

MAPPING OUR ROOTS



ESSENTIAL QUESTION

Where in the world did all human beings come from, and why does it matter?



OBJECTIVES

Students will:

- Identify evidence about the origins of humanity and the nature of human evolution.
- Apply map skills and chronological reasoning to understand the migration patterns of early humans.
- Explain the significance of Africa as the geographical source of humankind.
- Discuss how racial and cultural perspectives about Africa and African people have influenced scientists' beliefs about the origins of humanity.



LEARNING STANDARDS

See the [standards alignment chart](#) to learn how this lesson supports New Jersey State Standards.



TIME NEEDED

60 minutes



MATERIALS

- Copies (one per student) of or digital access to the article “Finding Lucy: The Leakeys and the Search for Human Origins”: <https://newsela.com/read/BHP-U6-3-lucy-leakey/id/3759>.
- *Map of Human Migration* handout (one per small group)
- *Connect the Dots* handouts (each small group needs copies for one region; there are four different regions in all—Australia, East/Southeast Asia, Western Europe, and the Americas)
- World atlas (one per small group) or access to online map sources for groups



VOCABULARY

adaptation	descendent	fossil	Homo sapiens
ancestor	evolution	genes/genetics	indigenous
the Dark Continent	extinct	hominin	migrate

Procedures

1

PART I

The Search for Human Origins (30 minutes)

- 1 Have students engage in a think-pair-share in response to the question: “Where did the first humans live?” As a class, discuss their ideas about where the earliest humans lived, especially from a geographic standpoint.

- 2 Tell students that they will look into this question further by reading the article “Finding Lucy: The Leakeys and the Search for Human Origins”: <https://newsela.com/read/BHP-U6-3-lucy-leakey/id/3759>. Explain that they will “begin at the end.” Together, read the final paragraph of the article, emphasizing the ideas that “humankind began in Africa” and “few others could think it.” Individually or in pairs, have students read the article from the beginning, and instruct them to annotate the text in the following ways (post these instructions on the board):
 - Underline all evidence that humankind began in Africa.
 - Circle all reasons why few scientists could imagine this possibility until the Leakeys’ discoveries.
 - In the margins, record thoughts and questions that come up for you as you read.

- 3 Discuss the article as a class, using some of the following questions:
 - What did you find to be the strongest evidence that humankind began in Africa?
 - Why were early scientists convinced that *Homo sapiens* evolved in Europe? Why did they not consider Africa?
 - Why was Africa once referred to as the “Dark Continent”?
 - Why did the archaeologist Louis Leakey choose Olduvai Gorge in Tanzania as his main area of research?

NOTE

Articles on the Newsela website are available at different text levels and lengths. The link provided is to text level 5/800L, but you can choose the level or levels that are most appropriate for your students.

NOTE

According to the article “Why Was Africa Called the Dark Continent?”: “The most common answer...is that Europe did not know much about Africa until the 19th century. But that answer is misleading and disingenuous...They called Africa the Dark Continent because of the mysteries and the savagery they expected to find in the interior.” See more at <https://www.thought-co.com/why-africa-called-the-dark-continent-43310>.

- Why was the discovery of “Lucy” so important? What did it teach us about human evolution?
- What is the legacy of Louis and Mary Leakey? What did they teach us about our ancestors?

PART II

Tracking the Routes of Human Migration (30 minutes)

IMPORTANT NOTE ABOUT THIS LESSON

Early study of our human origins yielded two main theories. The multi-regional hypothesis held that some species of early humans populated the globe and modern humans evolved from them in different regions. The out-of-Africa theory postulated that modern humans evolved in Africa before dispersing to other parts of the world. Advances in genetic analysis beginning in the 1980s have provided support for the out-of-Africa theory, and scientists today largely agree that *Homo sapiens* evolved in Africa about 200,000 years ago. There is not uniform agreement, however, on the exact time periods and routes our ancestors took as they migrated across the world. Technological advances in archaeology and DNA analysis are constantly changing our understanding, and the discovery of new fossils and genetic evidence often challenges long-held theories. With each advancement, scientists are filling in the gaps in our understanding of human migration, yet the story keeps changing.

The migration routes used in this activity reflect a small sampling of the evidence and theories advanced by archaeologists, paleontologists, and other experts. However, they are not definitive. We have qualified all possible routes with phrases such as “may have...” and “could have...,” so students understand our knowledge of human migration is uncertain. Sources are included so students and teachers can dig deeper into theories and evidence. As students work through this activity, we encourage them to embrace the contradictions and uncertainties just as actual scientists do. However, they can be certain about the activity’s underlying premise—that humanity evolved from one place and that people from the far reaches of the world have many more similarities than differences.

