



GREENWOOD ARCHAEOLOGY CURRICULUM

GRADES 11-12

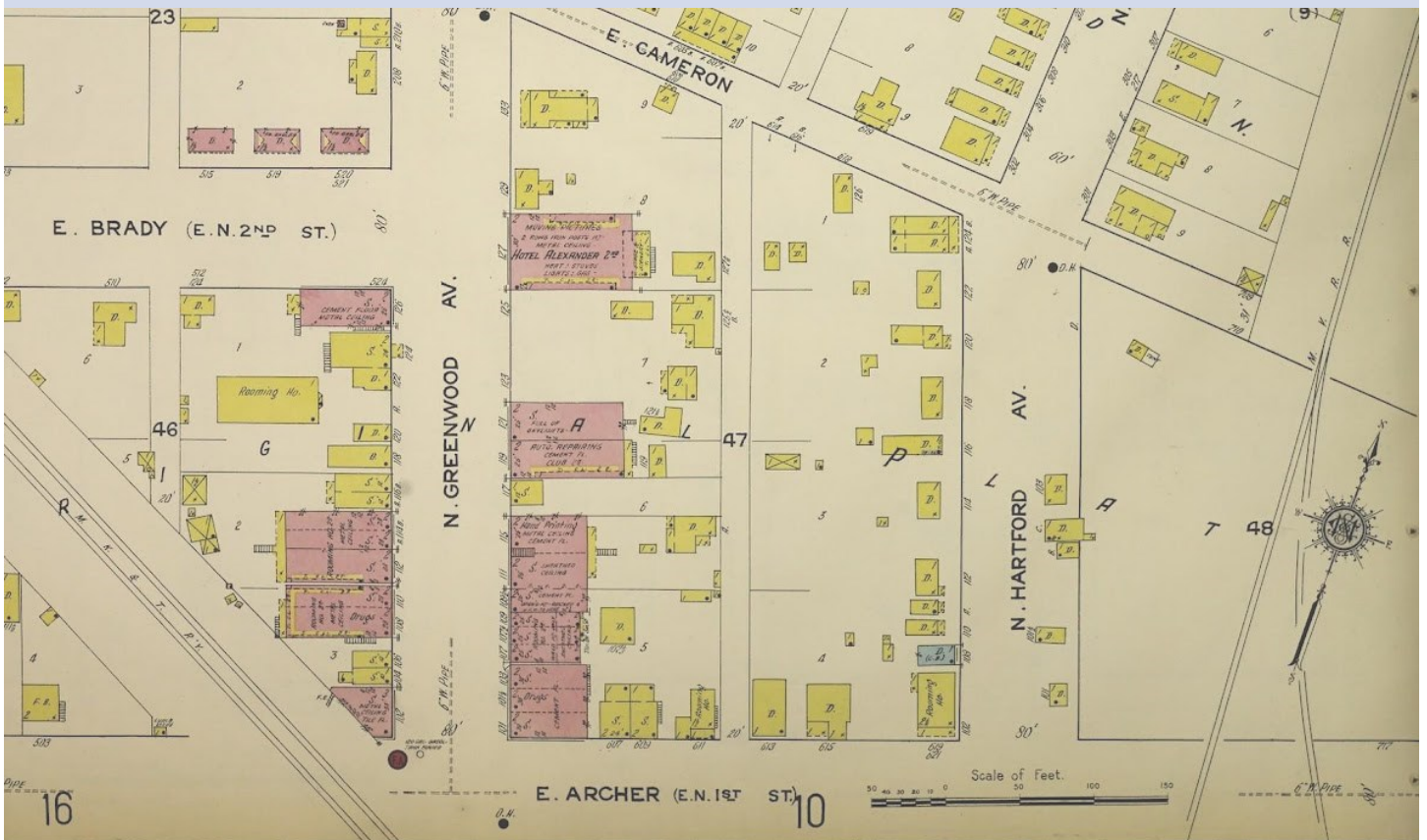


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TRAUMA-INFORMED COMPANION GUIDE

GREENWOOD ARCHAEOLOGY CURRICULUM



INTRODUCTION

The following curriculum was designed for junior and senior high school students for use in American social studies and history classrooms. The lessons included in this work contain primary documents and historical references to trauma, violence, racism, racialized harm, sexual assault, and some harsh language that may not be suitable for students under the age of 16. This trauma-informed companion guide provides a layer of comfort to ensure that all students and educators using this curriculum have some awareness of trauma-informed learning standards before introducing this topic or using this curriculum with their students.

Drawing from the latest works of trauma and justice-informed scholars in **social education** (Brown 2021; Carello and Butler 2014; Chikkatur 2013; Dubois 2014; Frederick and Shockley 2023; Gibbs 2020; Love 2019; McAdoo 2023), **culturally responsive teaching** (Muhammad 2023), **law and social justice** (Dumas 2018; Jones 2020); **psychology** (Kinouani 2022; Lewis-Giggetts 2022), **children's literature** (Patterson and Shuttleworth 2020), **spirituality and healing** (Davidson 2021; Lewis-Giggetts 2022), **history** (Sheppard 2010), **Black studies** (hooks 1994), **and Black liberatory praxis** (Wilson and Jackson 2023), this curriculum is structured around nine different lesson plans that are each designed to empower students and educators to move through even the darkest moments in Black history with a focus on hope, healing, and connection to reduce harm. All of the archival texts, photographs, archaeological evidence, and spoken histories included in this body of work were chosen with care to allow everyone who uses this curriculum to experience the history of Greenwood and Oklahoma's All-Black Towns as a story of survival, hope, love and community resilience.

In each lesson, you will find an entry point historical lesson and background context, a list of keywords with definitions, hands-on activities that support experiential learning, imagination, and student empowerment, opportunities to interact with real primary documents pulled from the archives, inspiring stories and interviews curated by Black archaeologists and living descendants, videos and imagery that allow for greater connection with visual learners, creative outlets for guided discussion and emotional expression through the arts, and the estimated time to complete each lesson.

GUIDANCE

Please read the following 8 tips before engaging with this curriculum:

1. Importance of Context

It is strongly encouraged that all students **read the historical background of each lesson before engaging with any associated imagery, written text, archival records or oral histories** that may be included in each lesson. It is essential to provide context and proper historical framing for all curriculum content to avoid the confusion, disorientation, and shock that can result when archival images of destruction, violence, or any form of injustice are removed from their original time, place, historical context, or connection to lived human experience and then shared with students.

2. Beware of Violence in the Archives

The majority of images, newspapers, and legal documents collected in Greenwood's scattered archives depict Greenwood's history as one characterized by gun violence, lynching-related deaths, and structures engulfed in smoke and flames. We have curated this curriculum to **avoid showing images of death, human beings laying in the street, or any structures on fire**. The only images of destruction are only shown within the context of discussing how these structures were originally built and then rebuilt in the aftermath to maintain focus on healing and reducing-harm.

3. Protect Children and Survivors

Please keep in mind the **goal of protecting children in the present day while you work to uncover stories of children in the past**. We acknowledge that most of the survivors of the 1921 Tulsa Race Massacre that recorded their testimonies decades later for our students to hear were sharing their experiences living through this history as children. They encountered violence, death, loss of their homes and family businesses, and crippling fear alongside the adults in their lives. As children, their experiences went overlooked as many were asked to keep quiet about the ordeal.

We acknowledge that many children, past and present, have survived immense trauma before they even arrive in school and are then exposed to potentially more harmful trauma-centered instruction. Many historical texts related to Greenwood and the Tulsa Race Massacre also include references to sexual violence, calling into question the believability of survivors and the reverberating impacts that such violence can wreak on one's personhood and within entire communities. Our commitment is to reduce harm but to also acknowledge that students and educators are coming into the classroom with varying levels of pre-existing trauma. Therefore, we have chosen not to include archival newspapers, writings, or images that reference possible sexual assault in this curriculum to avoid asking learners and educators to wade through accounts of sexual violence that could pose greater harm to those who have already survived assault themselves. Throughout this curriculum, we ask that you take into consideration the many children and teenagers that have already been exposed to adversities and constantly carry their own hidden trauma in their "invisible backpacks."

4. Leading with Descendants and Multiple Ways of Knowing

This curriculum **draws on multiple ways of knowing about the past to share the living history of Greenwood** through oral histories produced by survivors and descendants themselves; Black-owned newspapers that call attention to both patterns of anti-Blackness as well as the power of Black collective organizing in the past; photographs showing the continuity of Greenwood as it was constructed, attacked, rebuilt, and challenged again; historic and modern day maps and aerial imagery showing how the footprint of this historic district has continued to shrink through time; archaeology and place-based stories of what was found underground as a witness to history; genealogical studies and public histories that have brought lost families and neighborhoods back to life; the practice of storytelling passed down through generations; as well as the practice of expression and lifting spirits through art, poetry, quilting, and other creative outlets as a tool for survival.

The inclusion of all these different ways of knowing about the world provides learners and educators with an array of tools to bear witness to and more fully understand the past beyond one textbook or one historical reference or a single timeline of events. This is critical for students and educators to have multiple entry points to learning this material to meet the needs of multiple learning styles but also to understand that the **history of Greenwood is more than a single-story narrative and can never be understood from a single person's perspective.** With this curriculum model, students learn from descendants and survivors first and learn how to value other ways of knowing before they are introduced to secondary texts from academic scholars. And as such, they learn to understand this as a living history that is unfinished, unresolved, and still unfolding today instead of a static history long past that has no connection to their lives today.

5. Focus on Hope and Restoration

This curriculum is designed with a focus on healing, restoration, and Black community resilience. **It is strongly encouraged for educators to use this collection with balance in mind, avoiding spending too much time on trauma-centered instruction but maintaining a balance of positivity and a throughline of hope throughout the entire curriculum.** While we acknowledge that time to incorporate new lessons in the classroom is always hard to find, **we ask that you avoid starting the curriculum in the middle or only using part of the lessons that would leave students with an unresolved narrative of trauma.**

It is intended for students to begin their journey in the “Living the Dream” unit, sharing stories of Black migration, Black freedom, town building, and the rise of Black prosperity in Oklahoma. Then students move through the “A Dream Deferred” unit that asks them to engage with more challenging concepts of racial violence but with attention paid to survival throughout each lesson. They end with the “Restoring the Dream” unit to discover how they can learn to think like archaeologists and follow the clues to dive deeper into Greenwood’s history to reclaim and uncover what was once hidden underground. If for the sake of time you are unable to use this curriculum in its

entirety, **we strongly encourage you not to use the “A Dream Deferred” unit alone** unless you have extensive experience guiding yourself and your students safely through trauma-inducing content and have your own plan to help them decompress and reflect after the lesson.

6. Importance of Imagination and Multivocal Storytelling

As students move through each lesson and each unit, it is essential that they be given opportunities to exercise their imagination and safe spaces to dream. Each of the three units in this curriculum are named to centralize the dreams of men, women, and children in Greenwood. Activities and thought exercises that ask students to design their own town, write their own advertisements to bring in new families, and even re-write history through blackout poems, are all tools to increase imagination, that also **work to empower students who do not have to accept history as it was written for them but can learn to re-imagine it, reframe it, and build these stories differently in their minds.** This imaginative visualization process is crucial for students moving through trauma-inducing histories to read through these lessons as learners who can recognize their own power in the story and become storytellers themselves, not helpless observers to an already completed narrative that they can do nothing about.

Students are more successful and engaged when they are allowed to use innovative thinking to make sense of the world around them. Building in opportunities for emotional expression, artistic creation, imagination, storytelling, and innovative thinking can help students and educators stay calm and regulated, reduce stress, avoid burnout, get more enjoyment from their lessons, develop new tools to cope with trauma, and enhance positive emotions overall. When students see themselves as storytellers, producers of knowledge, and contributors to history in the making, they are better able to visualize themselves as successful and to visualize a positive future for the living community of Greenwood as well.

7. Shifting from Trauma to Healing-Centered Pedagogy to Avoid Secondary Trauma

Our goal is to **empower educators and students to carry forward these difficult histories without being haunted by the past and experiencing secondary trauma in the process.** Secondary trauma is often experienced by descendants, students, and researchers who read or have been told stories about traumatic events from people in the past and begin to adopt the same emotions, mentality, and stress of those who survived the event themselves. To disrupt this secondary trauma as well as historical or generational trauma that gets passed down through generations, we focus on healing, learning new ways of being, increasing one's sense of self and disrupting cycles of damaging thinking as part of a healing-centered pedagogy already built into this curriculum. While there are lessons that address more difficult histories, they are intentionally placed in the center of the curriculum so that students are not asked to either start or finish their lesson in a space of trauma. Rather, students are introduced to positive stories at the beginning and ending of every unit that centralize growth,

healing, and the importance of building Black spaces of safety and love as a tool for survival. We strongly recommend that you avoid starting and ending with topics rooted in trauma as you move through each lesson but make use of the built-in lessons that centralize healing-centered pedagogy. While we cannot fully remove the trauma-inducing history from these lessons, you have the power to control how and when it is introduced to students and for how long students need to be in that head space as well as how you bring them out of a potential trauma storm. By design, the “A Dream Deferred” unit is placed in the center of the curriculum, contains the shortest lessons, and has the most opportunities for hands-on activities that centralize healing and restoration as well as creative outlets of emotional expression.

