Republican leaders-controlled city contracts and thousands of jobs" (The History of Philadelphia, 2011, p. 23). Many of these illegal and corrupt practices continue on today into modern day Philadelphia politics. While the political landscape may have been shaky,

the city's infrastructure was well-established by the end of the 19th century. For instance, its streetcar system was run by electric power as early as the 1890s. There were further improvements in mass transit with

the completion of its first underground rail line, the Market Street Subway, in 1907. Economic and industrial activity in Philadelphia remained brisk during World War I (1914-18), though it registered a dip during the Great Depression of the 1920s and 30s. World War II (1939-45) revived steel, chemical, and petroleum production. (The History of Philadelphia, 2011, p. 23)

However, after World War II, with the expansion of the national Interstate Highway system, increases in technology, and cheaper labor in the South, "Philadelphia gradually lost most of its manufacturing sector to other regions of the US" (The History of Philadelphia, 2011, p. 23), the results of which are abundantly clear when visiting the run-down mills of Manayunk, the unused ports and piers of South Philadelphia, or the decrepit factories of Kensington. What was once a bustling manufacturing hub of the country, was now a city on the decline. "After World War II, the city lost jobs and population to the suburbs, and underwent political restructuring in 1951, with a new city charter that called for a stronger mayor and new city departments" (The History of Philadelphia, 2011, p. 23). Despite these attempts to rejuvenate and unite the city,

racial tensions mounted in the 1960s and through the mayoral terms of Frank Rizzo and W. Wilson Goode, the city's first African-American mayor, before stabilizing in the late 1980s. In 1985, during Goode's term as mayor, the controversial bombing of the headquarters of the black radical group MOVE took place, resulting in the deaths of 11 persons (The History of Philadelphia, 2011, p. 23).

While there are certainly still racial, economic, and political tensions throughout Philadelphia to this day, the city has seen a population uptick in the last few decades.

Today, Philadelphia's economy is diversified. While some manufacturing units remain, corporate business has gained ground. Companies [in Philadelphia] specialize in technology, banking, pharmaceuticals, and insurance. Tourism is also key to the local economy. The city has more than 80 universities, colleges, medical schools and world-class hospitals. (The History of Philadelphia, 2011, p. 23)

Over the years, Philadelphia has also been a cultural center for the country and world as, most recently, it has been designated a World Heritage city, hosted the Pope in 2015, and been the setting for countless movies, television shows and concerts, including Rocky, Live 8, and It's Always Sunny In Philadelphia. In this final section of the unit, students will begin to complete their own research, culminating in a final project/presentation, on a Philadelphia-related topic of their choice. They will learn how to develop a rich, deep research question and will conduct independent research and analysis to answer it. They will be required to use a variety of different online sources and use computers to stay



organized and access the information they need. Throughout their research they will learn the basics of web design so that they can put all their findings together into an interactive website that can then be shared with the class.

## **Teaching Strategies**

Because of the nature of this unit and dealing with a very cross-curricular approach involving history, research, and computing, I will be touching on a lot of different strategies and standards that will be used to guide the flow of the curriculum. With research and research skills being the major backbone of this project, I will start there. As I mentioned above, I have taught some research-based projects in my CS1 class, such as having students research a topic of their choice and then creating a website with the information they found. When I have done projects like these, the focus of the project was typically on making the artifact (in this example, the website itself) and the technical skills involved with that, rather than on the actual research side of things. When looking into different skills and techniques used in research, I came up with the following list and accompanying objectives that I would like students to learn and develop throughout this unit.

- Finding sources
  - SWBAT use advanced Google Search, Google Scholar, and scholarly databases to search for resources on a given topic
  - SWBAT follow links and citations to broaden their research and find more resources for a given topic
  - SWBAT cross-reference sources to corroborate information
- Analyzing the credibility/relevance of sources
  - SWBAT apply the CRAAP test to a source to determine both credibility and relevance
- Annotating sources
  - SWBAT use paper-and-pencil techniques to annotate sources
  - SWBAT use Google Docs to annotate sources
  - SWBAT write an annotated bibliography
- Organizing sources/information
  - SWBAT use Print to PDF to save and store online sources
  - SWBAT use Google Drive to organize sources into folders and sub-folders
  - SWBAT create MLA bibliographies and in-text citations
- Developing research questions
  - SWBAT develop their own research questions and come up with a research plan to guide them

The CRAAP (Currency, Relevance, Authority, Accuracy, and Purpose) test is a standard used by our school to determine if sources are useful for research purposes. For more information on the [CRAAP test](#).

Overall, these skills and objectives apply to standards found in the PA State Standards in the CC.8 - Content Area for Reading and Writing in History and Social Studies (see Appendix for specifics).

In order to accomplish all of these research goals and objectives, I will use a very scaffolded and directed approach to teaching the students these research skills. It will not be until the very end of the curriculum that students will be conducting their own research, from scratch. In the beginning lessons, I will be responsible for providing them with the resources, as we look over them and learn how to analyze and use them. As the lessons progress, I will slowly begin to put the onus of finding and verifying credibility onto the students so that by the end of the curriculum they will be doing it all themselves.

The lessons will be broken down into five subunits, each corresponding to the research goals listed above. Only minimal equipment and materials are needed to teach this curriculum, basically just a computer with internet access. This is essential to the curriculum as many of the activities will be done through Google Docs/Google Drive, and while they could be performed entirely offline by printing out articles and distributing packets, it is a lot more efficient and less wasteful to do the research on a computer. Along with computers for each student, it is essential that the teacher has a way of either projecting or casting their screen to the students. I typically will do this with my SMART Board, but it could just as easily be done with a large-screen or projector.

