About this Teaching Resource

Acknowledgements

This packet presents eight lessons inspired by the special exhibition Striking Iron: The Art of African Blacksmiths. Our goal is to help learners of all ages and backgrounds look closely at African works of art and think critically about how decoding visual details is essential to understanding an artwork’s original purpose. This teaching resource may be used as an introduction to looking at and interpreting the work of African blacksmiths, or as a springboard for exploring how these artworks connect to our world today. Information is organized following the same sequence as the exhibition, transitioning from an introduction on African iron forging to its many uses.

You are encouraged to prepare for your inquiry-based discussions by reviewing the descriptions and background information provided. The sections “Forging Curriculum Connections” are intended for you and your students to look closely, think critically, and respond to the artworks together.

About the Exhibition

Striking Iron: The Art of African Blacksmiths reveals the history of invention and technical sophistication that led African blacksmiths to transform one of Earth’s most basic natural resources into objects of life-changing utility, empowerment, prestige, spiritual potency, and astonishing artistry. Presenting over 225 artworks from across the African continent and covering a time period spanning early archaeological evidence to the present day, Striking Iron invites learners of all ages to explore how African blacksmiths sculpted iron into essential tools, musical instruments, body adornments, ritual implements, and more.

We would love to hear your teaching stories!

If you use any of the following materials, please share your experience with us by emailing fowlereducation@arts.ucla.edu
Iron from Macro to Micro

It’s above us. It was there at the Big Bang and is there today. It’s below us on the land in soil, rock, and sediment. It’s all around us throughout the universe. It’s also within us, in the blood pulsing through our veins, in the hemoglobin that oxygenates our blood.

It’s iron.

From the Big Bang to the present, iron has been at the center of existence. The earth’s core, mainly molten iron, generates Earth’s magnetic fields, keeping our planet in its orbit around the sun.

While we cannot see the Earth’s molten iron core, we can see iron flowing from the smelting furnaces of African iron makers. Through the ingenuity and strength of African blacksmiths, tools were forged that affected nearly all aspects of daily life for latter centuries.

Iron continues its presence in many ways. Today, 90% of all metal that is refined is iron, most of which is alloyed with carbon to make steel. For generations in Africa, iron has given warriors their weapons and kings their signifiers of office. Iron has changed the course of civilization.

As essential as the efficacy of iron tools is their appearance. Indeed, it is the smiths’ artistry that imbues objects with the power they display. Their talent is as apparent in this introductory section of Striking Iron as it will be in the subsequent sections.

Forging Curriculum Connections: Explore

The exhibition title describes iron as The Art of African Blacksmiths. The study of iron can also serve as an entrée to practically all branches of science, leading your students to further investigations. No matter the current studies of your class, each student could have the opportunity to pursue his or her own interest. Many sciences—including geology, oceanography, ecology, physics, chemistry, cosmology, astronomy, biology, and botany—connect with the study of iron, its origins and functions.

In turn, the scientific pursuits, no matter the path, can readily inspire related art projects. Students can reinterpret scientific diagrams, textbook illustrations, or photographs with a medium of their choosing.
Iron’s Material Transformations

Vivid red-orange colored areas are clearly visible on photographs of Africa taken from NASA’s Deep Space Climate Observatory one million miles from Earth. Capturing the deforested areas of the continent, they display the vast areas of lateritic, or iron-rich, soil throughout Africa.

The raw material is clearly abundant and accessible, but those two conditions do not guarantee a supply of workable iron. Before blacksmiths may convert the raw material into tools, weapons, ornaments, and other items of function and beauty, they will need to take additional steps.

The process includes converting the iron ore from rocks or sediment into a metallic ore. This will only happen with an enormous amount of heat—1,200 ° Celsius! Impurities will burn off and the remaining metal will form a bloom, which is a spongy material of not yet workable iron. Further heating of the material in special furnaces and working it with basic tools ( anvils, hammers, bellows, and tongs) is necessary. Today in industrial settings in Africa and throughout the world, the working of iron takes place in blast furnaces and modern foundries and mills. Historic technologies, however, are still used by blacksmiths continuing to honor the specific regional traditions of their ancestors.