8. Building Communities of Care in the Classroom

To build what bell hooks and other culturally-relevant teaching scholars describe as a “community of care,” educators must work alongside their students to build spaces of safety where trauma-informed, culturally-relevant, and developmentally-appropriate instruction is offered within a curated space designed to support increased connection, belonging, understanding, and care for everyone in the room. **It is essential for educators to build a community of care with students before engaging with this curriculum**, to ensure that even when students encounter something new or different, or something that challenges their previously held beliefs about the past, they approach the subject with a desire to connect and understand rather than with criticism, guilt, anger, or fear. And as a result, the class is primed to engage with and celebrate portrayals of Black American culture in the past and engage more intentionally with one another, seeing connection and belonging as an act of self-love.

Allowing students to feel a sense of safety and belonging before they are asked to dive into difficult histories is critical for students to become more than consumers of historical knowledge but to collectively feel empowered to become producers of new knowledge. This relieves the burden on educators to be authoritative experts in the room, who now take on the role of guides or facilitators that support student-led explorations into the past. In this way, students and educators join a commitment to sharing what they have learned from this curriculum and decide for themselves what parts they will carry with them and what parts they will leave behind. In the process of building a community of care, students gain a deeper knowledge of history and about themselves as well, reflecting on what language, methods of instruction, and ways of knowing they connect with most, what helps them learn best, and what should be preserved for future generations to explore.

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INTRO TO ARCHAEOLOGY

GREENWOOD ARCHAEOLOGY CURRICULUM



In 2019, two archaeologists named Drs. Alicia Odewale and Parker VanValkenburgh began their research in Tulsa, Oklahoma's Greenwood community. Their goal was to uncover the history of Black Wall Street and ensure that it is not forgotten. They have been collaborating with members of the community to assist them in their research. In this unit, you will have the opportunity to step into the shoes of an archaeologist, mirroring the work they've been doing in Greenwood.

WHAT IS ARCHAEOLOGY?

Archaeology is a way to learn about the history and culture of people in the past. It involves studying **material culture**—the objects, resources, and places that were left behind by those people. Archaeologists go to **archaeological sites** to find evidence of what happened in the past. These sites are made up of artifacts and features. **Artifacts** are things that humans made or used, like pottery, tools, weapons, and jewelry. **Features** are structures or areas that can't be moved without changing them, like foundations of buildings, wells, fireplaces, and walls. Both artifacts and features help archaeologists figure out how people used the site they lived on.

THE ARCHAEOLOGICAL PROCESS

The **archaeological process** is not just about digging. In Greenwood, the archaeologists started by working with the local community. They **conducted research** to find places to explore, looking at old records and listening to oral histories passed down through generations. Oral histories are spoken stories and memories that are the oldest type of historical record, even older than written words. The archaeologists also searched through libraries, museums, and other places for primary sources, such as old newspapers, documents, maps, and pictures from the time. They looked at secondary sources too, which are accounts of events retold in books and articles. The archaeologists' records about the artifacts and features they found become their own kind of primary source.

Archaeologists also study how the land and the people who lived there are connected. They need permission from the government and landowners to work on the land. They conduct **archaeological surveys** to find new places to study. They collect information about where they found evidence from the past and make maps of their findings. There are different methods for conducting surveys, including archaeologists walking the land to record the presence of artifacts and features on the ground. Other methods use instruments like GPS (Global Positioning Systems) or LiDAR (Light Detection and Ranging) to map the land's elevation to identify structures. Technologies such as GPR

(Ground-Penetrating Radar) and magnetic gradiometry help to analyze the soil and locate buried features, called **anomalies**. Each method provides specialized data about an area, indicating the potential presence of archaeological discoveries beneath the surface. When combined with other research, areas that show underground anomalies or concentrations of surface artifacts may be promising sites for **excavation**, or digging.

If archaeologists and their community partners decide that excavation is needed, they may set up individual **excavation units**. Archaeologists may carefully map out the units, areas they plan to dig, using high resolution GPS and dividing the site into a grid. They understand that it's not just about finding artifacts, but also about understanding where and how they are found. They document any layered changes they see in the dirt, such as color, texture, and smell, a study called **stratigraphy**. By studying the different strata (layers), archaeologists can learn how the site changed over time and determine the age of the artifacts. Just like reading a book and using clues from the story, archaeologists use the **context** around an artifact to understand its origin and purpose. However, excavation is a destructive process that should only be done if necessary or if the site is at risk of destruction. During excavation, archaeologists must be careful not to damage the artifacts or important information. Once an artifact is documented **in situ** (in its original spot), it can be taken out for cleaning and further study.

After the artifacts are excavated, they undergo a process called **conservation**. This step is crucial because buried and underwater artifacts decay over time due to environmental factors. Additionally, when artifacts are exposed to air after being removed, they can become damaged. The artifacts are taken to a lab where they are stabilized, cleaned, and evaluated for more treatment. Each type of artifact goes through a different analysis process, which involves sorting them by material and type, counting them, measuring them, and taking pictures or drawings.

In the final part of the archaeological process, **interpretation and communication**, archaeologists use their findings to piece together what happened at the site and who lived there. They do this by answering their research questions and then sharing their discoveries with other experts and the public. They want everyone to know about history because it is something that belongs to everyone. Through talks, articles, museum exhibits, websites, and interviews, archaeologists communicate their findings to as many people as possible. By doing so, they ensure that the knowledge gained from their work is accessible and shared with the world. Because history belongs to everyone.

Now, let's dig in.

Teachers and students are encouraged to watch the [Greenwood Past, Present, Future documentary video](#) (about 83 minutes) before beginning the lessons in this curriculum. The cardinal image that appears throughout the lessons connects to a story from an interviewee in the documentary with a flock of red birds representing the ancestors.

RESTORING THE DREAM

GREENWOOD ARCHAEOLOGY CURRICULUM



The Tulsa Race Massacre of 1921 left a lasting impact on the Greenwood District, a thriving Black community known as "Black Wall Street." Despite the devastation, Black Tulsans were determined to rebuild their lives and their community. They faced numerous obstacles, including discriminatory policies and practices designed to hinder their recovery.

Most of the Black residents were not able to determine their next move until they could escape the holding facilities set up around the city to detain Black men, women, and children in the immediate aftermath of the massacre. Marshall law—control of the city by the military—and a curfew limited their movements. Black Tulsans had to make difficult decisions during and after the event to flee the city, leave property behind, separate from the rest of their family, or go into hiding.

The city of Tulsa and its white residents actively tried to prevent Black residents from rebuilding. They implemented a fire ordinance, which made it difficult to rebuild homes and businesses. *The Tulsa Tribune*, a local newspaper, published slanderous articles about the community, calling it a "cesspool of iniquity and corruption." Insurance companies refused to pay claims for damages for the "riot," leaving many residents without financial support. The term "riot" is in quotes here because the word was used to blame the Black residents for the destruction of their homes and businesses and to deny them aid.

Despite these challenges, the Greenwood community exhibited remarkable resilience. The spirit of self-reliance and community that had built the district in the first place fueled its reconstruction. The story of Mt. Zion Baptist Church exemplifies this unwavering spirit. Mt. Zion Baptist Church, a newly constructed building dedicated just seven weeks before the massacre, was attacked and burned to the ground. The congregation faced immense hardship, as insurance companies denied their claims, citing "riots" as the cause of the damage. Despite these setbacks, the Mt. Zion congregation persevered, taking on the daunting task of rebuilding their church over a decade later. It is one of the few buildings in Greenwood listed on the National Register of Historic Places.

The reconstruction of Greenwood began in 1922 with the help of organizations like the Colored Citizens Relief Committee, the East End Welfare Board, and other local and national aid groups. The Tulsa Race Massacre was the first time the American Red Cross—a humanitarian organization—responded to a disaster caused by Americans fighting each other rather than a natural disaster, disease outbreak, or war with another nation. The community rebuilt with a determination to prevent future destruction, choosing red brick as the dominant building material. By 1925, Greenwood

had risen from the ashes, regaining its former glory as Black Wall Street.

Greenwood continued to thrive, reaching its peak in the 1940s with over 240 Black-owned businesses. The growth of "war industries" during World War II created new job opportunities, leading to increased business and home ownership. The return of African American soldiers from the war, disillusioned by the persistent racial injustice in the United States, fueled the Double Victory Campaign, a movement advocating for both victory abroad and victory at home against racial discrimination. This campaign marked the early years of the Civil Rights Movement.

As the Civil Rights Movement progressed, desegregation had unintended consequences for Black communities, including Greenwood. The district experienced a significant economic decline in the latter half of the 1960s. Black residents, eager for financial freedom, began spending their money in white-owned businesses that were previously inaccessible to them. At the same time, large franchises began buying out small businesses, weakening Greenwood's entrepreneurial success. These factors drained millions of dollars from the once self-sufficient Black economy, leading to the closure of many small businesses.

The decline of Greenwood presented an opportunity for the city of Tulsa. They initiated an urban renewal process, using eminent domain to acquire, redevelop, and redistribute land in the heart of the community. The construction of the I-244 / US-75 expressway through Greenwood from 1967 to 1974 fractured the landscape. Black residents and business owners were forced to sell their homes and businesses, leading to the fragmentation of the once vibrant community.

Despite these challenges, the spirit of Greenwood continues to inspire. Archaeologists are working to uncover the district's heritage, piecing together the story of Black Wall Street. They are challenging the myth that Greenwood is lost and working to recover, restore, and reimagine its history. This work is essential to understanding the resilience of the Black community and the enduring legacy of Black Wall Street. In this final set of lessons, students will imagine themselves as archaeologists on this project, uncovering Greenwood's history.

HISTORIC SITE ASSESSMENT

GREENWOOD ARCHAEOLOGY CURRICULUM



Time Suggestion: 90-135 min.

OVERVIEW AND OBJECTIVES

Archaeologists Dr. Alicia Odewale and Dr. Parker VanValkenburgh chose two places in Greenwood to focus on for their research—Standpipe Hill and BS Robert’s Park. They selected the sites based on extensive historical research, collaborative community conversations, site assessments, and permissions of the landowners. In this lesson, students will review or watch for the first time the *Greenwood Past, Present, Future* documentary. The video features Greenwood residents recalling experiences growing up in Greenwood. Students will hear first-hand about key sites of memory and life. After watching, students will study maps of Tulsa, Oklahoma to examine changes over time. This is how archaeologists assess the archaeological potential at a site.

MATERIALS

- Vocabulary
- [Greenwood Past, Present, Future documentary video](#)
- [ArcGIS Greenwood Archaeology Curriculum Map](#)
- ArcGIS Tutorial
- Greenwood Sites of Memory instructions and site descriptions
- Archaeological Potential Assessment sheets

FOCUS QUESTIONS

How do archaeologists decide where to conduct archaeological research?

How do land disruptions impact site formation and inform archaeological research?

C3 FRAMEWORK ALIGNMENT

HISTORIC SITE ASSESSMENT

SOCIAL STUDIES GRADES 9-12

- D1.5.9-12. Determine the kinds of sources that will be helpful in answering compelling and supporting questions, taking into consideration multiple points of view represented in the sources, the types of sources available, and the potential uses of the sources.
- D2.Civ.14.9-12. Analyze historical, contemporary, and emerging means of changing societies, promoting the common good, and protecting rights.
- D2.Geo.2.9-12. Use maps, satellite images, photographs, and other representations to explain relationships between the locations of places and regions and their political, cultural, and economic dynamics.
- **D2.Geo.5.9-12. Evaluate how political and economic decisions throughout time have influenced cultural and environmental characteristics of various places and regions.**
- D2.Geo.10.9-12. Evaluate how changes in the environmental and cultural characteristics of a place or region influence spatial patterns of trade and land use.
- D2.His.1.9-12. Evaluate how historical events and developments were shaped by unique circumstances of time and place as well as broader historical contexts.
- **D2.His.7.9-12. Explain how the perspectives of people in the present shape interpretations of the past.**
- D2.His.8.9-12. Analyze how current interpretations of the past are limited by the extent to which available historical sources represent perspectives of people at the time.
- **D4.2.9-12. Construct explanations using sound reasoning, correct sequence (linear or nonlinear), examples, and details with significant and pertinent information and data, while acknowledging the strengths and weaknesses of the explanation given its purpose (e.g., cause and effect, chronological, procedural, technical).**

COMMON CORE ALIGNMENT

HISTORIC SITE ASSESSMENT

SOCIAL STUDIES GRADES 11-12

Key Ideas and Details	<p>1. Cite specific textual evidence to support analysis of primary and secondary sources, connecting insights gained from specific details to an understanding of the text as a whole.</p> <p>3. Evaluate various explanations for actions or events and determine which explanation best accords with textual evidence, acknowledging where the text leaves matters uncertain.</p> <p>7. Integrate and evaluate multiple sources of information presented in diverse formats and media (e.g., visually, quantitatively, as well as in words) in order to address a question or solve a problem.</p>
Integration of Knowledge and Ideas	<p>9. Integrate information from diverse sources, both primary and secondary, into a coherent understanding of an idea or event, noting discrepancies among sources.</p>

WRITING STANDARDS GRADES 11-12

Text Types and Purposes	<p>1. Write arguments focused on discipline-specific content.</p> <p>2. Write informative/explanatory texts, including the narration of historical events, scientific procedures/ experiments, or technical processes.</p>
Research to Build and Present Knowledge	<p>8. Gather relevant information from multiple authoritative print and digital sources, using advanced searches effectively; assess the strengths and limitations of each source in terms of the specific task, purpose, and audience; integrate information into the text selectively to maintain the flow of ideas, avoiding plagiarism and overreliance on any one source and following a standard format for citation.</p>

COMMON CORE ALIGNMENT

HISTORIC SITE ASSESSMENT

ELA 11-12

Key Ideas and Details	1. Cite strong and thorough textual evidence to support analysis of what the text says explicitly as well as inferences drawn from the text, including determining where the text leaves matters uncertain.
Craft and Structure	4. Determine the meaning of words and phrases as they are used in a text, including figurative, connotative, and technical meanings; analyze how an author uses and refines the meaning of a key term or terms over the course of a text.
Integration of Knowledge and Ideas	7. Integrate and evaluate multiple sources of information presented in different media or formats (e.g., visually, quantitatively) as well as in words in order to address a question or solve a problem.
Writing Standards Text Types and Purposes	1. Write arguments to support claims in an analysis of substantive topics or texts, using valid reasoning and relevant and sufficient evidence. 2. Write informative/explanatory texts to examine and convey complex ideas, concepts, and information clearly and accurately through the effective selection organization, and analysis of content.
Speaking and Listening: Comprehension and Collaboration	2. Integrate multiple sources of information presented in diverse formats and media (e.g., visually, quantitatively, orally) in order to make informed decisions and solve problems, evaluating the credibility and accuracy of each source and noting any discrepancies among the data.
Vocabulary Acquisition and Use	6. Acquire and use accurately general academic and domain-specific words and phrases, sufficient for reading, writing, speaking, and listening at the college and career readiness level; demonstrate independence in gathering vocabulary knowledge when considering a word or phrase important to comprehension or expression.