- 4 Pose the question: “If humankind began in Africa, when and how did people get to other continents?” Allow students to share prior knowledge. Tell them they will participate in a mapping exercise and travel back in time 200,000 years to learn more about human migration.

- 5 Distribute the *Map of Human Migration* handout to each student. Review the cardinal directions and have students add a compass to their map. Together, review and identify the continents and oceans.
- 6 Check for chronological understanding. This activity will explore human activity going back 200,000 years. To contextualize, create a brief timeline on the board with 'today' as the reference point. Include data such as:
 - Students' birth year
 - Invention of the World Wide Web (1990)
 - New Jersey becomes a state (1787)
 - One of the first known groups of enslaved Africans brought to America (1619).
 - Ancestors of humans evolve (one million years ago)
- 7 Divide students into small groups and distribute copies of one of the *Connect the Dots* handouts to each group. Have them follow the prompts to track on their maps the migration route of early humans to their assigned region. Students will need access to an atlas or online map sources in order to complete this activity.
- 8 When groups have finished, have them post their maps in a place that is visible to all. Allow students to circulate and view maps from different regions. Alternatively, share some of the different maps using a document camera. Conclude with a discussion using some of the following questions:
 - Were you surprised by any of the migration patterns or cultural information? Explain why.
 - What factors might have caused our early ancestors to migrate? What physical adaptations would have supported this migration?
 - Why is it important to recognize that all of humanity originated in Africa? Why does this matter?

NOTE

Questions about color and race may arise, regarding why people look different if they all come from Africa. These questions should be directly addressed in a factual way (e.g. climate, geographic location and environmental conditions impacted human physical characteristics over time). Emphasize that color is "skin deep," and that all human beings are 99.9 percent identical in their genetic makeup. See the Smithsonian article "Modern Human Diversity—Skin Color" for more information: <https://humanorigins.si.edu/evidence/genetics/human-skin-color-variation>.

Discussion Questions

- 1 What forms of evidence have scientists gathered that proves humankind emerged in Africa?
- 2 When and how did early humans populate the rest of the Earth?
- 3 How has cultural bias and racism influenced scientists' beliefs about the origins of humanity?
- 4 Does the fact that all human beings come from Africa (and are very genetically similar) support or contradict ideas about racial categories that you have learned? Explain.
- 5 Why does it matter in today's world that we all descended from African ancestors?

ADDITIONAL RESOURCES

- + 23 and Me and Khan Academy. "Human Prehistory 101 (Parts 1 and 2)," YouTube video, 5:34/3:24, April 17, 2012, https://www.youtube.com/watch?v=8183HPmA2_I, <https://www.youtube.com/watch?v=T-9Nw66RCMhg>.
- + Australian National University. "Study finds most likely route of first humans into Australia." October 31, 2018. <https://phys.org/news/2018-10-route-humans-australia.html>.
- + Bae, Christopher. "In to Asia." *Aeon*, March 29, 2018. <https://aeon.co/essays/new-evidence-about-the-human-occupation-of-asia-is-cascading-in>.
- + California Academy of Science. Human Odyssey Interactive Map, <https://legacy.calacademy.org/human-odyssey/map>.
- + Cummings, Judy Dodge. *Human Migration—Investigate the Global Journey of Humankind*. White River Junction, Vermont: Nomad Press, 2016.
- + Gugliotta, Guy. "The Great Human Migration." *Smithsonian Magazine*, July 2008. <https://www.smithsonianmag.com/history/the-great-human-migration-13561>.
- + National Geographic. "Around the World in Seven Years," YouTube video, 2:40, November 18, 2013, <https://www.youtube.com/watch?v=Y1etsn0tjsE>. Journalist Paul Salopek retraces ancient migration out of Africa and around the world... on foot!
- + Thimmesh, Catherine. *Lucy Long Ago: Uncovering the Mystery of Where We Came From*. Boston, MA: Houghton Mifflin Harcourt, 2009.
- + Wow in the World—Where Did We Come From? NPR. Podcast audio. August 31, 2017. <https://www.npr.org/2017/10/17/547337520/where-did-we-come-from>.
- + Zimmer, Carl. "Crossing From Asia, the First Americans Rushed Into the Unknown." *New York Times*, November 8, 2018. <https://www.nytimes.com/2018/11/08/science/prehistoric-migration-americas.html>.