With only a computer and internet access, students should have everything they need to complete this unit. All the resources that I found to write this unit and all of the resources that I recommend throughout the unit were found online from my own computer. In addition to finding resources, computers make organizing and presenting information much faster and easier than traditional methods. Research that might have taken a whole day at the library and multiple trips to the book stacks can all now be done faster and from the comfort of one's own home. For this unit, I only looked up basic information about the three cities I was studying because I only needed enough to create the curriculum, which only provides a general overview. However, while I was searching, I found thousands of other sources giving more information and more detail about any aspects of the cities that you could possibly want. So much so that I had to cut myself off from making an already long unit even longer. By being able to efficiently sift through sources I was able to pull just the information that I needed to know for this unit without getting bogged down with tons of details. Things like Find/Search were key to me locating the important parts of articles/sources and being able to quickly move from source to source. Computers will only continue to be more and more prevalent in my

students' lives so the sooner that we can get them using them for learning and researching, the better.

Many of these lessons will follow the general structure and format of direct instruction, with plenty of room for discussion, project-based learning, and independent study. Many of the lessons start off with a guiding question or problem, followed by some form of direct instruction, such as showing students how to use advanced Google Search, how to collaborate and add comments to Google Docs, or how to create and manage citations. Some lessons, rather than starting off with direct instruction, will immediately dive into the guiding question or problem and have students work independently or in pairs to use what they have learned so far to complete a task or project. Regardless of the start, each lesson will have at least some time dedicated to students working on the computers so that they can get a chance to practice all the skills that they are learning. Every lesson will also have time towards the end for the class to share, debrief, and discuss how the day went, what they learned, and what we will be doing the next day. This overall structure is essential as it allows for a nice flow from one day to the next. One of the big issues that I run into is that on a normal day, I spend 45 minutes with a class and 23 hours and 15 minutes not with them, and as such, it becomes essential to keep the momentum of a unit going from day to day by continuing to pull from previous lessons while also previewing what is to come in the future, so that students do not get caught off-guard.

In the lessons themselves, there will be generally a two-pronged approach. First, will be the technical skill that the student is learning. This will typically be something that I demonstrate at the start of the class, such as how to use an application or website, and what the students will be actively practicing with throughout the lesson. This will be directly related to the research goals and objectives outlined above. These skills will cover standards found in the PA State Standards in Subject Area 15 - Communication, Business, Computer and Information Technology (See Appendix for specifics).

The second aspect of each lesson will be the historical focus of the lesson. This might be the aqueducts of Rome, the temples and maps of Ur, or maps of Philadelphia, but regardless, it will revolve around one of the three cities and the people who were or are living there. While I do not get too detailed with the specifics of each city, instead mostly providing a general survey of information, if this unit were to be adapted to a History/Social Studies class, this would be an area that the teacher could enhance/develop in a way that makes sense to their learning objectives and standards. By going more in-depth or incorporating other cities/concepts, this unit could very easily be converted for use in a non-Computer Science class. This curriculum will cover the standards from the PA State Standards in Subject Areas 5 - Civics and Government, 6 - Economics, 7 - Geography, and 8 - History (See Appendix for specifics).

Now that I have gone over all the Standards that will be addressed, I will give an overall breakdown of the order and structure of how to teach this curriculum in a Lesson Outline. See the Annotated Bibliography section below for specific links/sources that fit with each section.

- 1) Finding Sources (Ur) - In the first part of the unit, students will learn the basics of research and the various online tools available to them to help with the process. Students will be guided through the process of making a search on various platforms, sifting through the results, and begin assessing the validity and credibility of sources through cross-referencing. While students will see a lot of different sources and media throughout this section, they will view them mostly on a surface/fact/statistics level and not do too much analysis. The main goal of this section is to get students *finding information using computers*. Further sections will guide them through the analysis process.

Students will learn about Ur and the people who lived there. They will be taken through the daily life of an ancient resident of Ur and look at maps to understand the structure of the city. They will learn about why Ur and similar cities came to be and about the fall of Ur and what factors led to the decline and eventual destruction of the city.

- a. Lesson 1: Using Basic Google Search
  - i. Students will be introduced to the unit as a whole and shown the basic tools of a Google search including filters, special characters, and result types.
- b. Lesson 2: Using Advanced Google Search and Google Scholar
  - i. Students will be introduced to Advanced Google Search, all of its options and functionalities, as well as Google Scholar.
- c. Lesson 3: Using Wikipedia for basic information/citations
  - i. Students will be shown Wikipedia and we will discuss what Wikipedia is useful for (facts, statistics, quick lookups, etc), what you need to be cautious about with Wikipedia, and how the Source List at the bottom of each Wikipedia page can provide a plethora of information.
- d. Lesson 4: Using Scholarly databases
  - i. Students will be shown Scholarly Databases (our school has access to EBSCOHost but use whatever you can) and shown how to search them, how to read abstracts, and how to download/save the sources. Discussion will also be had about what "peer-reviewed" means and why it is a good thing.

- e. Lesson 5: Cross-referencing and information corroboration
  - i. Students will learn the concept of cross-referencing and will practice by verifying/disputing different facts based on their findings from multiple sources.
- 2) Credibility/Relevance of Sources (Ur and Rome) - In this section students will use what they learned in the last section to find articles and sources on their own. This time around they will analyze the validity/credibility/relevance of each as well, using the CRAAP Test (Currency, Relevance, Authority, Accuracy, and Purpose). Students will look at a wide range of sources, both good and bad, and discuss and analyze what makes them good or bad. By the end of this section they will be able to find their own sources and accurately judge the credibility and usefulness of them.