INSTRUCTIONAL SEQUENCE

HISTORIC SITE ASSESSMENT

TEACHER PREP

1. Watch or rewatch [Greenwood Past, Present, Future documentary video](#) in preparation.
2. Print Historic Greenwood Site Assessment Activity Packets (1 per student).

ICEBREAKER

Invite students to reflect on and share out places in their community that hold special meaning and memory for them.

ACTIVITY

1. Read through the Greenwood Sites of Memory instructions as a class.
2. Watch or rewatch [Greenwood Past, Present, Future documentary video](#) as a class, reminding students to record information about the sites in their assessment sheets as they view the film. The interviewees speak most about locations in Greenwood from timestamp 30:11-1:08:27.
3. Guide students through the tutorial on how to navigate the ArcGIS Greenwood Archaeology Curriculum map.

DEBRIEF AND DISCUSS

1. What factors influence archaeological research? Which of these are most important to adhere to? Are they all equally important?
2. What notable changes did students recognize to Greenwood's landscape over time? What sites did students think make the best candidates for archaeological research?
3. Communicate with students that the archaeologists Dr. Odewale and Dr. VanValkenburgh decided to focus archaeological research in Greenwood on two sites in particular—Standpipe Hill and BS Robert's Park aka King St. Park/Greenwood Park. They also conducted initial archaeological surveys at Vernon AME Church. Further discuss the reasoning for the selection of these sites as class.

VOCABULARY

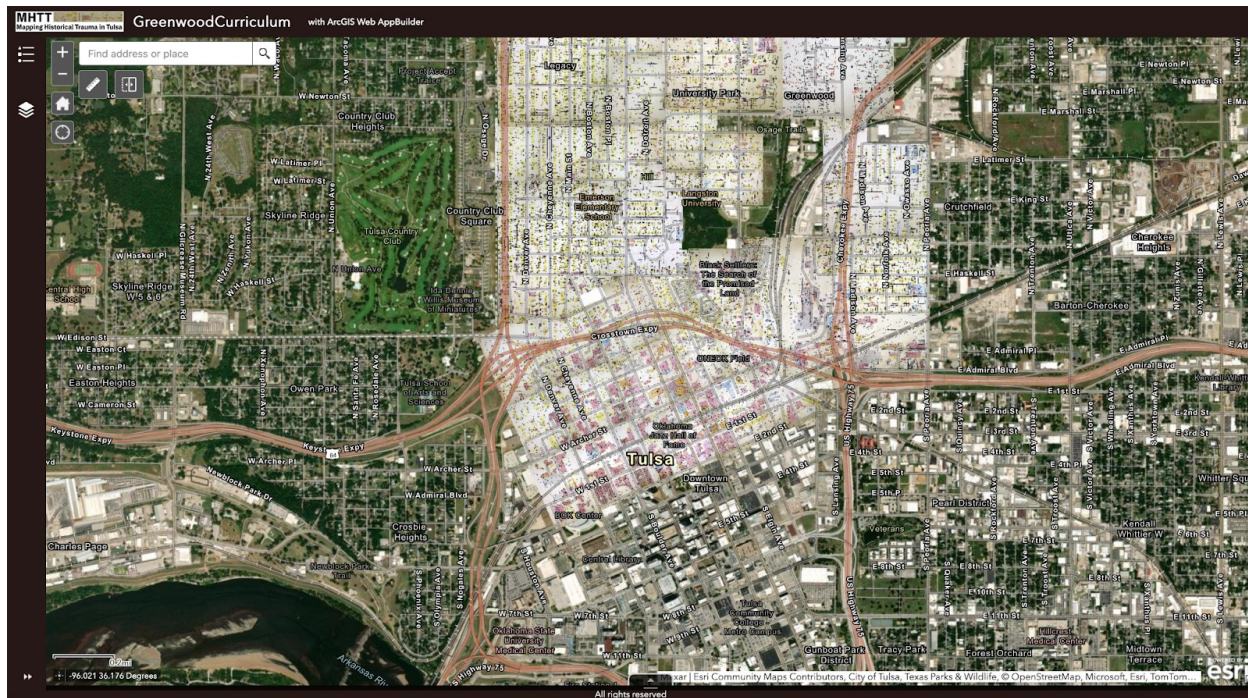
HISTORIC SITE ASSESSMENT

TERM	DEFINITION
ArcGIS	A cloud-based mapping and analysis solution used to make maps, analyze data, and share spatial information around the globe
Basemap	A modern reference map on which you overlay data from layers
Bioturbation	Soil disturbances caused by living organisms. Tree and plant roots in search of water stir up the soil and push previously buried artifacts and structural features up to the surface
Community Stakeholders	Local people, groups, organizations or businesses that have interest or concern in projects, programs, and policies that affect the community
Context	The relationship artifacts have to each other and their original surroundings which supports the interpretation of artifacts
Sanborn Fire Insurance Maps	Maps that depict the commercial, industrial, and residential sections of cities and towns in the United States, Canada, and Mexico in the 19th and 20th centuries
Site Formation Processes	The combination of human activity and natural transformations that change a site's footprint over time and ultimately dictating a site's integrity

ARCGIS TUTORIAL

HISTORIC SITE ASSESSMENT

Go to the [ArcGIS Greenwood Archaeology Curriculum Map](#), which will look like this:

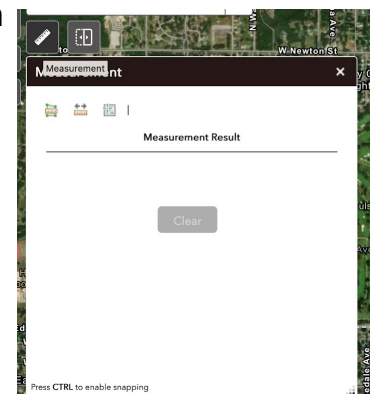
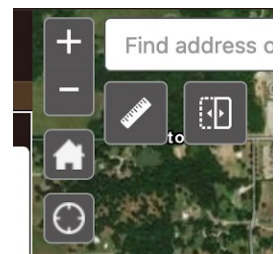


What you see on your screen is an ArcGIS mobile application—basically, an online map that consists of several different layers that you’re going to be using in the classroom.

NAVIGATING ON THE MAP

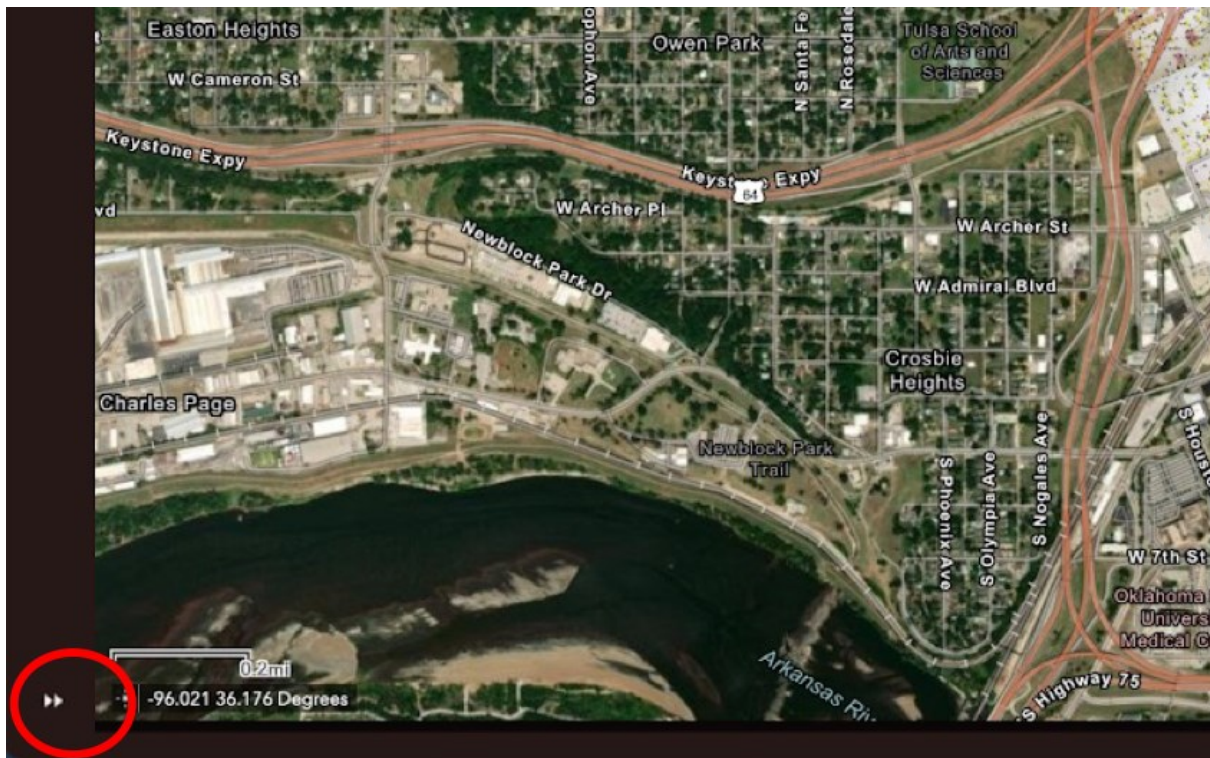
Like Google Maps or other maps you’re probably familiar with, you can click on the screen and drag the image back and forth to navigate. You can also zoom in and out using the “plus” and “minus” symbols you can see to the right. Using the “ruler” symbol, you can also click between points to measure distance. If you happen to be in Tulsa, you can click on the “target” symbol to locate yourself on the map. The “swipe” button will allow you to swipe between layers in the map.

To the right is the dialog box that will pop up if you select the ruler icon.



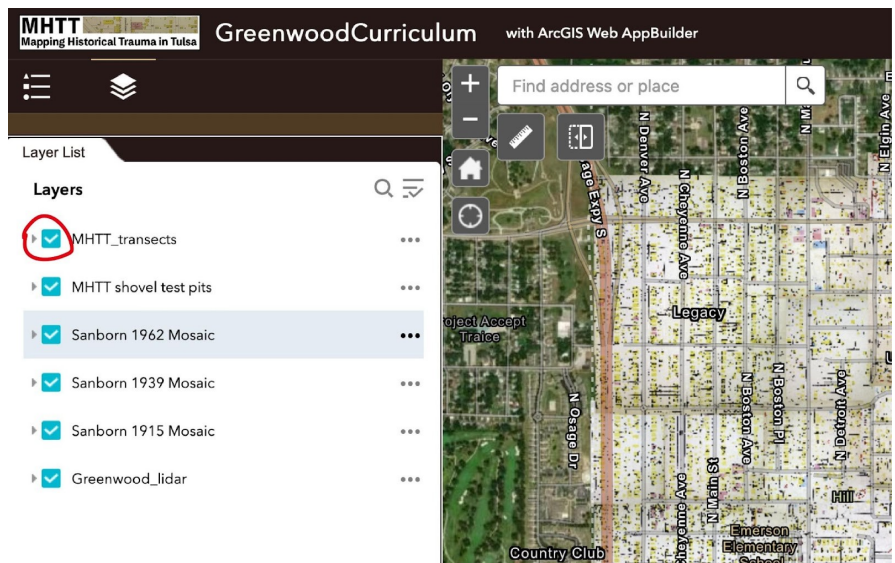
LAYERS

This web map consists of 6 different layers. To get a look at them, click on the arrows in the lower left hand corner of the screen, which are circled in the image below.