Map of Human Migration



HANDOUT

Australia: CONNECT THE DOTS



Follow the instructions to track the possible migration route of early humans out of Africa and to the South Pacific region. Draw symbols from the map's legend along your route to represent different types of movement or features of the environment. Add symbols if you need to.

NOTE

The abbreviation 'c.,' for 'circa,' means approximately.

- | | | |
|----------|-----------------------------|---|
| A | c. 200,000 years ago | What may be the earliest fossils of modern <i>Homo sapiens</i> were found at Omo Kibish in Ethiopia. Mark this spot. |
| B | c. 50,000–100,000 years ago | A sudden cooling of the Earth's climate may have made life hard for our African ancestors and reduced their population to under 10,000. Once the climate improved and the population grew again, some adventurous explorers probably left Africa by crossing the Bab-al-Mandab Strait, separating present-day Yemen from Djibouti. The waters of the Red Sea between Africa (at the Horn of Africa) and the Arabian Peninsula were much shallower then, and your ancestors could have used simple rafts to cross. Track their route. |
| C | c. 50,000–70,000 years ago | These early beachcombers may have moved along the coast of the Arabian Peninsula to India, and then Southeast Asia. During this time, the sea levels were lower and many of the islands of Southeast Asia formed a single landmass called Sunda. Track their route. |
| D | c. 50,000–70,000 years ago | Some scientists think your ancestors travelled from Southeast Asia through Indonesia and Timor, then across the sea to the northwest coast of Australia. Others say there is evidence they travelled through Indonesia's northern islands into New Guinea and Australia (then part of a single continent known as Sahul). The migration to Sahul would have required seafaring, and this may be the first time humans anywhere in the world navigated the seas. Track both possible routes. |
| E | c. 50,000 years ago | Your group arrived in what is today Australia. At a burial site at Lake Mungo in southeastern Australia, a fully intact human skeleton was found in 1974. The adult male body was sprinkled with a red powder made from clay before being buried over 40,000 years ago. Over time, his descendants—the Aboriginal and Torres Strait Islander people—formed hundreds of nations and spoke over 250 languages and 600 dialects. They are one of the oldest continuous civilizations on earth. Mark Australia on the map to represent these people. |

HANDOUT

Americas: CONNECT THE DOTS



Follow the instructions to track the possible migration route of early humans out of Africa and to the Americas. Draw symbols from the map's legend along your route to represent different types of movement or features of the environment. Add symbols if you need to.

NOTE

The abbreviation 'c.,' for 'circa,' means approximately.

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|----------|------------------------------|--|
| A | c. 200,000 years ago | What may be the earliest fossils of modern <i>Homo sapiens</i> were found at Omo Kibish in Ethiopia. Mark this spot. |
| B | c. 115,000–120,000 years ago | After a long cooling period, the Earth warmed and your ancestors may have migrated through the Nile Valley into today's Egypt and Sudan, crossing the Sinai Peninsula into what is now Israel. Your ancestors were likely among the earliest farmers when they settled in the Fertile Crescent in the Middle East, today's Iraq and Jordan. Track their route. |
| C | c. 30,000–40,000 years ago | Your ancestors probably lived on the steppes (flat grasslands) of today's China and Mongolia. In Salkhit, eastern Mongolia, the skullcap of a modern human was discovered and dated to about 34,000 years ago. It is the only hominid fossil from this time found in Mongolia. Track their route and mark this spot. |
| D | c. 20,000–40,000 years ago | During the ice age, sea levels dropped and a land bridge emerged, connecting Siberia in northeastern Russia to Alaska in North America. Your ancestors likely crossed this Bering Land Bridge. One group of these ancient Beringians survived in the area near today's Alaska for thousands of years and then disappeared, leaving no known genetic trace in living people. Track their route and mark Alaska on the map. |
| E | c. 10,000–20,000 years ago | Another group of Beringians kept moving beyond Alaska. They split into two branches about 16,000 years ago, one heading north into today's Canada and the other south into today's North and South America. This expansion happened rapidly. About 11,000 years ago, a man buried in a rabbit-skin blanket and reed mats was found in Spirit Cave in present-day Nevada. Scientists found a genetic link between these remains and a 10,900-year-old skeleton in what is today Chile. Track these routes. |
| F | | Your ancestors formed thousands of independent nations throughout the Americas (there are more than 570 alone in the U.S. today). These societies had advanced knowledge of mathematics, medicine, architecture, engineering, agriculture and more, long before European explorers arrived in this part of the world. |

HANDOUT

Western Europe: CONNECT THE DOTS



Follow the instructions to track the possible migration route of early humans out of Africa and into Europe. Draw symbols from the map's legend along your route to represent different types of movement or features of the environment. Add symbols if you need to.