During this section we will finish talking about Ur and transition into learning about Rome. We will discuss the difference between the Roman Empire and the city of Rome, using maps to guide us. We will also begin to learn about Roman culture and society.

- a. Lesson 6: Understanding the CRAAP test
  - i. Students will learn what the CRAAP test is, what each letter stands for in the acronym, and why it is important to have credible and reliable sources.
- b. Lesson 7: Practicing with Currency and Relevance
  - i. Students will go through several articles/resources that the teacher has provided them and rate the currency and relevance of each based on a specific topic.
- c. Lesson 9: Practicing with Authority, Accuracy, and Purpose
  - i. Students will go through a bunch of articles/resources that the teacher has provided them and rate the authority, accuracy, and purpose of each based on a specific topic.
- d. Lesson 10: Putting the CRAAP test together
  - i. Students will fully analyze a handful of articles, doing a small write up describing how the sources do/do not pass the CRAAP test.
- 3) Annotating Sources (Rome) - In this section, students will have already mastered using computers to find sources and check their validity/credibility. Now they will transition into the actual analysis of the content by using various annotation techniques. They will first learn how to annotate/highlight/markup paper sources which will lead us to using Google Docs for similar techniques, such as commenting, highlighting, and time-stamping videos. Students will then learn about annotated bibliographies and practice by making their own. Lastly, they will learn and practice making outlines, which will get them taking the notes and annotations they have created and beginning to put that all together in their own,

meaningful way.

Students will learn more about Roman society, engineering and religion. We will continue to look at maps to see how the city and empire changed over the years. Students will look at the Roman elites and the plebeians and how even though they lived two separate lives, they still influenced each other, both good and bad. Lastly, we will look specifically at Roman aqueducts and how they were used to transport water hundreds of miles.

- a. Lesson 11: Introduction to annotations and annotations by hand
    - i. Students will be introduced to the idea of annotations, what they are useful for, how they are used in research and will be given some printed articles to annotate for themselves.
  - b. Lesson 12: Annotations with Google Docs/Comments
    - i. Students will learn how to use Comments in Google Docs and use the Comments feature to annotate some articles in Google Docs.
  - c. Lesson 13: Annotating videos with Google Docs
    - i. Students will learn about timestamping and annotating videos and will work to annotate some videos from YouTube using Google Docs.
  - d. Lesson 14: The annotated bibliography
    - i. Students will learn what an annotated bibliography is, why they are used and useful and will write a short one of their own with just a few sources on it.
  - e. Lesson 15: Creating outlines based on research
    - i. Students will be shown how to create outlines in Google Docs, what outlines should be used for, and how to create a meaningful and useful outline.
- 4) Organizing Sources and Information (Rome and Philadelphia) - We will take a step back from the analysis side of researching and take time to understand how to stay organized and not get bogged down in sources, ideas, and information. Students will learn the ins-and-outs of Google Drive, how to add extensions, how to save any file or source type, how to share and collaborate. Students will practice all of this with their own Google Drive accounts as well as practice accounts that need organizing. Lastly, students will learn the specifics of MLA bibliographies and citations, and get a chance to practice with sources they find on their own.

Beginning this section, we will finish our discussion of Rome and the influences that Rome had on future cities and civilizations. We will lead our discussion to Philadelphia and begin looking at colonial and revolutionary times in early Philadelphia history. Again, looking at maps, we will see how the city grew and

what factors influenced the way in which it grew. Our discussion will lead us up to the early 20th century.

- a. Lesson 16: Google Drive: A digital portfolio
  - i. Students will be shown the ins-and-outs of Google Drive, how to add extensions, how to open files using it, and how to create folders and begin organizing.
- b. Lesson 17: Online tools for storing sources of all types
  - i. Students will be shown various tools that can be used to save online resources. YoutubeToVideo, PrintToPDF, Save Webpage As..., etc. and how these can be used to save sources that can be uploaded to Google Drive
- c. Lesson 18: Getting and Staying organized
  - i. Students will work through an activity where they are given a bunch of unorganized files and folders and they are tasked with renaming files, creating folders, and organizing everything so that it is orderly and efficient.
- d. Lesson 19: MLA bibliography and citations
  - i. Students will be shown the basics of MLA bibliographies and citations. They will be shown online tools to make this all easier and more efficient (Son of Citation machine, etc.). Then students will be tasked with writing their own bibliography and citations for sources given to them

5) Developing Research Questions (Philadelphia) - We will finish the unit with a final project in which students will use computers and the internet to research a topic/question of their own choice, based around Philadelphia, primarily post-1900. Throughout the process of writing this curriculum, I tossed up about ten different final projects for students to do. In the end, I decided not to recommend a specific final project but instead give a list of ideas that teachers can use depending on what they think will be most effective for their class. For instance, in my Computer Science class, something like a website or digital presentation would be fitting. However, in a History class something like a poster or a paper might be more useful given the course. Regardless of the final product, the process should look the same. Students develop a question/topic, perform research to find sources, analyze those sources with CRAAP and annotations, and put their findings all together into their final project. By this point in the curriculum, students should be quite competent researchers and it is best to give them the time they need to do it correctly. Here are some final project ideas:

- a. Website
- b. Poster
- c. Digital Presentation
- d. 3D Model of a City

- e. Essay
- f. Podcast
- g. Video presentation
- h. Skit

For the purpose of example, I will outline below how I would go through this section if I were to assign a website as their final project.