Clicking on the arrows will show you a list of layers that you can turn on and turn off. In addition to these layers, there is another one that you can't turn off – the **basemap**. In this image, the basemap layer is a satellite image with roads and street names embedded in it, which you can see just to the side of the layer list at right. It's what's called a tile layer, and like the satellite layers you see in Google Maps, Bing, and other

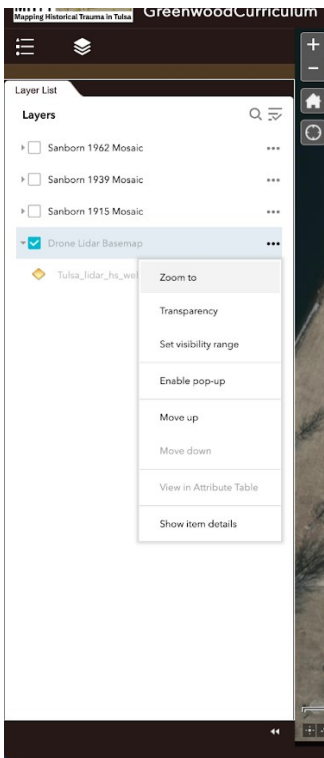
online maps, it contains high resolution, "top-down" shots of most of the surface of the world. It's also overlain with depictions of major roads and street names in modern cities, and so it provides us with a good sense of what the current landscape looks like in Tulsa. That said, these images aren't "real time" – that is, they're not like surveillance video. Instead, they are stitched together from thousands of individual satellite "pictures" taken at different times. The service that puts together this



particular basemap, ESRI, will update its images regularly, but because they're expensive, you'll definitely see some places on the map where the imagery is weeks, months, or even years old. That means that you should expect to see very recent changes to the landscape in the basemap.

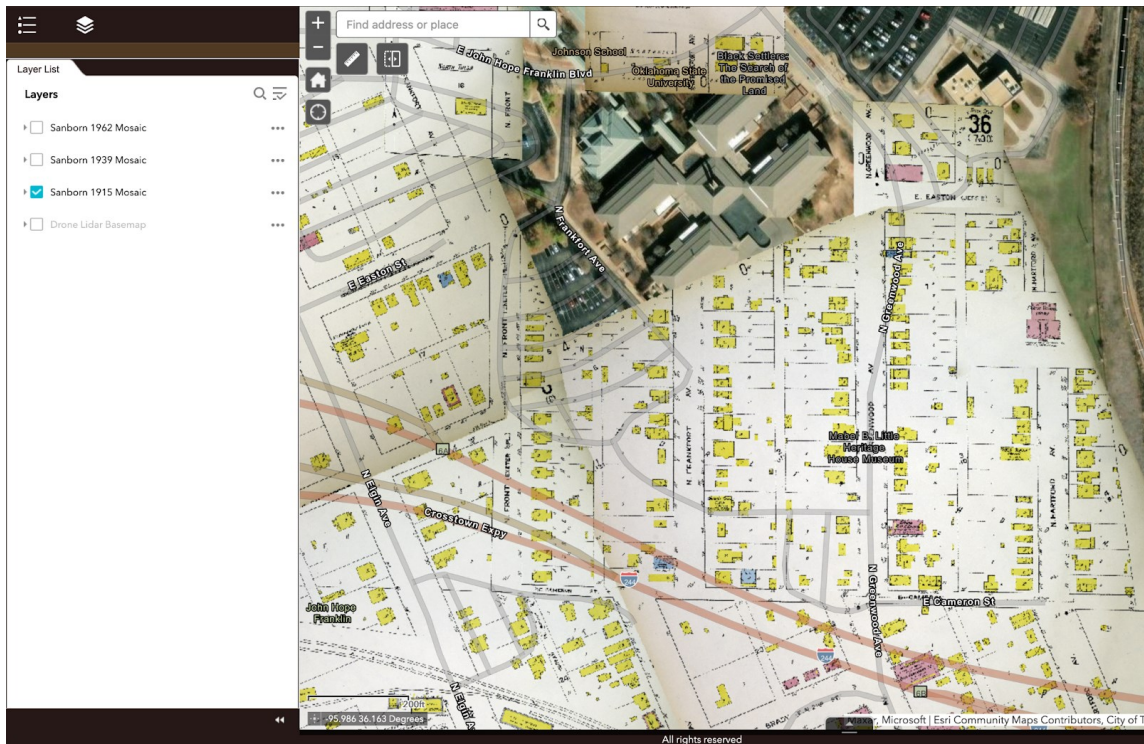
In addition to those layers, you'll also see six others (from the bottom up) – **Greenwood Lidar, Sanborn 1915 Mosaic, Sanborn 1939 Mosaic, Sanborn 1962 mosaic, MHTT shovel test pits, and MHTT transects**. If you'd like to zoom to any one of them, click on the three dots to the right of the layer and select "zoom to." You'll also see several other options here, such as "transparency" which you can use to make layers more transparent, "move up" which you can use to change the order of the layers and so on.

SANBORN MAPS



The **Sanborn 1915, 1939, and 1962** layers are compiled from a series of fire insurance maps made in 1915, 1939, and 1962 by the Sanborn Fire Insurance company, which created very detailed records of neighborhoods in US Cities, in order to calculate relative rates of fire risk and therefore how much to charge different customers. These maps of Greenwood and Tulsa provide an invaluable source of information about how housing and the urban landscape changed over time. That said, they are missing lots of important information. There are gaps in them where the Sanborn company did not record any information, including particularly in Greenwood. In addition, you will see some hand-drawn marks on the maps, which were present on the copies scanned by the Library of Congress that the MHTT project used to stitch together these map layers.

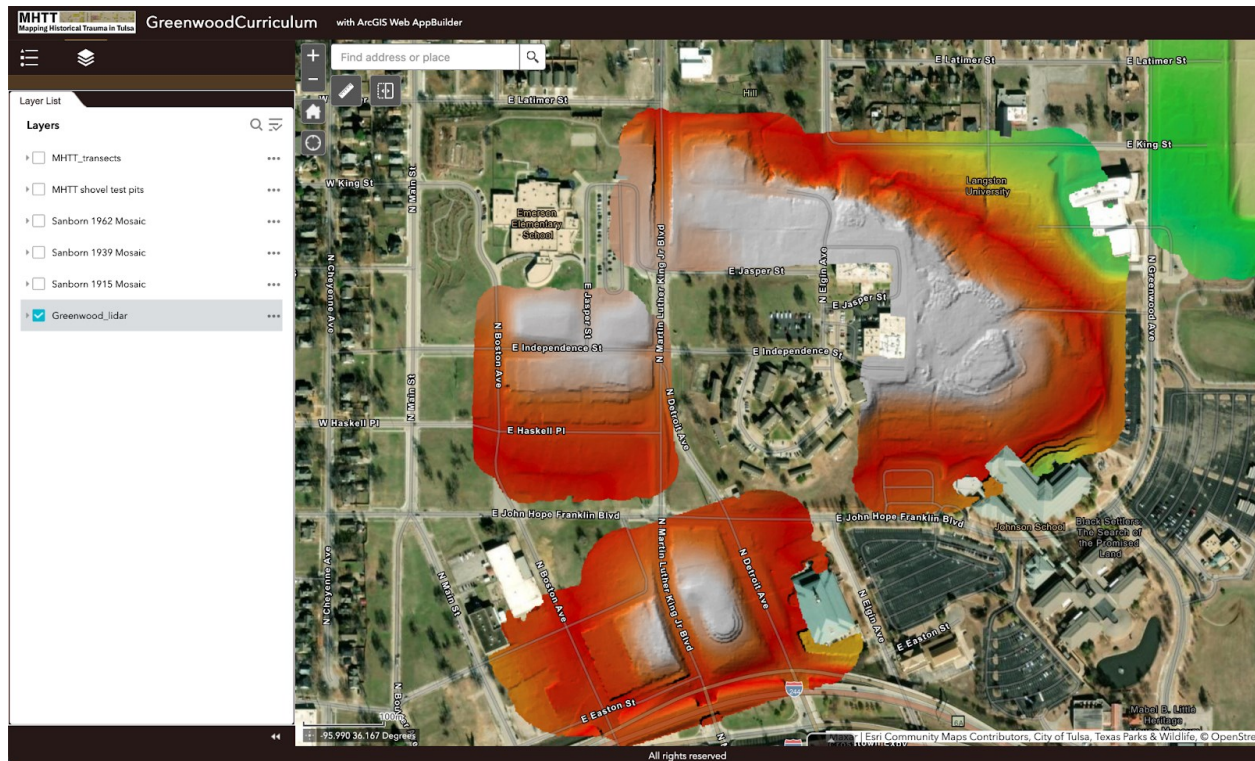
You can turn the layers on and off by clicking the checkbox to the left of each of them. If all of them are on, the layer listed at the top will block out those beneath it. The following three images show the same area with different Sanborn map layers turned on and off.



As you can see, it's not just the buildings themselves that change over time but also the streetscape and the maps' coverage. In the first part of this exercise, the students will be asked to turn on and turn off the Sanborn map layers and compare them to the basemap to "time travel" and examine how the landscape of Greenwood has changed during the last century.

GREENWOOD LIDAR LAYER

In addition to the Sanborn layers, you will also see three other layers in the webmap. The first of these is an additional image called **Greenwood lidar**. We created this layer using a tool called a LiDAR sensor, which is very useful for creating detailed topographic maps of the ground, even under tree cover. What you see here is what's called a "bare earth model" that attempts to show the ground surface, without buildings or vegetation. In it, light greens are the lowest areas and whites are the highest areas. You can also see some shading that's intended to show what the landscape looks like. If you click the layer on and off, you'll see many places that are currently covered by trees that overgrew portions of Greenwood after the urban renewal period in the 1960's.



VERNON LIDAR

This layer is what is called a “bare earth model” representing the ground surface in a number of areas around Greenwood. It was produced using a Lidar sensor.

MHTT_TRANSECTS AND MHTT SHOVEL TEST PITS

The top two layers in this map provide information about the locations of archaeological research conducted by the MHTT project in Greenwood. The layer **MHTT_transects** represents a series of transect lines that team members walked to collect some surface materials. Clicking on them will reveal their names. **MHTT shovel test pits** shows the locations and names of specific shovel test pits excavated by the MHTT project. Where they overlap, you will notice that most of the shovel test pits align with the transects.

GREENWOOD SITES OF MEMORY

HISTORIC SITE ASSESSMENT



While the Tulsa Race Massacre is an important part of Greenwood history, it isn't its only history. Archaeologists Dr. Alicia Odewale and Dr. Parker VanValkenburgh are working to shift narratives about the community away from historical trauma and toward memories of Black life. Since 2019, they have worked collaboratively with community stakeholders to guide their research questions and methods. Inquiries during community meetings called Greenwood's historical boundaries into question: exactly how big was Greenwood? How has the neighborhood's footprint shifted through time? In this next lesson, you will explore multiple lines of evidence to answer these questions yourselves, just like professional archaeologists.

WATCH the documentary film [Greenwood Past, Present, Future](#) featuring Greenwood residents and community stakeholders. The interviewees speak most about locations in Greenwood from timestamp 30:11-1:08:27.

RECORD notes of relevant information about each site of memory listed on your Archaeological Potential Assessment sheets as you watch.

CHOOSE 2 of the sites of memory and locate the sites by exploring the **ArcGIS** Greenwood Archaeology Curriculum Map. Go to "Layers" in the menu. Toggle through Sanborn Map layers from 1915, 1939, and 1962 and the modern **basemap** by clicking and re-clicking on the eye icon next to those maps. Note how the Greenwood District has changed through time, including its buildings and street names. Sanborn Fire Insurance Maps depict the commercial, industrial, and residential sections of cities and towns in the United States, Canada, and Mexico in the 19th and 20th centuries. This can help you understand how the site has changed over time and assess the site integrity.

ASSESS whether or not each site would make a good candidate for future archaeological research using the following criteria:

- **Historical Significance:** The site is associated with significant historical events, individuals, historic districts, or has the potential to convey important information about the past.
- **Community Stakeholder Interest:** The site is of considerable interest and importance to local people, groups, organizations, or businesses that have interest or concern in projects, programs, and policies that affect the community.
- **Site Integrity:** Undisturbed landscapes provide archaeologists with the clearest windows into the past, however such perfect conditions are uncommon. Human activities such as construction and looting, and natural events such as flooding,

erosion, and **bioturbation** can significantly disrupt archaeological contexts. At the same time, these site disruptions can be of service to archaeologists, exposing or unearthing previously hidden historic features and artifacts. These **site formation processes** ultimately dictate how intact and well preserved an archaeological site is.

