Introduction to Our Program

Thank you for renting our Museum in a Box – Indigenous Wonders! This is one of the many educational resources created by the Ohio History Connection. Our mission is to spark discovery of Ohio's stories! Embrace the present, share the past and transform the future. We hope to inspire all learners to use the tools of history to understand ourselves and each other, to experience our world with curiosity, and to engage as change-makers in our communities.

BACKGROUND INFORMATION FOR TEACHERS:

The Hopewell Ceremonial Earthworks were built by Native American communities 2,000 years ago. "These earthworks served as sacred gathering places, fostering spiritual connection and community. The sheer scale of these structures, along with their meticulous alignment with the movements of the sun and moon, tells the story of a culture with sophisticated knowledge of geometry and astronomy that they build onto the land through earthworks and mounds." (https://hopewellearthworks.org/)

The Hopewell Ceremonial Earthworks comprise eight sites: Great Circle Earthworks, Octagon Earthworks, Mound City, Hopewell Mound Group, Hopeton Earthworks, High Banks Works, Seip Earthworks and Fort Ancient.

In September of 2023 they were added to the list of UNESCO World Heritage Sites due to their outstanding value to humanity. The Hopewell Ceremonial Earthworks is the first and only UNESCO site in Ohio.

The Hopewell name started to be used by archaeologists because one of the early excavations in the 1890s happened on the land that belonged to Mordecai Cloud Hopewell. That site is now known as the Hopewell Mound Group in Chillicothe, Ohio. We do not use the term Hopewell to refer to the people or the culture associated with the sites. Unfortunately, this knowledge was lost, and we do not know how these people referred to themselves. Some of the current American Indian Tribes that have connections with the land we now call Ohio refer to them as ancestors or the ones that came before them.

GRADES:

4th through 7th (refer to suggested modifications and grade-specific notes in each lesson plan). **Teacher's supervision is required. Some items in the box are replicas or artifacts that are not child-safe and may cause injury if not manipulated correctly. Some items are sealed in clear boxes and should not be removed from their case.**

OVERVIEW:

Along with all objects and printed materials provided, there are three lesson plans for you to use at your convenience. Each lesson plan will touch on different standards and learning objects. You can also create your own activities around the provided objects and materials. The timelines are tentative and can be adjusted according to your needs or interests.

MATERIALS IN THE BOX:

Educational Materials:
- "Can You Tell Me What You See" lesson plan and related materials
- "Math of the Mounds" lesson plan and related materials
- "Maps and Movement" lesson plan and related materials
- Set of labels

Objects:
- Celt
- Hammerstone
- Flintknapping core
- Quartz/Flint Ridge projectile point
- Knife Ridge flint
- Hopewell projectile point/cache blade
- Obsidian tool/debitage
- Scraper
- Shell hoe
- Hopewell Ceremonial Earthworks scaled maps
- 3D-Printed Location Replicas (Great Pyramid of Giza, Colosseum, Ohio History Connection, block of houses)

OVERALL LEARNING OBJECTIVES:
- Students will develop their observation skills.
- Students will identify and analyze primary and secondary sources to distinguish between perspectives of a historical event.
- Students will reflect on how these sources help us understand the past.
- Students will engage with the history of Ohio and the American Indians who inhabited the land that is now called Ohio, considering their culture, scientific achievements, and the impact they had upon the landscape.
- Students will understand the structural, geometric and scientific nature of the Hopewell Ceremonial Earthworks as well as their social and sacred nature.
- Students will practice grade-appropriate real-life mathematical skills.

PREREQUISITE KNOWLEDGE/SKILL:
None, though basic understanding of how to use a calculator will be helpful for the completion of math worksheets.

VOCABULARY:

American Indian	A person who is a descendent of original Indigenous peoples of the Americas and who qualifies for membership or citizenship with a federally recognized Tribe as defined by 25 USC § 30001 (7).