Students will learn about modern day Philadelphia, meaning from 1900 to now. They will see many of the struggles and conflicts that have happened in the city of the last 100 years and will use those controversies/events to develop their own research question/topic. Some examples might be:

- What is the history of gentrification in Philadelphia and how has Philadelphia been gentrified over the last 50 years?
- How has the decline in Philadelphia industry and manufacturing over the last century affected the economics and businesses of the city?
- How have pro-black and anti-racist organizations developed and grown in Philadelphia?
- What has led to the food deserts of Philadelphia and what solutions exist?

As you can see from these examples, these questions do not have simple answers and are rich with opportunities for research. Allow students a chance to develop their own questions and it is ok if their research direction changes as they learn and find more.

- a. Lesson 20: What makes a good research question?
  - i. Students will learn about research questions and what makes one good or bad. They should not have a simple answer and it should be something that needs multiple resources to understand. It should also be a novel topic (for us at least). Students will read through different sources on Philadelphia and develop a good research question of their own.
- b. Lesson 21: Where to start: Developing a research plan
  - ii. Students will be taken through the steps of research and will begin making their own plan, compiling resources, and begin analyzing the sources to determine what will be useful and what will not for their research question.
- c. Lesson 22: Analyzing sources and focusing research
  - iii. Students will continue to analyze their list of sources and begin finding more specific information/sources based on what they have found so far.



- d. Lesson 23+: Working on our final project (This will take multiple lessons depending on what the final project is and what the specific requirements are)
  - iv. Students will work on their final project until they complete it. They will be taken through the basic website creation process using Google Sites/Wix.com. As each student's website will have different requirements, you will need to work with students one-on-one depending on what they are trying to do. Most of these website projects can be completed with a basic web design understanding. Teachers should be involved with the process, checking students' progress along the way. If two students are doing similar projects, the teacher may want to have them share sources and discuss their projects with each other.

As you can see, the unit is quite structured and really steps students through the overall research process in a directed and straightforward way. That being said, any of these lessons/subunits can be expanded or condensed given school-based constraints, especially some of the later lessons where students are doing their own research might need to be extended to multiple days depending on what types of supports they need.

### **Classroom Activities**

In this section, I give three examples of lessons from this unit that I have developed for my classroom. I purposely chose lessons from very different parts of the curriculum so that you can get an idea of the variety of techniques and strategies that can be used

Lesson One:

<b>SUBUNIT</b>
Finding Sources
<b>TOPIC</b>
Intro to Unit and basic Google Search
<b>OBJECTIVES</b>
SWBAT understand the context of this unit both within and outside of this class. SWBAT perform basic Google Searches. SWBAT use Google to search for different categories of resources such as documents, images, and videos. SWBAT skim articles for information relevant to their interest.

SWBAT understand the concept of credibility and reliability and begin applying these to webpages/articles.

### **STANDARDS - PA State Standards**

- Standard - CC.8.6.9-10.F
- Standard - CC.8.6.9-10.G
- Standard - 15.3.12.E
- Standard - 6.4.9.B

### **GUIDING QUESTION/INTRODUCTION**

Ask students to answer the following two questions with three sentences via a Google Form (can remain anonymous) etc.:

1. What is research?
2. What is a city?

After a few minutes when students finish, pull up the responses and go through them, highlighting interesting ones and asking if students would like to share what they wrote. Tell students that we will be starting a new unit that involves both research and cities and we are starting today with one of the most powerful and versatile research tools out there, Google and we are going to look at one of the oldest cities to have ever existed, Ur.

**Guiding Question:** What new and powerful ways can we use Google to find information?

### **DEMONSTRATION/GUIDED PRACTICE**

Display/cast your computer screen and demonstrate the following basic Google Search features, making sure to highlight/discuss the subtopics:

- Basic search
  - Choose search terms carefully, should be specific and concise
- Results
  - Pages of results
  - Page titles and descriptions
  - Importance of page 1 (less than 1% of users go to second page)
  - Not raw ranking
  - Websites can pay to get risen in rankings
  - Ads
- Images
  - Pulls images from all over the web
- News
  - Shows relevant news articles to search
  - Shows publisher, date, other

- Videos
  - Pulls mostly from YouTube but can also find other video results
  - Always takes you to external page
- Right Click → Open in New Tab
  - Essential for research so that you can keep search results and pages in separate tabs

## INDEPENDENT PRACTICE

- 1) Have students complete the following questions via Google Docs/Forms independently.
- 2) Let's jump right in and start to learn about the ancient city of Ur. Do a basic google search for Ur.
  - a. How many results did you get?
  - b. How long did the search take?
  - c. **Without leaving the first page of results, what are five facts that you can learn about Ur.**
    - i.
    - ii.
    - iii.
    - iv.
    - v.
- 3) Before we dig deeper into these results, let's see what Ur looks like. Click on the Images tab. Without clicking on anything and just scrolling through the results,
  - a. **Describe Ur in two sentences, based off of what you see in the pictures.**
  - b. Where does it look like Ur is located?
  - c. Do you think that anyone lives in Ur today?
- 4) Let's see if there is anything going on in Ur in the News. Click on the News tab.
  - a. How many News results are there for Ur?
  - b. **Do any of them seem to be related to the pictures that we were just looking at? What seems to be going on?**
- 5) Before we get back to our original results, let's see if there are any videos. Click on More and then Videos.
  - a. Does the first page of video results seem to fit with the images that we saw earlier?
  - b. **There are also some videos, especially if you go to pages 2 and 3 that seem to be a different Ur, spelled UR. Can you figure out what UR is?**