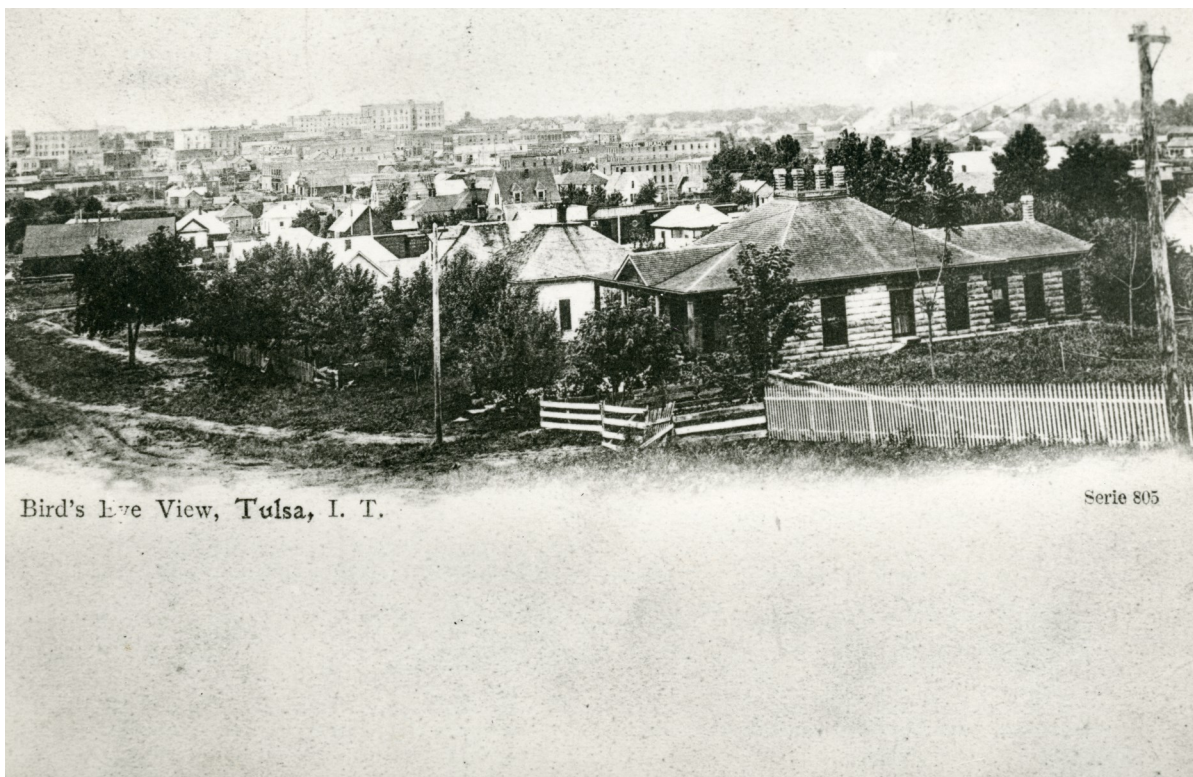
WRITE a paragraph assessment justification for each of your chosen 2 sites.

STANDPIPE HILL

Locate on the map: south of E. John Hope Franklin Blvd. and west of N. Detroit Ave.

Standpipe Hill is a multipurpose site with a complex history. Named for its reservoir that stored drinking water for Tulsa residents, the hill was once home to Greenwood's affluent Black elite, a school, brick manufacturer, and was a major site of violence during the Tulsa Race Massacre. According to historic Greenwood resident, G. A. Gregg:

Tulsa's colored citizens settled in the north end of the city, separating themselves at right angles to the Tulsa white. Standpipe Hill jutted out into the colored section like the state of Florida extends into the ocean. This hill is owned by a white man. From it one can get a fine panoramic view of Tulsa and the surrounding country. The white people would not buy it, and the colored could not, although they lived on three sides of it.... Paradise Baptist Church was a cozy brick building situated on the northside of Standpipe Hill, while Mt. Zion was on the south side of it. (Coulter 2006, 297-298)

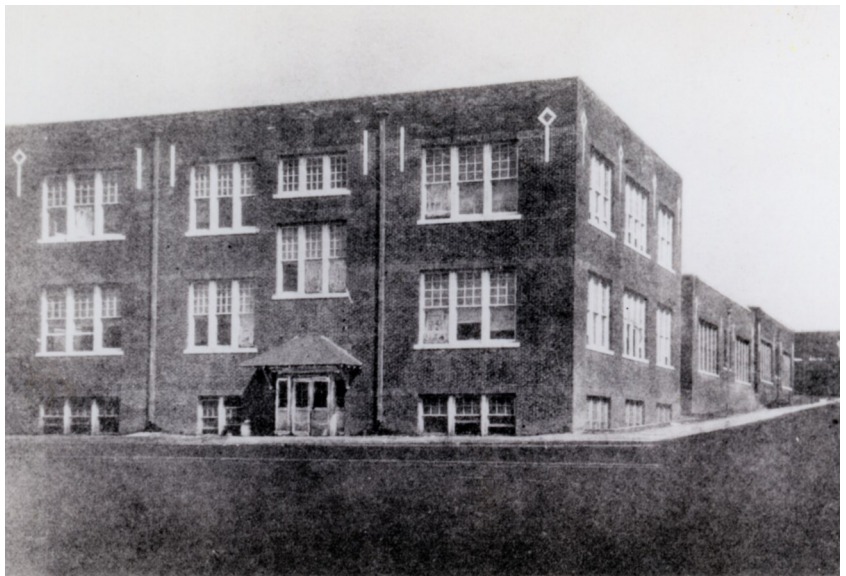


View looking southwest from Standpipe Hill, c. 1907. Courtesy of the Beryl Ford Collection, Rotary Club of Tulsa, Tulsa City-County Library, and Tulsa Historical Society & Museum.

BOOKER T. WASHINGTON HIGH SCHOOL

Locate on the map: E. John Hope Franklin Blvd. and N. Frankfort Ave.

Constructed in 1913, Booker T. Washington High School was one of few structures that survived the attack on Greenwood in 1921, solidifying its role as a fixture in the community for Greenwood residents, both literally and figuratively. Photos looking east from Standpipe Hill depict the school standing triumphantly among the smoke and rubble. In the aftermath of the massacre, Booker T. became the headquarters for the American Red Cross' relief efforts, converting the school to an emergency hospital, central first aid station, and supply dispensary to aid survivors. A new Booker T. Washington High School opened in 1958.

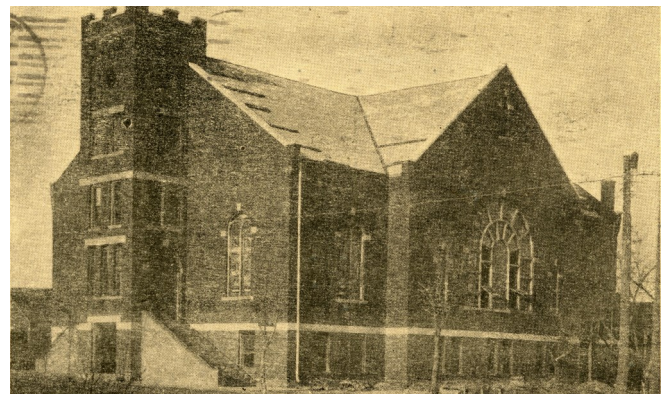


Booker T. Washington High School in 1918. Courtesy of the Tulsa Historical Society & Museum.

DUNBAR GRADE SCHOOL

Locate on the map: east of N. Greenwood Ave. and north of E. Cameron St.—look for “Public School (Negro)”

Also established in 1913, Dunbar Grade School served the younger students in Greenwood. Both Dunbar Grade School and Booker T. Washington High School were built in response to the rapidly growing population of Black families in the area. The building was destroyed in the attack in 1921. The land was later occupied by the Tulsa Department of Public Works.



Mt. Zion Baptist Church, 1921. Courtesy of Tulsa Historical Society & Museum.

BLACK CHURCHES

Locate on the map:

- Mt. Zion Baptist Church: N. Elgin Ave. and E. Easton St.

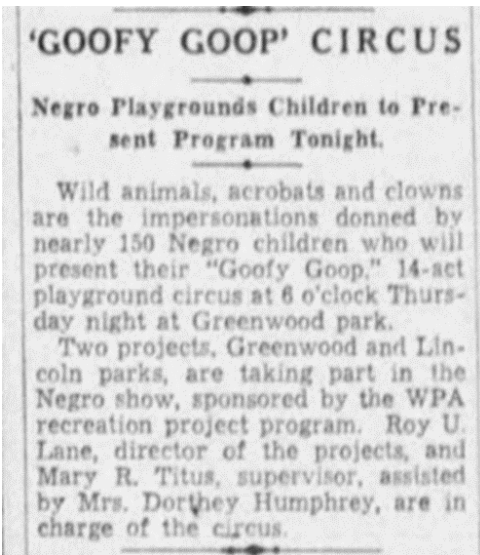


Vernon African Methodist Episcopal Church, 1908. Courtesy of the Tulsa Historical Society & Museum.

- Paradise Baptist Church: N. Frankfort Ave. and E. King St.
- Vernon AME Church: N. Greenwood Ave. and E. Cameron St.

Tulsa's African American churches figure prominently in the development of the Greenwood community. Among its dozens of churches, residents share that 3 historic places of worship particularly show Greenwood's collective consciousness and spirit of resilience: Mt. Zion Baptist Church, Paradise Baptist Church, and Vernon AME Church.

GREENWOOD PARK



Above and right: Tulsa Daily World, August 26, 1937.



GREENWOOD PARK ROYALTY—Palma Diane Jones, 4, daughter of Mr. and Mrs. Eason Jones of 2628 N. Yorktown Place, and Leon James Madden, 4, son of Mrs. Ruth Malone of 646 E. King St., are the winners of the Greenwood Park Mr. and Miss Wading Pool contest. They will compete in the citywide contest in Henthorne Park at 7:30 p.m. Aug. 11.

Court May Get Parks Dispute

The Greenwood chamber of commerce has threatened to go to court to force provision of better Tulsa parks for Negroes.

A resolution authorizing legal action again the city reportedly was adopted unanimously by the group.

A three-man committee was named by H. B. McMullan, chamber president, to "take the necessary steps." Committeemen are Primus Wade, attorney; J. T. A. West, retired school teacher, and Dr. Norvell Coots.

However, the chamber agreed to go into court only as a last resort.

The Greenwood chamber has led a campaign for better Negro parks. In a recent appearance before the city commission, J. L. Grier and L. H. Holderness, both Greenwood members, presented a long list of complaints against present facilities.

The men later appeared before the park board and repeated their grievances. They reported that in both instances their requests "had fallen on deaf ears."

The park board told them it lacked funds for any immediate improvements. However, the board agreed to install a new filtration plant at the Greenwood park swimming pool if the needed \$3,000 could be found.

The Greenwood group insists the city has "plenty" of money to spend on white area parks and charges discrimination.

Tulsa Daily World, June 8, 1950.



The Tulsa Tribune, July 1, 1963.

Beautiful, Busy City Parks Lure Thousands of Tulsans

Tulsa's 12 city parks drew an attendance of 17,762 visitors between June 17 and July 1 according to Lieb Richmond, park supervisor.

Showing the greatest attendance during the two-week period was Greenwood Negro park. This playground, which is supervised by Bob Armstrong, had an attendance of 3,556.

The activities of the various city parks include wading, tennis, croquet, softball, checkers, chink-chek, handcraft of all kinds, horse-shoes and pingpong.

In the near future, championship tournaments in all these sports will be held. One week will be devoted to

each. Champions in each sport in each park will be chosen and a city-wide contest, to determine the all-city champion, will be held, according to Richmond.

Several of the parks have special features which are being adopted by the others. Florence park has soap carving and clay modeling classes.

Tulsa Daily World, July 7, 1940.

Work Completed

Work at Greenwood Park, North King Street and Hartford Avenue, is completed, including the rehabilitation of the swimming pool, an outdoor gym, and picnic facilities.

Hunter said the dollar values, which totaled \$55,975 on the Rev. Hill's list, were tentative estimates. The work is done or will be done, but the dollar value may not add up to the same amount.

Tulsa Daily World, April 9, 1967.

Locate on the map: N. Greenwood Ave. and E. King Street

Greenwood Park, also called B.S. Roberts Park or fondly remembered as King St. Park, was a 2-acre park that housed a swimming pool and wading pool, outdoor gym, park shelter, and picnic area. It was an important place of recreation and leisure for Tulsa's Black residents as early as 1914 through the 1970s. According to reports printed in the Tulsa Daily World, Greenwood Park consistently demonstrated the greatest attendance of Tulsa's city parks during peak summer months. Yet, Black residents had to consistently fight to protect and maintain this community's recreational outdoor space.



Aerial view of Greenwood Playground, 1946, Courtesy of the City of Tulsa Department of Parks, Culture and Recreation.

THE REX THEATER

Locate on map: 1135 N. Greenwood Ave.

According to Tulsa Residents, the Rex Theater was the spot to hang out. The Rex Theater operated between 1917 and 1967. Once it closed, the building was leased to different community organizations for short periods of time. After sitting vacant for three years, the building was bulldozed by the City of Tulsa in 1974, in the name of Urban Renewal.

WILLIAMS DREAMLAND THEATRE

Locate on map: N. Greenwood Ave. and what is now I-244

Before the Rex, the Williams Dreamland Theatre, owned and operated by Greenwood pioneer Loula Williams, was the place to be. Dreamland opened in 1914 as the first African American theater in Tulsa, showing live musical and theatrical revues and piano accompanied silent films for Black residents in Deep Greenwood. At the onset of the 1921 Tulsa Race Massacre, the theater became a gathering place for community members to plan a course of action to protect D. Rowland before the mob destroyed the building. The Williams Dreamland Theatre was quickly rebuilt during the restoration period, but later fell on hard times and eventually closed in 1952.