Ancestor	A person from whom one is descended, usually more remote in the lineage than a grandparent.
Ancestral Homeland	The land where Indigenous people's ancestors lived.
Archaeology	The study of human history through the objects, artifacts, monuments, and physical remains left by ancient peoples.
Earthwork	Human-made structures and walls made of dirt or soil.
Hopewell Ceremonial Earthworks	Gigantic earthworks that were built and used by American Indians 2,000 years ago. They were used for important ceremonies. They were built to line up with the movements of sun and moon.
Indigenous	Native to or originally from a particular place.
Native American	Of, or relating to, a tribe, people, or culture that is indigenous to the United States.
Timeline	A graph of events in the order they happened. Listing events in the order they happened is also called **chronological order**.

LEARNING STANDARDS (SEE LESSON PLANS FOR DETAILS):
Math

- **4.NBT.2** Read and write multi-digit whole numbers using standard form, word form, and expanded form. Compare two multi-digit numbers based on meanings of the digits in each place, using >, =, and < symbols to record the results of comparisons.
- **4.NBT.5** Multiply a whole number of up to four digits by a one-digit whole number, and multiply two two-digit numbers, using strategies based on place value and the properties of operations. Illustrate and explain the calculation by using equations, rectangular arrays, and/or area models.
- **4.MD.2** Solve real-world problems involving money, time, and metric measurement.
- **4.MD.3** Develop efficient strategies to determine the area and perimeter of rectangles in real-world situations and mathematical problems.
- **5.NBT.2** Explain patterns in the number of zeros of the product when multiplying a number by powers of 10 and explain patterns in the placement of the decimal point when a decimal is multiplied or divided by a power of 10. Use whole number exponents to denote powers of 10.
- **5.NBT.5** Fluently multiply multi-digit whole numbers using a standard algorithm
- **5.NBT.6** Find whole number quotients of whole numbers with up to four-digit dividends and two-digit divisors, using strategies based on place value, the properties of operations, and/or the relationship between multiplication and division. Illustrate and explain the calculation by using equations, rectangular arrays, and/or area models.
- **5.NBT.7** Solve real-world problems by adding, subtracting, multiplying, and dividing decimals using concrete models or drawings and strategies based on place value, properties of operations, and/or

the relationship between addition and subtraction, or multiplication and division; relate the strategy to a written method and explain the reasoning used.

- **5.MD.1** Know relative sizes of these U.S. customary measurement units: pounds, ounces, miles, yards, feet, inches, gallons, quarts, pints, cups, fluid ounces, hours, minutes, and seconds. Convert between pounds and ounces; miles and feet; yards, feet, and inches; gallons, quarts, pints, cups, and fluid ounces; hours, minutes, and seconds in solving multi-step, real-world problems.
- **6.RP.1** Understand the concept of a ratio and use ratio language to describe a ratio relationship between two quantities. For example, "The ratio of wings to beaks in the bird house at the zoo was 2:1, because for every 2 wings there was 1 beak." "For every vote candidate A received, candidate C received nearly three votes."
- **6.RP.3** Use ratio and rate reasoning to solve real-world and mathematical problems, e.g., by reasoning about tables of equivalent ratios, tape diagrams, double number line diagrams, or equations.
  - o a. Make tables of equivalent ratios relating quantities with whole number measurements; find missing values in the tables; and plot the pairs of values on the coordinate plane. Use tables to compare ratios.
  - o b. Solve unit rate problems including those involving unit pricing and constant speed. For example, if it took 7 hours to mow 4 lawns, then at that rate, how many lawns could be mowed in 35 hours? At what rate were lawns being mowed?
  - o c. Find a percent of a quantity as a rate per 100, e.g., 30% of a quantity means 30/100 times the quantity; solve problems involving finding the whole, given a part and the percent.
  - o d. Use ratio reasoning to convert measurement units; manipulate and transform units appropriately when multiplying or dividing quantities.
- **6.G.2** Find the volume of a right rectangular prism with fractional edge lengths by packing it with unit cubes of the appropriate unit fraction edge lengths and show that the volume is the same as would be found by multiplying the edge lengths of the prism. Apply the formulas $V = \ell \cdot w \cdot h$ and $V = B \cdot h$ to find volumes of right rectangular prisms with fractional edge lengths in the context of solving real-world and mathematical problems.
- **7.RP.2** Recognize and represent proportional relationships between quantities.
  - o a. Decide whether two quantities are in a proportional relationship, e.g., by testing for equivalent ratios in a table or graphing on a coordinate plane and observing whether the graph is a straight line through the origin.
  - o b. Identify the constant of proportionality (unit rate) in tables, graphs, equations, diagrams, and verbal descriptions of proportional relationships.
  - o c. Represent proportional relationships by equations. For example, if total cost t is proportional to the number n of items purchased at a constant price p, the relationship between the total cost and the number of items can be expressed as t = pn. d. Explain what a point (x, y) on the graph of a proportional relationship means in terms of the situation, with special attention to the points (0, 0) and (1, r) where r is the unit rate.
- **7.G.1** Solve problems involving similar figures with right triangles, other triangles, and special quadrilaterals. a. Compute actual lengths and areas from a scale drawing and reproduce a scale drawing at a different scale. b. Represent proportional relationships within and between similar figures.
- **7.G.2** Draw (freehand, with ruler and protractor, and with technology) geometric figures with given conditions.
  - o a. Focus on constructing triangles from three measures of angles or sides, noticing when the conditions determine a unique triangle, more than one triangle, or no triangle.