- 6) Let's get back to our original search results. Click All. One of the first few results should be from a website called ancient.eu, scroll down to it. Without clicking on the link yet,
  - a. When was the webpage published?
  - b. What modern day country is Ur located in? (Should be in the result description)
  - c. Right click and Open the Link in a New Tab. What is the name of this webpage?
  - d. Who wrote this article about Ur?
  - e. **Scroll down towards the bottom. What different sections to the webpage are there (Name at least 3)?**
  - f. **Do you think that this is a reliable resource? What evidence tells you to trust it or not?**
- 7) We are going to practice your skimming skills. Without reading the entire article, see if you can find the answers to the following questions?
  - a. When was Ur first discovered by modern scientists? Who discovered it?
  - b. **Why did the people of Ur live wealthy and comfortable lives?**
  - c. Who was the king of the First Dynasty?
  - d. When did Sargon of Akkad rule Mesopotamia?
  - e. Name two cities to the north of Ur. What two rivers flow past Ur to the ocean? (Use the map)
  - f. How long was the wall that was built to keep the Martu barbarians out of the city?
  - g. **When did the city of Ur fall (No longer inhabited)? What are two reasons given for this happening?**
  - h. **After people left Ur, what happened to it? Why did it take over 2000 years to discover again?**
  - i. **What material was the ribbons in the hair of the women in the tombs made of? What does this tell us about some of the people who lived in Ur?**
  - j. In many pictures that we saw earlier there was a large temple with huge stairs going up. Can you figure out what this building was called?
  - k. **How many sources did the author use to write this article?**
  - l. Using the Timeline, pick one event and tell me the date and what happened?
  - m. Name two universities that recommend this website.

## ASSESSMENT

Students will submit their answers to the Independent Practice.

<b>DISCUSSION QUESTIONS</b>
When students have completed the Independent Practice, make sure to discuss and share out about the bolded questions above.

Lesson Two:

<b>SUBUNIT</b>
Annotating Sources
<b>TOPIC</b>
Annotating Videos with Google Docs
<b>OBJECTIVES</b>
SWBAT annotate videos using Google Docs
<b>STANDARDS - PA State Standards</b>
<ul style="list-style-type: none"> <li>• Standard - 15.3.12.I</li> <li>• Standard - 15.4.12.A</li> </ul>
<b>GUIDING QUESTION/INTRODUCTION</b>
<p>Calling back to the previous day's lesson of hand-writing annotations, ask students the following questions:</p> <ol style="list-style-type: none"> <li>1. How did you like yesterday's annotations-by-hand?</li> <li>2. Did you find it slow/tedious or fast/efficient?</li> <li>3. What if you wanted to annotate other types of sources, like videos or audio recordings?</li> </ol> <p>After discussing these questions for a few minutes, have students break up into pairs for the first activity. I usually will just have them pair up with neighbors as that is easiest with my lab setup, but feel free to pair them up based on whatever method you see fit. Before starting the activity, show them an example of annotated timestamps and make sure that you stress that they are just supposed to be quick notes to remind you what is in each part of the video. They do not need to be full sentences, and instead should just be enough to remind you of what is at that time in the video.</p>
<b>PAIR ACTIVITY</b>

In pairs students will watch the following two videos on Roman aqueducts:

<https://www.youtube.com/watch?v=s5AT0XY2Hi0> and  
<https://www.youtube.com/watch?v=IRDn6AOPRnQ>

One student should open up a new Google Doc on their computer and the other student should open the first YouTube video on their computer. Both students should have headphones plugged into the computer with the video. The Google Doc should be titled "Roman Aqueduct Annotations" with a section for each video. The idea of this activity is that both students will watch the videos and they will work together to note timestamps of important information and annotate each time-stamp. One student is responsible for pausing/rewinding/fastforwarding the video, the other is responsible for typing the timestamps/annotations into the Google Doc. They should be working together and discussing what is important and what should go in their annotations. After the first video, the students should switch roles so they each get a chance to type and control the video.

Students should be focusing on the following types of information:

- Good graphics/animations/maps/etc
- Clear and concise explanations (i.e. sounds like it comes from a dictionary)
- New information they don't know
- Facts/figures/statistics
- Questionable statements/things that you need to reevaluate

Allow students about 20-30 minutes to complete this activity and push them to come up with at least 5 annotations per video. Monitor their progress and review their annotations as they go.

### **CLASS DISCUSSION**

Once all students have had a chance to complete the activity, bring the class together and pull the first video up on the SMART board/screen/monitor. Have students volunteer different time stamps to go to, but do not have them explain why. Instead, play the clip from the given time and open up the class to discuss why that specific part was chosen. See if other groups chose the same time stamp. Go through each video like this, taking around 5 time stamps per video and a few minutes to discuss each one. In conclusion, ask students what they thought of this process and any ideas on how this can be improved on or what else it can be used for.

### **ASSESSMENT**

Have students complete the following quick exit ticket, allowing students to use their annotations and work in the same pairs as before:

1. What do aqueducts transport?
2. How were they able to transport this thing for hundreds of miles without any electricity?
3. The Romans were not the only people to use aqueducts. Who else used aqueducts?
4. How many aqueduct lines were constructed in ancient Rome?