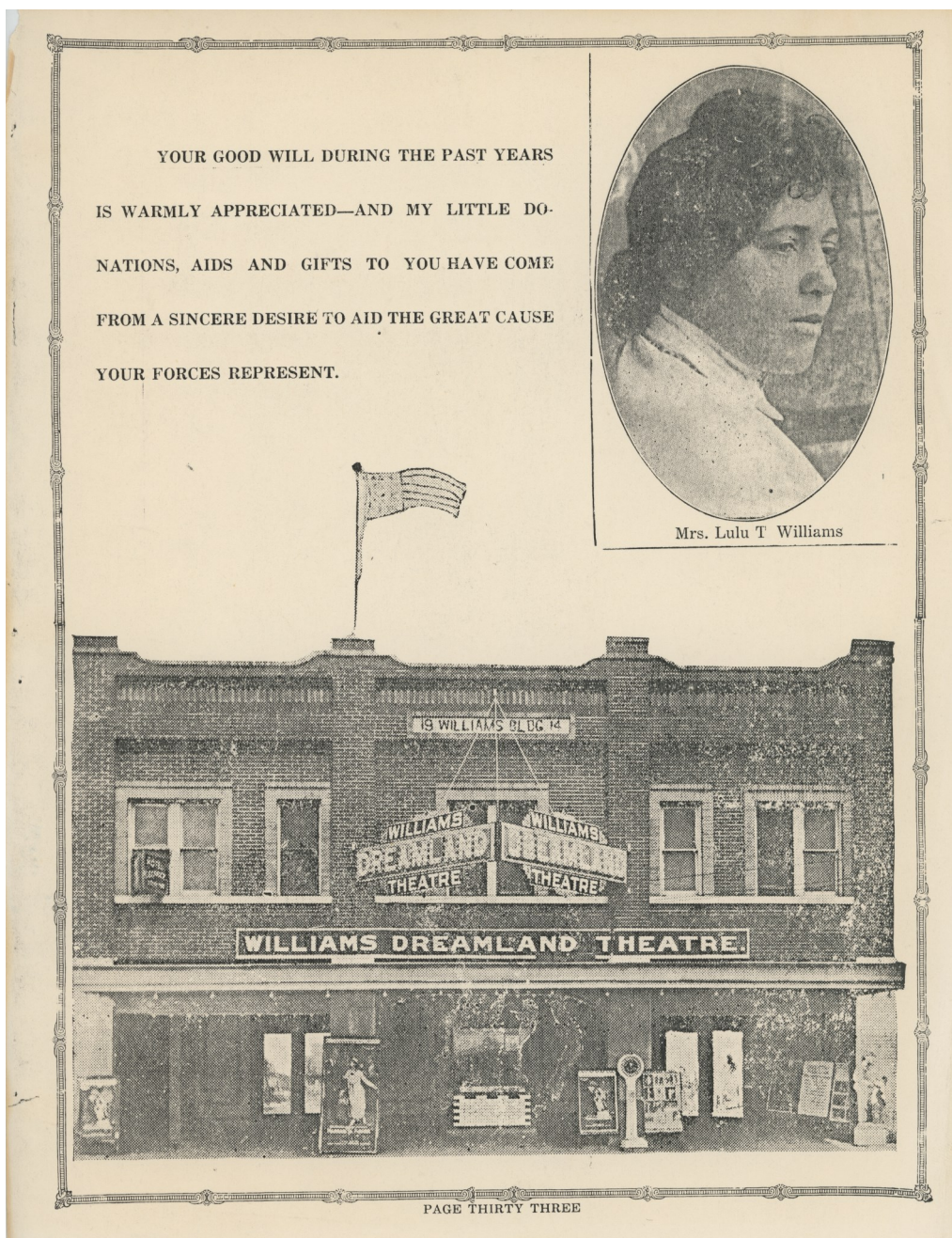


Photo of Williams Dreamland Theatre and co-owner Loula Thomas Cotton from the 1921 yearbook from Booker T. Washington High School. Courtesy of the Tulsa Historical Society & Museum.

ARCHAEOLOGICAL POTENTIAL ASSESSMENT

HISTORIC SITE ASSESSMENT

STANDPIPE HILL

Historical Significance

**Community
Stakeholder Interest**

Site Integrity

BOOKER T. WASHINGTON HIGH SCHOOL

Historical Significance

**Community
Stakeholder Interest**

Site Integrity

DUNBAR GRADE SCHOOL

Historical Significance

**Community
Stakeholder Interest**

Site Integrity

MT. ZION BAPTIST CHURCH	
Historical Significance	
Community Stakeholder Interest	
Site Integrity	

PARADISE BAPTIST CHURCH	
Historical Significance	
Community Stakeholder Interest	
Site Integrity	

VERNON AME CHURCH	
Historical Significance	
Community Stakeholder Interest	
Site Integrity	

GREENWOOD PARK/KING ST. PARK/B.S. ROBERTS PARK**Historical Significance****Community
Stakeholder Interest****Site Integrity****THE REX THEATER****Historical Significance****Community
Stakeholder Interest****Site Integrity****WILLIAMS DREAMLAND THEATER****Historical Significance****Community
Stakeholder Interest****Site Integrity**

YOUR CHOICE 1:

What is the archaeological potential for this site?

YOUR CHOICE 2:

What is the archaeological potential for this site?

ARCHAEOLOGICAL SURVEY

GREENWOOD ARCHAEOLOGY CURRICULUM



Time Suggestion: 90 min.

OVERVIEW AND OBJECTIVES

Archaeologists working in Tulsa have employed a variety of archaeological survey methods to begin recovering archaeological materials from the identified sites of memory—Standpipe Hill, BS Roberts Park, and East Greenwood. The Greenwood Archaeological Survey activity introduces students to the various types and functions of these survey methods. Given both real and fabricated site-specific scenarios, students will be asked to cross reference historical maps and testimonials to infer which survey methods archaeologists should use for a given site or site area.

MATERIALS

- Vocabulary
- *Archaeological Survey* reading
- Greenwood Archaeological Survey Scenarios
- [ArcGIS Greenwood Archaeology Curriculum Map](#)
- ArcGIS Tutorial (see Historic Site Assessment lesson)

FOCUS QUESTIONS

What survey methods do archaeologists use to recover the history of the Greenwood District?

How do limitations in budget and time impact the information that archaeologists can collect about an archaeological site?

C3 FRAMEWORK ALIGNMENT

ARCHAEOLOGICAL SURVEY

SOCIAL STUDIES GRADES 9-12

- D1.5.9-12. Determine the kinds of sources that will be helpful in answering compelling and supporting questions, taking into consideration multiple points of view represented in the sources, the types of sources available, and the potential uses of the sources.
- D2.Geo.3.9-12. Use geographic data to analyze variations in the spatial patterns of cultural and environmental characteristics at multiple scales.
- **D2.Geo.2.9-12. Use maps, satellite images, photographs, and other representations to explain relationships between the locations of places and regions and their political, cultural, and economic dynamics.**
- D2.Geo.5.9-12. Evaluate how political and economic decisions throughout time have influenced cultural and environmental characteristics of various places and regions.
- D2.His.10.9-12. Detect possible limitations in various kinds of historical evidence and differing secondary interpretations.
- **D4.2.9-12. Construct explanations using sound reasoning, correct sequence (linear or nonlinear), examples, and details with significant and pertinent information and data, while acknowledging the strengths and weaknesses of the explanation given its purpose (e.g., cause and effect, chronological, procedural, technical).**

COMMON CORE ALIGNMENT

ARCHAEOLOGICAL SURVEY

SOCIAL STUDIES GRADES 11-12

Key Ideas and Details	<p>1. Cite specific textual evidence to support analysis of primary and secondary sources, connecting insights gained from specific details to an understanding of the text as a whole.</p> <p>3. Evaluate various explanations for actions or events and determine which explanation best accords with textual evidence, acknowledging where the text leaves matters uncertain.</p>
Integration of Knowledge and Ideas	<p>7. Integrate and evaluate multiple sources of information presented in diverse formats and media (e.g., visually, quantitatively, as well as in words) in order to address a question or solve a problem.</p> <p>9. Integrate information from diverse sources, both primary and secondary, into a coherent understanding of an idea or event, noting discrepancies among sources.</p>

SCIENCE AND TECHNICAL SUBJECTS 11-12

Key Ideas and Details	<p>3. Follow precisely a complex multistep procedure when carrying out experiments, taking measurements, or performing technical tasks; analyze the specific results based on explanations in the text.</p>
Craft and Structure	<p>4. Determine the meaning of symbols, key terms, and other domain-specific words and phrases as they are used in a specific scientific or technical context relevant to grades 11–</p>
Integration of Knowledge and Ideas	<p>7. Integrate and evaluate multiple sources of information presented in diverse formats and media (e.g., quantitative data, video, multimedia) in order to address a question or solve a problem.</p> <p>9. Synthesize information from a range of sources (e.g., texts, experiments, simulations) into a coherent understanding of a process, phenomenon, or concept, resolving conflicting information when possible.</p>

COMMON CORE ALIGNMENT

ARCHAEOLOGICAL SURVEY

ELA 11-12

Integration of Knowledge and Ideas	7. Integrate and evaluate multiple sources of information presented in different media or formats (e.g., visually, quantitatively) as well as in words in order to address a question or solve a problem.
Vocabulary Acquisition and Use	6. Acquire and use accurately general academic and domain-specific words and phrases, sufficient for reading, writing, speaking, and listening at the college and career readiness level; demonstrate independence in gathering vocabulary knowledge when considering a word or phrase important to comprehension or expression.

INSTRUCTIONAL SEQUENCE

ARCHAEOLOGICAL SURVEY

TEACHER PREP

1. Optional: Assign students a vocabulary review in advance of this lesson
2. Print *Archaeological Survey* reading for students (1 per student)

ICEBREAKER

When you or your family loses something important, what steps do you take to find it again? What different ways of searching are there?

ACTIVITY

1. Read the *Archaeological Survey* introduction as a class.
2. Guide students through a tutorial on how to navigate the ArcGIS Greenwood Archaeology Curriculum map.
3. Read each survey scenario to students, instructing them to select the best survey area and survey method to locate the provided historic features and/or artifacts.

DEBRIEF AND DISCUSS

1. What survey methods seem the most effective?
2. Based on their experience with the activity, how do students think land disruptions impact site formation and inform archaeological research?
3. How was their experience attempting to manage accuracy, time, and money? Which of these do they think are most important for archaeological research? Had they previously considered these as part of the job of archaeologists?
4. What do students deem the pros and cons of each survey method?
5. How should archaeologists balance the use of invasive and noninvasive archaeological surveys?

VOCABULARY

ARCHAEOLOGICAL SURVEY

TERM	DEFINITION
Archaeological Surveys	A type of field research where archaeologists collect data about the location, distribution and organization of material culture found in the designated survey area to guide inform future research and excavation
Anomalies	Something that deviates from the standard. In archaeology, anomalies describe changes in soil composition that may indicate the presence of subsurface features
ArcGIS	A cloud-based mapping and analysis solution. Use it to make maps, to analyze data, and to share and collaborate. Get access to workflow-specific apps, maps and data from around the globe, and tools for being mobile in the field
Collection Areas	Survey areas with a high concentration of cultural material exposed. In collection areas archaeologists will document the artifact concentration, assign GPS coordinates for the area outline, then collect an artifact sample
Gradiometry	A remote sensing method that measures changes in subterranean magnetic fields
Ground Penetrating Radar (GPR)	A geophysical survey method that uses radar pulses to detect underground features
Light Detection and Ranging (LIDAR)	An aerial remote sensing survey method that uses laser technology to create high resolution elevation and depression maps of large geographic areas
Pedestrian Survey	A survey method where people walk across a survey area in evenly spaced parallel lines called transects, marking artifacts and features of archaeological significance that are visible on the ground surface
Sanborn Fire Insurance Map	Maps that depict the commercial, industrial, and residential sections of cities and towns in the United States, Canada, and Mexico in the 19th and 20th centuries
Bioturbation	Soil disturbances caused by living organisms. Tree and plant roots in search of water stir up the soil and push previously buried artifacts and structural features up to the surface

ARCHAEOLOGICAL SURVEY



Landscapes can provide archaeologists with glimpses into the past. But both human activity and natural processes change the physical and cultural landscape over time. This can often disturb and destroy archaeological sites. To find archaeological sites so that we can learn more about the past, archaeologists compare historic maps with modern maps to study changes over time. Their research can help them locate historic structures and boundaries. Once they select a site for future exploration, they can use a variety of archaeological survey methods. These are ways to collect information about the location and distribution of what remains of structures and artifacts.

Pedestrian Surveys: This method involves walking across the survey area, carefully recording surface artifacts and visible architectural remains. The data collected are then used to create maps that show the distribution and concentration of cultural materials, indicating potential buried structures. Areas with high concentrations of artifacts are designated as "collection areas" and marked with GPS coordinates. Collected artifact samples are taken to a lab where they are sorted by type, counted, cleaned, and then re-bagged. Pedestrian surveys are especially useful where plants, animals, and humans have stirred up the soil (bioturbation), pushing buried artifacts to the surface.

Ground-Penetrating Radar (GPR): GPR uses radio waves to penetrate the ground, detecting buried features by analyzing the reflected signals. While GPR can reveal the shape and location of features, it doesn't always identify the specific nature of the object. These unidentified features are referred to as "anomalies." This technology is useful for identifying structures under the ground where the landscape has changed significantly. The GPR instrument looks something like a push lawn mower going across the ground. It requires a relatively flat surface to safely and accurately operate.