- o b. Focus on constructing quadrilaterals with given conditions, noticing types and properties of resulting quadrilaterals and whether it is possible to construct different quadrilaterals using the same conditions.
- **7.G.4** Work with circles.
  - o a. Explore and understand the relationships among the circumference, diameter, area, and radius of a circle.
  - o b. Know and use the formulas for the area and circumference of a circle and use them to solve real-world and mathematical problems.
- **7.G.6** Solve real-world and mathematical problems involving area, volume, and surface area of two- and three-dimensional objects composed of triangles, quadrilaterals, polygons, cubes, and right prisms.

Social Studies
- **4.3:** Various groups of people have lived in Ohio over time including American Indians, migrating settlers and immigrants.
- **4.12:** People have modified the environment throughout history resulting in both positive and negative consequences in Ohio and the United States.
- **5.2:** Early Indian civilizations (Maya, Inca, Aztec, Mississippian) existed in the Western Hemisphere prior to the arrival of Europeans. These civilizations had developed unique governments, social structures, religions, technologies, and agricultural practices.
- **5.3:** European exploration and colonization during the 1400s-1600s had lasting effects which can be used to understand the Western Hemisphere today.
- **5.7:** The variety of physical environments within the Western Hemisphere influences human activities. Likewise, human activities modify the physical environments.
- **5.8:** American Indians developed unique cultures with many different ways of life. American Indian tribes and nations can be classified into cultural groups based on geographic and cultural similarities.
- **5.9:** Political, environmental, social, and economic factors cause people, products, and ideas to move from place to place in the Western Hemisphere and results in diversity.
- **6.1:** Multiple tier timelines can be used to show relationships among events and places.
- **7.15:** Improvements in transportation, communication and technology have facilitated cultural diffusion among peoples around the world.

Social Emotional
- **C3:** Demonstrate an awareness and respect for human dignity, including the similarities and differences of all people, groups, and cultures.
- **D1:** Apply positive verbal and non-verbal communication and social skills to interact effectively with others and in groups.

English Language Arts
- **RI.4.4** Determine the meaning of general academic and domain-specific words or phrases in a text relevant to a grade 4 topic or subject area.
- **RI.4.7.** Interpret information presented visually, orally, or quantitatively (e.g., in charts, graphs, diagrams, timelines, animations, or interactive elements on Web pages) and explain how the information contributes to an understanding of the text in which it appears.
- **RF.4.3, 5.3.** Know and apply grade-level phonics and word analysis skills in decoding words by using combined knowledge of all letter-sound correspondences, syllabication patterns, and morphology (e.g., roots and affixes) to read accurately unfamiliar multisyllabic words in context and out of context.

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