Lesson Three:

<b>SUBUNIT</b>
Developing Research Questions
<b>TOPIC</b>
Starting researching: Developing a plan
<b>OBJECTIVES</b>
SWBAT efficiently gather lists of sources on their own to later go through SWBAT analyze sources using the CRAAP test
<b>STANDARDS - PA State Standards</b>
<ul style="list-style-type: none"> <li>• Standard - CC.8.5.9-10.A</li> <li>• Standard - CC.8.5.9-10.B</li> <li>• Standard - CC.8.5.9-10.C</li> <li>• Standard - CC.8.5.9-10.D</li> <li>• Standard - CC.8.6.9-10.E</li> <li>• Standard - CC.8.6.9-10.F</li> <li>• Standard - CC.8.6.9-10.G</li> <li>• Standard - CC.8.6.9-10.H</li> </ul>
<b>GUIDING QUESTION/INTRODUCTION</b>
Calling back to the previous lesson, have some students share out the topic/question that they chose for their research. Discuss why these questions are good (they do not have a simple yes/no answer, they can't be answered from a single source alone, it is novel, at least for us). Then transition to discussing how they will actually do this research and ask for ideas on how to start. Let students share and then show/display the following steps that we will be using during our research.

- **Step 1** - Articulate the research problem and objectives
- **Step 2** - Develop the overall research plan
- **Step 3** – Collect the data or information
- **Step 4** – Analyze the data or information
- **Step 5** – Present or disseminate the findings
- **Step 6** – Use the findings to make the decision

Explain that we have already completed Step 1 and are currently working on Step 2. Explain that a research plan is not a hard-and-fast thing but is much more flexible. Its purpose is to guide you to the best, most relevant sources that you can find. For instance, what type of sources do you think will be most useful? (Books, videos, articles, etc.) How many sources do you think you will need? What is the most important information that you should start with? The more that you plan out now the less roadblocks you will run into in the future. Once the plan has been established, we can move onto Step 3. Explain that the best way to go about this is to just find as many resources as they can. Explain that they do not need to read/watch/listen to the entirety of the source, there is time for that later. The main goal of Step 3 is finding *as many* resources as possible, even if some of them prove to not be helpful later on. Stress to students that by the end of the class they should have a list of at least 10 resources, and they should begin to start analyzing/annotating if they have time.

### **DEMONSTRATION/GUIDED PRACTICE**

Working together with the whole class, have each student answer the following questions about their research topic/question.

1. Where should you start i.e., what information will form the basis of your research?
2. What types of sources (articles, videos, books, etc) do you think will be most useful?
3. What search terms will be effective at finding what you want?

### **INDEPENDENT PRACTICE**

Students should spend the rest of the period doing independent research and compiling a list of sources/links in a Google Doc. IF they have time, they should complete a quick CRAAP write up for each source (one sentence per letter of CRAAP briefly explaining how it passes/does not pass that aspect of the test)

### **ASSESSMENT**



Assessment will be done throughout the independent practice period. The teacher should monitor the room and look at each students' progress throughout the period, checking in on some of their resources and asking them what they need help with/what they are struggling with.

## Resources

Below is an annotated bibliography of all the resources that I used to create this unit. All the resources that I used to create the unit, I purposefully chose so that they were accessible and useful, and as such the below sources will be useful for anyone reading this curriculum, students and teachers alike.

### Cities (General)

LeGates, R. T., & Stout, F. (Eds.). (2011). *The city reader*. Routledge.

This is an incredibly rich and useful resource that covers nearly every aspect of cities throughout the history of civilization. It is a compilation of dozens of articles written by historians. Each article has a very well-written and helpful introduction written by the book's editors. The book is also organized in a logical, chronological order which makes it very easy to target research on a specific time period/era.

### Ur

Hafford, W. B. (2018). Mesopotamian city life. *Expedition*, 60(1), 48–57.

This article is published by the Penn Museum and provides an incredible insight into the life of the people of Ur and Mesopotamia. It has wonderful maps, images, and graphics that help to provide as much information to the reader as possible. The article is very well written and is easily accessible to even younger students.

Mark, J. J. (2011, April 28). *Ur*. Ancient history encyclopedia.

<https://www.ancient.eu/ur/>.

This is a great resource for quick, fact-find style research. Has lots of information about the history of Ur throughout its lifetime and information about the people who lived there. Great images and easy to read and understand.

Viper TV. (2018, September 28). *Sumerian secrets of the city of ur - beyond the mystery* [Video file]. Retrieved from <https://www.youtube.com/watch?v=yQz5v9mi5nw>.

This is a great YouTube video that covers many aspects of Ur. It talks about the history, culture, and people of Ur. There are tons of interesting facts and lots of great animations, graphics, and footage.

## Rome

Cartwright, M. (2012, September 01). *Aqueduct*. Ancient history encyclopedia.

<https://www.ancient.eu/aqueduct/>.

Another resource from the Ancient History Encyclopedia which is an incredible resource for anything pertaining to the ancient world. This article breaks down the basics of what aqueducts were, how they work, and the engineering feats that ancient people performed to make aqueducts a reality.

Demand, N. H. (2012). *The mediterranean context of early greek history*. Wiley.

While this book has tons of information about the history of Greece and the Mediterranean, the main reason I used it in the unit was for information on pre-civilization. It provides a rich history and analysis of the time before cities and what influences and changes led to humans transitioning from small, nomadic tribes to settling in large groups and eventually building cities.

Mark, J. J. (2009, September 02). *Ancient Rome*. Ancient history encyclopedia.

<https://www.ancient.eu/Rome/>.

Great resource for quick, fact-find style research. Has lots of information about the history of Rome throughout its lifetime and information about the people who lived there. Great images and easy to read and understand.

Patterson, J. A. (2006). *The city of rome*. In Morstein-Marx, R., & Rosenstein, N. (Eds.) *A companion to the roman republic*(pp. 345-364). Wiley-Blackwell.