Gradiometry: This technique measures changes in magnetic fields, revealing the presence of metal objects. Strong magnetic readings, represented as "dipoles," indicate the presence of metal objects.

Light Detection and Ranging (LiDAR): LiDAR uses laser technology to create detailed elevation maps of large areas, highlighting landscape features from various perspectives. Drones, planes, and satellites can collect LiDAR information from high above the ground. LiDAR is especially useful in forested areas because the lasers can penetrate through vegetation to map out the ground.

Each of these noninvasive survey methods (not digging into the ground) help archaeologists narrow their search and define their collection area. Once archaeologists decide where to focus their research, they can conduct a series of shovel tests.

Shovel Test Pits (STPs): These small excavations are dug until sterile soil, devoid of human activity, is reached. Archaeologists excavate soil from shovel test pits and sift it through a screen to recover artifacts. They collect the artifacts for study and put the sifted soil back into the hole. They note the concentrations and types of artifacts and site boundaries. Sites with the most relevant artifacts are then considered for full-scale excavations.

Keep the information in this introduction on hand. In this lesson you will choose from these methods to conduct surveys in the Greenwood District.

OBJECTIVE: Conduct archaeological surveys to locate the most archaeological features and artifacts related to Historic Greenwood.

READ the provided Greenwood Survey scenarios.

SELECT the survey area and survey method that is best for locating historic features and artifacts in each scenario. Use the ArcGIS GAC Map layers and information you gathered from the previous Restoring the Dream activities to help you. Archaeological surveys can be both time-consuming and costly, so you must determine the most efficient and accurate survey methods to capture optimal data. Spend your time and resources wisely to locate the most sites on time and under budget. There is a \$100,000 survey budget for this project. The length of the field season is 6 weeks, or 42 days. Refer to the table on the next page for survey criteria and allowances.

ADDITIONAL CONSIDERATIONS

1. You can use a maximum of 2 survey methods for each given scenario.
2. Once you have surveyed an area, you have the data for that site.
3. Once you run out of money, you can no longer conduct any more surveys.
4. Once you've used 42 days, you can no longer conduct any more surveys.
5. Once you've done the maximum allowed number of a particular survey method, you can no longer conduct that type of survey.
6. You can choose not to conduct any survey for a given scenario, but should provide reasoning for your choice.
7. If you are taking any days off (weekends, etc.), count them toward your total days. Consider how effectively the archaeologists will be able to work if they don't have any rest days for 6 weeks.

SURVEY METHOD OPTIONS

ARCHAEOLOGICAL SURVEY

Survey Method	Max # Allowed	1 Survey Area =	Days	Cost
Pedestrian Survey	10	8,000 square meters	5 days	\$2,500
GPR	2	4,000 square meters	1 day	\$10,000
Gradiometry	4	2,000 square meters	1 day	\$5,000
LiDAR	1	100,000 square meters	3 days	\$30,000
Shovel Tests	4	500 square meters	5 days	\$1,500

GREENWOOD SURVEY SCENARIOS

ARCHAEOLOGICAL SURVEY

DETROIT AVE. SCENARIO

At the time of the Tulsa Race Massacre, Greenwood's Black elite lived on Detroit Ave., along the eastern slope of Standpipe Hill. After their homes were destroyed, they rebuilt them in red brick ensuring that they could never burn again. Today, the Oklahoma State University-Tulsa stands in their place. Archaeologists want to know if the foundations of the homes survived the construction of OSU-Tulsa.

IDENTIFY a survey area.

SELECT a survey method/s to locate the presence of the foundations of these historic brick structures.

BRICKYARD SCENARIO

According to Tulsa Race Massacre survivors, historic maps, and current Greenwood residents, at least 2 brick manufacturers used to exist in North Tulsa to the north and northeast of Standpipe hill. Survivor A.J. Newman recalls being marched to a brickyard hill during the 1921 attack on Greenwood. Former Charles S. Johnson elementary students recall climbing over the brickyard hill that is "no longer there." Today the brick manufacturing area is obscured by trees.

IDENTIFY a survey area.

SELECT a survey method to locate exposed structures related to the brick manufacturer.

STAIRS TO NOWHERE SCENARIO

The "Stairs to Nowhere" are a series of concrete steps along Haskell Pl. and Independence Ave. that lead to homes that are no longer in existence—at least not on the surface. Uncertainties about Black Tulsa's northern boundary at the time of the Tulsa Race Massacre have led to questions about whether or not these homes are remains from the massacre.

According to survivor Dr. S. P. Thompson, the national guard started setting fires at Boston and Greenwood and continued to march northward on Boston, setting homes ablaze in their wake. Might they have reached as far as Independence Ave.?

IDENTIFY a survey area.

SELECT a survey method/s to locate these historic building foundations and assess the

visible evidence of burning.

HIGHWAY SCENARIO

The construction of the 1-244 highway through the heart of Deep Greenwood in the 1960s and 70s destroyed the once thriving business district. Greenwood residents and shop owners were forced to sell their homes and businesses, relocate, and watch as their community was bulldozed and demolished. Community members and archaeologists alike want to know what remains of the famed Black Wall Street.

IDENTIFY a survey area.

SELECT a survey method/s to locate historic foundations in Deep Greenwood.

DUNBAR SCHOOL SCENARIO

The original Dunbar Grade School located on Hartford Ave. was destroyed in the 1921 Tulsa Race Massacre. Nearby, the site was later occupied by the Tulsa Department of Public Works, a large brick building with steel trusses and a concrete floor. Today, the land is empty on the surface, though owned and managed by the Tulsa Development Authority. Archaeologists want to know if they can identify any subsurface structures related to the original Dunbar school.

VERNON AME CHURCH SCENARIO

IDENTIFY a survey area.

SELECT a survey method/s to locate the foundations of the original Dunbar School.

The historic Vernon AME Church is located on the corner of N. Greenwood and E. Cameron St. It is one of three churches that existed during Greenwood's beginnings that still exists today, and in its original location. After its destruction in 1921, the church was rebuilt and later extended. Archaeologists want to do a survey to learn if any historic structures still exist below the surface of the church's property, a metal fenced area north and south of the building.

IDENTIFY a survey area.

SELECT a survey method/s to locate any historic architectural features.

B.S. ROBERTS PARK SCENARIO

The northern extension of B.S. Roberts Park is slated for future development to revitalize the Greenwood community. Before construction begins, archaeologists want to noninvasively document the presence of historic homes and businesses in the area.

IDENTIFY a survey area.

SELECT a survey method/s to record the historic homes and businesses in the B.S. Roberts Park northern extension.

GREENWOOD PLAYGROUND SCENARIO

Archaeologists want to explore Greenwood Playground—at B.S. Roberts Park or King Street Park—to learn more about children’s lives and experiences in Greenwood. The swimming pool was the 2-acre park’s main attraction where children could cool off on a hot day and wade in the water. A 1970 Tulsa Daily World article reports that free swimming classes would start at the pool located at 629 E. King Street.

IDENTIFY a survey area.

SELECT a survey method/s to locate the pool and artifacts from the nearby playground.

CHURCH OF GOD SCENARIO

The Church of God once stood on the corner of N. Greenwood Ave. and E. Latimer St. When the church opened in the mid-1920s, the congregation buried a steel time capsule deep in the church’s backyard to be reopened 100 years later. However, the future generations of the congregation forgot about the time capsule and built on top of it when they expanded their church. The church has since moved its location.

IDENTIFY a survey area.

SELECT a survey method/s to locate and recover the time capsule.

GREENWOOD SURVEY ORGANIZER

ARCHAEOLOGICAL SURVEY

Scenario	Survey Type	Days	Cost
Detroit Ave.			
Brickyard			
Stairs to Nowhere			
Highway			
Dunbar School			
Vernon AME Church			
B.S. Roberts Park			
Greenwood Playground			
Church of God			
Days Off			
Totals			

GREENWOOD SURVEY EXAMPLE

ARCHAEOLOGICAL SURVEY

Scenario	Survey Type	Days	Cost
Detroit Ave.	Gradiometry	1	\$5,000
Brickyard	LiDAR	3	\$30,000
Stairs to Nowhere	Pedestrian Survey	5	\$2,500
	GPR	2	\$10,000
Highway	Gradiometry	1	\$5,000
Dunbar School	Gradiometry	1	\$5,000
	Pedestrian Survey	5	\$2,500
Vernon AME Church	Pedestrian Survey	5	\$2,500
B.S. Roberts Park	GPR	1	\$10,000
Greenwood Playground	Shovel Test	5	\$1,500
Church of God	Gradiometry	1	\$5,000
Days Off	-	12	-
Totals		42	\$79,000

SURVEY ANALYSIS

GREENWOOD ARCHAEOLOGY CURRICULUM



Time Suggestion: 45 min.

OVERVIEW AND OBJECTIVES

After conducting archaeological surveys, archaeologists must analyze and interpret the collected data to learn more about the archaeological material in a given survey area and ultimately, to inform where to conduct full scale unit excavations. Each survey method produces a unique dataset requiring a trained eye to decipher. In this lesson, students will learn how to read and interpret data from pedestrian surveys at two sites in the Greenwood District.

MATERIALS

- Vocabulary
- Pedestrian survey datasets
- [ArcGIS Greenwood Archaeology Curriculum Map](#)
- ArcGIS Tutorial (see Historic Site Assessment lesson)

FOCUS QUESTIONS

How do archaeologists analyze survey data to decide where to excavate?

C3 FRAMEWORK ALIGNMENT

SURVEY ANALYSIS

SOCIAL STUDIES GRADES 9-12

- D1.2.9-12. Explain points of agreement and disagreement experts have about interpretations and applications of disciplinary concepts and ideas associated with a compelling question.
- D2.Geo.3.9-12. Use geographic data to analyze variations in the spatial patterns of cultural and environmental characteristics at multiple scales.
- **D2.Geo.2.9-12. Use maps, satellite images, photographs, and other representations to explain relationships between the locations of places and regions and their political, cultural, and economic dynamics.**
- D2.His.7.9-12. Explain how the perspectives of people in the present shape interpretations of the past.
- D2.His.8.9-12. Analyze how current interpretations of the past are limited by the extent to which available historical sources represent perspectives of people at the time.
- D2.His.10.9-12. Detect possible limitations in various kinds of historical evidence and differing secondary interpretations.
- D2.His.16.9-12. Integrate evidence from multiple relevant historical sources and interpretations into a reasoned argument about the past.
- D3.3.9-12. Identify evidence that draws information directly and substantively from multiple sources to detect inconsistencies in evidence in order to revise or strengthen claims.
- **D4.1.9-12. Construct arguments using precise and knowledgeable claims, with evidence from multiple sources, while acknowledging counterclaims and evidentiary weaknesses.**
- D4.2.9-12. Construct explanations using sound reasoning, correct sequence (linear or non-linear), examples, and details with significant and pertinent information and data, while acknowledging the strengths and weaknesses of the explanation given its purpose (e.g., cause and effect, chronological, procedural, technical).

COMMON CORE ALIGNMENT

SURVEY ANALYSIS

ELA 11-12

Key Ideas and Details	1. Cite strong and thorough textual evidence to support analysis of what the text says explicitly as well as inferences drawn from the text, including determining where the text leaves matters uncertain.
Craft and Structure	4. Determine the meaning of words and phrases as they are used in a text, including figurative, connotative, and technical meanings; analyze how an author uses and refines the meaning of a key term or terms over the course of a text.
Integration of Knowledge and Ideas	7. Integrate and evaluate multiple sources of information presented in different media or formats (e.g., visually, quantitatively) as well as in words in order to address a question or solve a problem.
Writing Standards Text Types and Purposes	2. Write informative/explanatory texts to examine and convey complex ideas, concepts, and information clearly and accurately through the effective selection organization, and analysis of content.
Production and Distribution of Writing	4. Produce clear and coherent writing in which the development, organization, and style are appropriate to task, purpose, and audience.
Vocabulary Acquisition and Use	6. Acquire and use accurately general academic and domain-specific words and phrases, sufficient for reading, writing, speaking, and listening at the college and career readiness level; demonstrate independence in gathering vocabulary knowledge when considering a word or phrase important to comprehension or expression.

COMMON CORE ALIGNMENT

SURVEY ANALYSIS

SOCIAL STUDIES 11-12

Key Ideas and Details	<p>1. Cite specific textual evidence to support analysis of primary and secondary sources, connecting insights gained from specific details to an understanding of the text as a whole.</p> <p>3. Evaluate various explanations for actions or events and determine which explanation best accords with textual evidence, acknowledging where the text leaves matters uncertain.</p>
Integration of Knowledge and Ideas	<p>7. Integrate and evaluate multiple sources of information presented in diverse formats and media (e.g., visually, quantitatively, as well as in words) in order to address a question or solve a problem.</p> <p>9. Integrate information from diverse sources, both primary and secondary, into a coherent understanding of an idea or event, noting discrepancies among sources.</p>

SOCIAL STUDIES, SCIENCE, AND TECHNICAL SUBJECTS 11-12

Craft and Structure	<p>4. Determine the meaning of symbols, key terms, and other domain-specific words and phrases as they are used in a specific scientific or technical context relevant to grades 11–12 texts and topics.</p>
Integration of Knowledge and Ideas	<p>7. Integrate and evaluate multiple sources of information presented in diverse formats and media (e.g., quantitative data, video, multimedia) in order to address a question or solve a problem.</p> <p>9. Synthesize information from a range of sources (e.g., texts, experiments, simulations) into a coherent understanding of a process, phenomenon, or concept, resolving conflicting information when possible.</p>
Text Types and Purposes	<p>1. Write arguments focused on discipline-specific content.</p> <p>2. Write informative/explanatory texts, including the narration of historical events, scientific procedures/ experiments, or technical processes.</p>

INSTRUCTIONAL SEQUENCE

SURVEY ANALYSIS

TEACHER PREP

1. Print *The Results Are In* reading and survey datasets (1 per student).

ACTIVITY

1. Read *The Results Are In* reading as a class.
2. Read and work through the two pedestrian survey datasets as a class.
3. Instruct students to answer the survey analysis questions based on the provided survey data collected from MHTT field surveys and make recommendations for further excavations.