NOTE

The abbreviation 'c.,' for 'circa,' means *approximately*.

- | | | |
|----------|-----------------------------|---|
| A | c. 200,000 years ago | What may be the earliest fossils of modern <i>Homo sapiens</i> were found at Omo Kibish in Ethiopia. Mark this spot. |
| B | c. 50,000–100,000 years ago | Some scientists think a very small group of your ancestors—maybe fewer than 1,000—migrated from Africa by crossing the area that is today the Red Sea. The waters of the Red Sea between Africa (at the Horn of Africa) and the Arabian Peninsula were much shallower then, and your ancestors might have used simple rafts to cross from present-day Djibouti into Yemen. They then may have continued along the Arabian coast to what is today Iraq and Jordan, where they became some of the world's earliest farmers. Track their route. |
| C | c. 60,000–80,000 years ago | Your ancestors may have met <i>Neanderthals</i> (a now-extinct early human species) and interbred with them. This offshoot may have followed big prey, migrating into Central Asia—today's China and Mongolia—and then through southern Russia. Track their route. |
| D | c. 40,000–50,000 years ago | Your ancestors are believed to have arrived in Europe more than 40,000 years ago. In the Bajondillo Cave, in today's Málaga, Spain, stone tools were found dating to about 44,000 years ago. In Chauvet Cave, in what is today southeastern France, cave paintings of lions and rhinos were found that are about 30,000 years old. Mammoth-ivory figurines found in Germany date back to the same period. Mark these areas. |
| E | c. 40,000–50,000 years ago | Jaw fragments and teeth from your ancestors dating back to 40,000 years ago were discovered in Kent's Cavern, in what is today Devon, England. Mark this spot. |
| F | c. 20,000–40,000 years ago | The Paglicci Grotto is a cave located northeast of Naples, Italy. Scientists have found thousands of pieces of evidence that your ancestors were there, including human bones, stone tools, handprints, wall paintings and a 32,000-year-old pestle (grinding stone) that might have been used in oat harvesting—one of the earliest examples of food processing in Europe. Mark this spot. |

HANDOUT

East and Southeast Asia: CONNECT THE DOTS



Follow the instructions to track the possible migration route of early humans out of Africa and into Asia. Draw symbols from the map's legend along your route to represent different types of movement or features of the environment. Add symbols if you need to.

NOTE

The abbreviation 'c.,' for 'circa,' means approximately.

- | | | |
|----------|-----------------------------|---|
| A | c. 200,000 years ago | What may be the earliest fossils of modern <i>Homo sapiens</i> were found at Omo Kibish in Ethiopia. Mark this spot. |
| B | c. 50,000–100,000 years ago | Some scientists think that a period of drought may have driven the growing <i>Homo sapiens</i> population to search for greener lands. They might have followed the large game they depended on for food out of Africa from northern Egypt to the Sinai Peninsula (today's Israel) and settled across the Levant (the land around the eastern part of the Mediterranean Sea). Track their route. |
| C | c. 50,000–70,000 years ago | Some of your ancestors may have moved along the coast of the Arabian Peninsula, eventually making their way to what is today India and to Southeast Asian island chains like Indonesia. During this time, the sea levels were lower, and many of the islands of Southeast Asia formed a single landmass called Sunda. Scientists found teeth in Lida Ajer Cave in Sumatra, Indonesia, believed to be more than 60,000 years old. Track their route and mark this spot. |
| D | c. 40,000–50,000 years ago | Your ancestors may have made their way around the coast of Southeast Asia and then followed river routes inland to today's China. At Tianyuan Cave near Beijing, China, scientists found DNA from an early fisher-gatherer dating back 40,000 years. This man shared genes with <i>Neanderthals</i> , an extinct cousin of <i>Homo sapiens</i> . Track their route and mark this spot. |
| E | c. 30,000–35,000 years ago | Scientists have debated over a skull fragment found in what is today Salkhit in eastern Mongolia. It was originally thought to be from an ancient human and given the name <i>Mongolanthropus</i> . However, modern DNA analysis shows that it is in reality a modern human, who lived about 34,000 years ago. It is the only hominid fossil from this time found in Mongolia. Mark this spot. |
| F | c. 15,000–30,000 years ago | Near the end of the last Ice Age, your ancestors may have followed animal herds over land bridges to what is today Japan. When the climate warmed and the sea levels rose, they found themselves on an island, where they survived by hunting, gathering and fishing. These people became the <i>Jomon</i> (patterned), a name that comes from the style of pottery they created. Track their route and mark this area. |