Incredibly detailed and analytical history of Rome. Covering all aspects of life in ancient Rome, this book does an incredible job of bringing someone like me, who had no prior knowledge of Rome, up to speed. While it might be a bit dense for high school students, certain excerpts could certainly be pulled and used in class.

## Philadelphia

Gibson, C. (1998, June). *Population of the 100 largest cities and other urban places in the united states: 1790 to 1990*. United States Census Bureau.

<https://www.census.gov/population/www/documentation/twps0027/twps0027.ht>.

Straightforward resource giving populations of the largest cities throughout time.

History.com Editors. (2019, March 8). *Philadelphia*. History.com.

<https://www.history.com/topics/us-states/philadelphia-pennsylvania>.

Very short article about the history of Philadelphia. Hits on some events that some of the other resources overlook. Accessible to any age student.

Soderlund, J. R. (2014). *Native peoples to 1680*. The Encyclopedia of Greater Philadelphia. <https://philadelphiaencyclopedia.org/archive/native-peoples-to-1680/>.

Article detailing the lives of the native Americans who settled in the Philadelphia area prior to being settled by the British. Easy to understand and jam-packed with information.

Soderlund, J. R. (2020). *Colonial era*. The Encyclopedia of Greater Philadelphia. <https://philadelphiaencyclopedia.org/archive/colonial-philadelphia/>.

Similar to the article on Native Peoples to 1680, this article provides detailed information on Philadelphia during colonization. It has lots of details and showcases many of the important events and people of times.

The history of philadelphia. (2011). In *Eyewitness Travel Guides: Philadelphia and the Pennsylvania Dutch Country* (pp. 16-23). New York, NY: DK Publishing.

Very basic, but informative travel guide on Philadelphia. Gives a very cursory overview of the history of the city and how it got to where it is today. Not very in depth or analytical, this resource offers a great starting point to get into more detailed research on Philadelphia.

US Census Bureau. (2018, July 5). *Historical estimates of world population*. United States Census Bureau. <https://www.census.gov/data/tables/time-series/demo/international-programs/historical-est-worldpop.html>.

Straight-forward report on the population of the world at different times in history.

## Maps

Maps are such a huge part of understanding a city. I have found a bunch of maps and map-related resources that are very useful for teaching this unit. Below is a breakdown of the maps I found.

## Ur

Map 1 - found at [https://anaccidentalgod.com/uploads/3/4/5/0/34509990/\\_1361729542.jpg](https://anaccidentalgod.com/uploads/3/4/5/0/34509990/_1361729542.jpg)

Map 2 - found at <https://www.themaparchive.com/city-of-ur-plan-600-bce.html>

Map 3 - found in Hafford (Penn Museum Magazine) pg. 56

As you can see, each of these maps provides a very different view of the city of Ur, the first two showing a more macro view while the third shows an incredibly detailed view of the actual street and district structure. While I will get more into the importance of these resources in the Classroom Activities section, it is important for now to take a cursory

look at the overall layout of Ur. Ur's position directly next to the Euphrates River certainly contributed to the bustling industry and trade that made its home there. Surrounded on all sides by a wall, the city was cursorily protected from outside invaders. As you can see the canals on the outside of the walls that were dug provided not only irrigation for crops around the outside of the city, but they also brought water to the interior of the city for citizens. The second map shows the progression of how the city grew by including dates along with many of the buildings on the map, many of which were places of worship. The third map is very detailed, showing the individual districts of Ur as well as the major roads. The map looks strangely familiar with different neighborhoods and Broad Street, Church Lane and Baker's Square, all of which are certainly names that are still used in many modern cities. Even though Ur is thousands of years old, its history and structure shows that many things about cities (and the lives of their citizens) have remained constant over time.

### *Rome*

Map 1 - found at Patterson/Morstein-Marx, 2006, p. XXV

Map 2 - found at Patterson/Morstein-Marx, 2006, p. 484

Map 3 - found at

<https://i.pinimg.com/originals/c2/eb/5b/c2eb5b778a78ffb6803747519e89d0d4.jpg>

Map Resource 1 - found at

[https://commons.wikimedia.org/wiki/Category:Old\\_maps\\_of\\_ancient\\_Rome\\_\(city\)](https://commons.wikimedia.org/wiki/Category:Old_maps_of_ancient_Rome_(city))

Each of these maps shows a different and informational aspect of the city. The first one shows an overview of the entire city, some of the major landmarks, and even a bit about the topography of the city, showing the various hills that Rome sat upon. It gives a good overall layout of the city as well as its surroundings and even shows things like the aqueducts and where they ran. The second map shows a more close-up view of the center of the city and the buildings as well as the main route that was taken by victorious military generals during Triumphs. The last map is very interesting as it shows how the city expanded via wall construction before, during, and after the time period I am focusing on. As you can see Rome was founded as a very small city and over the course of the next two thousand years, expanded out into the massive city that it is today. While much of Rome has changed since BCE, much of the ancient monuments and structures still stand to this day. The last resource is a Wiki collection of dozens of different maps of ancient Rome.

### *Philadelphia*

The first resource is the Free Library of Philadelphia's online Map Collection, found at <https://libwww.freelibrary.org/digital/collection/maps>. They have over 5,000 maps of

Philadelphia and the surrounding area that date back hundreds of years. They also have an Interactive Overlay Tool that allows you to look at eight different maps dating from 1843-1962 on an overlay of Google Maps so you can see how the city today compares the city of the past. You can also choose to display historical images from a series of neighborhoods from all over the city, including the location where each was shot.