DEBRIEF AND DISCUSS

1. At which sites and collection areas do students recommend further excavations? Why?
2. What were students' experiences working with and reading the survey data?

VOCABULARY

SURVEY ANALYSIS

TERM	DEFINITION
Artifact Distribution Maps	Maps showing the recorded locations of all identified field specimens in a given survey area
Bioturbation	Soil disturbances caused by living organisms. Tree and plant roots in search of water stir up the soil and push previously buried artifacts and structural features up to the surface
Collection Areas	Survey areas with high concentrations of cultural material exposed. Collections areas are assigned GPS coordinates for the area outline and where artifact samples are collected
Density Map	Map showing the relative concentration of artifacts spread across a given survey area. Darker areas indicate higher concentrations of artifacts, lighter areas indicate lower concentrations of artifacts
Sterile Soil	Soil that does not yield any cultural material. It is just soil, without any evidence of human occupation
Transect Map	Map showing the location and code for each transect (line) walked during a pedestrian survey

THE RESULTS ARE IN



Since 2019, archaeologists have been exploring the history of North Tulsa, searching for remnants of the Historic Greenwood District. Their work has taken them to various locations, including the area near Vernon AME Church and the original Dunbar Grade School, Standpipe Hill, and B.S. Roberts Park. Each summer, their investigations reveal new insights into the rich history of the Greenwood community. But the archaeological process extended far beyond the fieldwork conducted during the summer months.

Before digging into the earth, archaeologists carefully analyze the data collected during their surveys to determine the most promising areas for excavation. Throughout the year, archaeologists, students, and volunteers collaborate to interpret the data, draw conclusions, and prepare for potential excavations.

Archaeologists use several methods to map the landscape and identify potential archaeological sites, including:

Pedestrian Surveys: This method involves walking across the survey area, carefully recording surface artifacts and visible architectural remains. The data collected are then used to create maps that show the distribution and concentration of cultural materials, indicating potential buried structures. Areas with high concentrations of artifacts are designated as "collection areas" and marked with GPS coordinates. Collected artifact samples are taken to a lab where they are sorted by type, counted, cleaned, and then re-bagged.

Ground-Penetrating Radar (GPR): GPR uses radio waves to penetrate the ground, detecting buried features by analyzing the reflected signals. While GPR can reveal the shape and location of features, it doesn't always identify the specific nature of the object. These unidentified features are referred to as "anomalies."

Gradiometry: This technique measures changes in magnetic fields, revealing the presence of metal objects. Strong magnetic readings, represented as "dipoles," indicate the presence of metal objects.

Light Detection and Ranging (LiDAR): LiDAR uses laser technology to create detailed elevation maps of large areas, highlighting landscape features from various perspectives.

Shovel Test Pits (STPs): These small excavations are dug until sterile soil, devoid of human activity, is reached. Artifacts are carefully collected from each level and analyzed to determine the potential significance of the site. Sites with the most relevant artifacts are then considered for full-scale excavations.

PEDESTRIAN SURVEY DATASET 1: STANDPIPE HILL

Standpipe Hill holds immense historical significance, representing Black wealth, Tulsa's educational legacy, natural resource management, resource manufacture, racial conflict, and refuge.

Due to the challenging terrain, archaeologists opted for a non-invasive pedestrian survey, meaning one that would not dig into the ground. They surveyed an area bounded by N. Martin Luther King, Jr. Boulevard, N. Detroit Avenue, E. John Hope Franklin Boulevard, and the I-244 access road. The survey area was divided into 50 one-meter-long transects spaced five meters apart. In 2021, archaeologists, students, and volunteers walked 77 transects, recovering 179 artifacts and documenting the foundations of two historic structures.

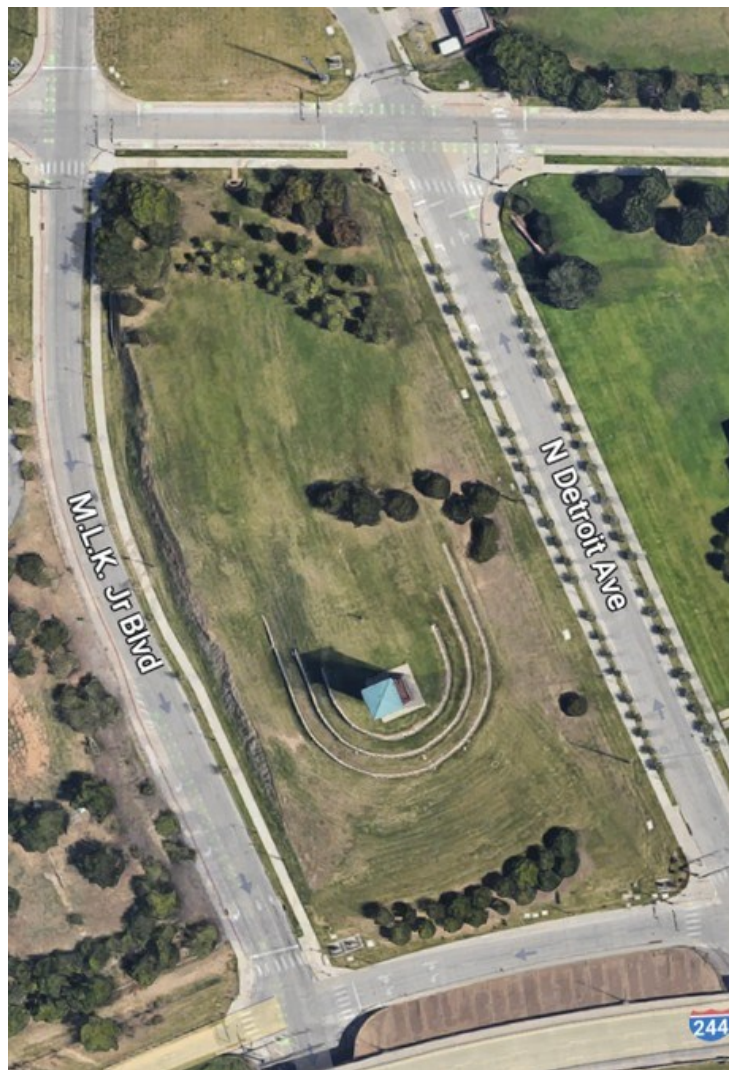


Figure 1: Modern aerial photo of Standpipe Hill.



Figure 2: Standpipe Hill transect map.



Figure 3: Standpipe Hill structure map.



Figure 4: Standpipe Hill artifact distribution map.

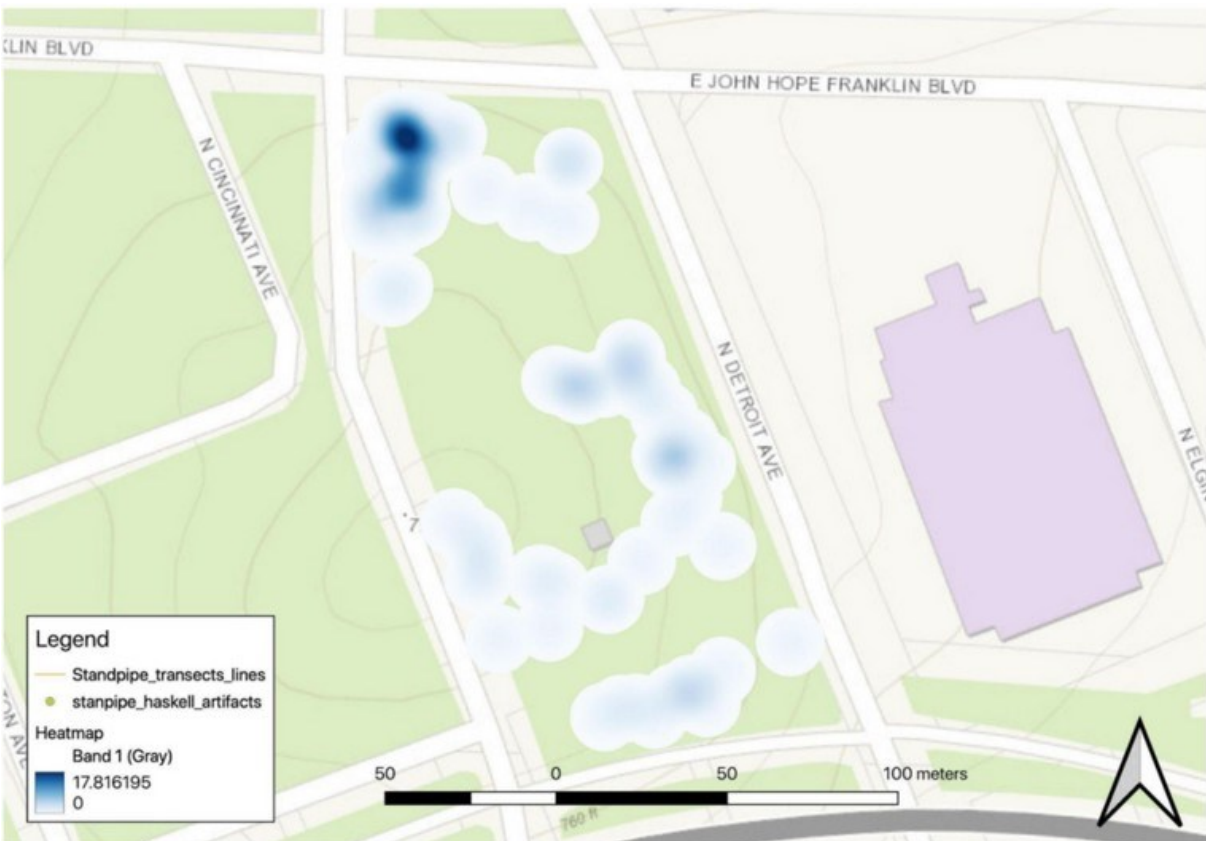


Figure 5: Standpipe Hill artifact density map.

PEDESTRIAN SURVEY DATASET 2: B.S. ROBERTS PARK

B.S. Roberts Park, the oldest park designated for African Americans in the Greenwood District, has a rich and complex history. Originally constructed as a playground in 1914, it predates the 1921 attack on Greenwood. To understand the daily lives of Greenwood's residents, archaeologists conducted a pedestrian survey of the park, recording surface artifacts and architectural features. The survey area, bounded by N. Greenwood Avenue, the Osage Prairie Trail, E. Latimer Place, and E. Jasper St., was divided into 50 one-meter-long transects spaced five meters apart. In 2022, 93 transects were surveyed, resulting in the recovery of 45 surface artifacts, the identification of 57 collection areas, and the documentation of the partial foundations of 29 historic structures.

Artifacts Organized by Class	Artifact Counts
Architectural Material	38
Glass	1,179
Ceramics	383
Metal	258
Fauna/shell	44
Charcoal	7
Other	15
TOTAL	1,924

Table 1: B.S. Roberts Park artifact recovery table.



Figure 6: Overhead map of B.S. Roberts Park survey area. Pink shapes indicate areas of high artifact concentration. Red points indicate individual artifact finds.

ANALYSIS QUESTIONS

SURVEY ANALYSIS

Using the information collected from these two survey datasets, you will now analyze the potential for further excavation at both Standpipe Hill and B.S. Roberts Park. Consider the distribution of artifacts, the presence of architectural features, and the historical significance of each site when making your recommendations.

Analyze the artifact distribution and density maps in Figures 4 and 5. What 3 areas of the collection area had the highest concentrations of artifacts? What geographic or environmental conditions may have contributed to artifact distribution?

Compare the survey maps to the modern aerial photograph of Standpipe Hill in Figure 1. Based on what you've learned about site formation, what most likely brought artifacts to the surface? What is this process called?

Compare the locations of STR-0001 and STR-0002 in Figure 2 with structures found on the 1915, 1939, and 1962 Sanborn maps in the ArcGIS Greenwood Archaeology Curriculum Map. What historic structures are most likely related to these 2 historic finds?

Would you recommend further excavations on Standpipe Hill? If so, where would you dig? Explain your answer.

Read the B.S. Roberts Park artifact recovery table in Table 1. What 3 classes of artifacts had the greatest counts?

There were exposed foundations in the northern section (highlighted in yellow) of the collection area in Figure 6 that correspond to the location of structures represented in the Sanborn Map. What structures were in this area over time?

Would you recommend further excavations on B.S. Roberts? If so, where would you dig? Explain your answer.