The second resource is the Greater Philadelphia GeoHistory Network found at <https://www.philageohistory.org/tiles/viewer/>. This is similar to the Interactive Overlay Tool from the Free Library except that it is much more extensive offering dozens of different historical overlay options.

The last resource is Old Maps Online which is found at <https://www.oldmapsonline.org/en/Philadelphia>. This website offers a mix of overlay options but also has links to other old maps of Philadelphia. This website has the largest number of maps available out of the resources and it also links to other map collection websites as well.

## Materials

The only material that is required for this unit is an internet-connected computer. Additionally, a printer might be useful. The only other thing is that students will need a free Google Account to access the Google Suite of tools.

## Appendix

PA State Standards in the CC.8 Content Area for Reading and Writing in History and Social Studies:

- Standard - CC.8.5.9-10.A
  - Cite specific textual evidence to support analysis of primary and secondary sources, attending to such features as the date and origin of the information.
- Standard - CC.8.5.9-10.B
  - Determine the central ideas or information of a primary or secondary source; provide an accurate summary of how key events or ideas develop over the course of the text.
- Standard - CC.8.5.9-10.C
  - Analyze in detail a series of events described in a text; determine whether earlier events caused later ones or simply preceded them.
- Standard - CC.8.5.9-10.D

- Determine the meaning of words and phrases as they are used in a text, including vocabulary describing political, social, or economic aspects of history/social science.
- Standard - CC.8.5.9-10.E
  - Analyze how a text uses structure to emphasize key points or advance an explanation or analysis.
- Standard - CC.8.5.9-10.F
  - Compare the point of view of two or more authors for how they treat the same or similar topics, including which details they include and emphasize in their respective accounts.
- Standard - CC.8.5.9-10.H
  - Assess the extent to which the reasoning and evidence in a text support the author's claims.
- Standard - CC.8.5.9-10.I
  - Compare and contrast treatments of the same topic in several primary and secondary sources.
- Standard - CC.8.6.9-10.E
  - Use technology, including the Internet, to produce, publish, and update individual or shared writing products, taking advantage of technology's capacity to link to other information and to display information flexibly and dynamically.
- Standard - CC.8.6.9-10.F
  - Conduct short as well as more sustained research projects to answer a question (including a self-generated question) or solve a problem; narrow or broaden the inquiry when appropriate; synthesize multiple sources on the subject, demonstrating understanding of the subject under investigation.
- Standard - CC.8.6.9-10.G
  - Gather relevant information from multiple authoritative print and digital sources, using advanced searches effectively; assess the usefulness of each source in answering the research question; integrate information into the text selectively to maintain the flow of ideas, avoiding plagiarism and following a standard format for citation.
- Standard - CC.8.6.9-10.H
  - Draw evidence from informational texts to support analysis, reflection, and research.
- PA State Standards in Subject Area 15 - Business, Computer and Information Technology:

- Standard - 15.3.12.C
  - Create a research project based upon defined parameters. Reference English Language Arts CC.1.4.11-12.V
- Standard - 15.3.12.E
  - Evaluate chosen print and electronic resources for advanced research. Reference English Language Arts CC.1.4.11-12.U
- Standard - 15.3.12.I
  - Synthesize information gathered from multiple sources (e.g., digital, print, face to face).
- Standard - 15.3.12.N
  - Demonstrate appropriate work ethic in the workplace, community, and classroom.
- Standard - 15.3.12.W
  - Collaborate via electronic communication with peers, educators, and/or professionals to meet organizational goals.
- Standard - 15.4.12.A
  - Apply the creative and productive use of emerging technologies for educational and personal success.
- Standard - 15.4.12.G
  - Create an advanced digital project using sophisticated design and appropriate software/applications.
- Standard - 15.4.12.L
  - Find and use primary documentation; employ an accepted protocol for citation
  
- PA State Standards in Subject Areas 5-8 Civics and Government, Economics, Geography, and History:
  
- Standard - 5.2.9.D
  - Analyze citizens' roles in the political process toward the attainment of goals for individual and public good.
- Standard - 6.1.9.A
  - Analyze how choices are made because of scarcity.
- Standard - 6.1.9.B
  - Identify the origin of resources and analyze the impact on the production of goods and services.
  - Analyze how unlimited wants and limited resources affect decision making.
- Standard - 6.1.9.D

- Explain how incentives cause people to change their behavior in predictable ways.
- Standard - 6.2.9.A
  - Analyze the flow of goods and services in the national economy.
- Standard - 6.3.9.A
  - Analyze the process through which government provides public goods and services.
- Standard - 6.4.9.B
  - Explain how trade contributes to economic interdependence.
- Standard - 6.5.9.B
  - Describe how productivity is measured and identify ways in which a person can improve his or her productivity.
- Standard - 7.1.9.A
  - Explain and illustrate how geographic tools are used to organize and interpret information about people, places, and environments.
- Standard - 7.1.9.B
  - Explain and locate regions and their shared connections as defined by physical and human features.
- Standard - 7.3.9.A
  - Explain the human characteristics of places and regions using the following criteria:
    - Population
    - Culture
    - Settlement
    - Economic activities
    - Political activities
- Standard - 8.1.9.A
  - Compare patterns of continuity and change over time, applying context of events.
- Standard - 8.1.9.B
  - Compare the interpretation of historical events and sources, considering the use of fact versus opinion, multiple perspectives, and cause and effect relationships.
- Standard - 8.2-4.9.A
  - Contrast the role groups and individuals from Pennsylvania played in the social, political, cultural, and economic development of the U.S.
- Standard - 8.2-4.9.B
  - Compare the impact of historical documents, artifacts, and places in Pennsylvania which are critical to U.S. history.