Forging Curriculum Connections: Wonder

Invite your students to imagine themselves as blacksmiths working in Africa two thousand years ago. Instruct them to speculate, discuss, and hypothesize their answers to the following questions:

- How to remove ore from the rock
- How to know which ores would result in something as useful as iron
- How to know which wood to cut for charcoal
- How to place logs in the furnace to give such an extreme heat
- How to construct furnaces with enough draft to draw the heat through
- How to move metal into usable shapes
- How to design the most useful tools for iron forging
- How to know when to repeat the steps of heating and quenching

Iron's Material Transformations
Africa’s Iron Origins

World history is often categorized as a progression of “Ages,” from the Stone Age to the Copper or Bronze Age to the Iron Age. However, in sub-Saharan Africa, where humanity’s shared ancestors first began to make stone tools, it is impossible to divide technological advancements into discrete ages. For example, stone tools continued to be used into Africa’s Iron Age. Archaeologists once understood the evidence to suggest that knowledge of iron forging had arrived in north Africa by the first millennium BCE, later spreading to the south, but more recent research has pushed the advent of iron production farther back in time.

Most contemporary scholars agree that Africans began smelting iron from local ores by about 2,500 years ago, but details remain debated. Were these technologies invented and developed in one or several sub-Saharan locales? Were they disseminated with early migrations and trade? However they came to be known to African artisans, iron technologies were quickly adopted and adapted, and large-scale production of iron occurred in several ancient locations. Iron production, use, and exchange defined social and political hierarchies, as confirmed by findings at the archaeological sites of Campo in Cameroon (dating to the 2nd–4th century CE), Kamilamba in the Democratic Republic of the Congo (8th–10th century CE), and Great Zimbabwe (13th–14th century CE).
Forging Curriculum Connections: Archaeology and Traditional Tales

In addition to the archaeological records, creation stories have been passed down for generations to explain major historical events: stories of fire, iron, people, animals, and the world. Blacksmiths often appear in these stories because they, like gods, were able to transform substances and circumstances.

According to the Dogon people of Mali, their background includes ancestral spirits called Nommos who lived with the supreme being. It was a Nommo who became the first blacksmith by stealing fire from the sun to share with humans. This act is celebrated by Dogon people upon the death of one of their group as they dance with blacksmith-made ritual objects such as staffs, sickles, and adzes, which were held over the shoulder with the blade facing back. Bells at the top sound to call forth spirits.

People throughout the world tell and retell stories to describe the beginning of features of the natural or social world. Students can study the traditional tales of their own heritage or any other groups. There are many among the people of Africa.

An alternate or additional activity would be to ask students to write their own tale to describe how some person, situation, or thing came to be part of our own world.

**Early Archaeological Evidence**

**Forging Curriculum Connections: Archaeology and Traditional Tales**

In addition to the archaeological records, creation stories have been passed down for generations to explain major historical events: stories of fire, iron, people, animals, and the world. Blacksmiths often appear in these stories because they, like gods, were able to transform substances and circumstances.

According to the Dogon people of Mali, their background includes ancestral spirits called Nommos who lived with the supreme being. It was a Nommo who became the first blacksmith by stealing fire from the sun to share with humans. This act is celebrated by Dogon people upon the death of one of their group as they dance with blacksmith-made ritual objects such as staffs, sickles, and adzes, which were held over the shoulder with the blade facing back. Bells at the top sound to call forth spirits.

People throughout the world tell and retell stories to describe the beginning of features of the natural or social world. Students can study the traditional tales of their own heritage or any other groups. There are many among the people of Africa.

An alternate or additional activity would be to ask students to write their own tale to describe how some person, situation, or thing came to be part of our own world.

**TOP**


**BOTTOM**

Sustenance from the Anvil

In homes and fields across Africa, iron has been valued as material and as means of transformation and advancement. Products of smelters and forges, of anvils and hammers—knives, hoes, plows, sickles, machetes, axes, and adzes—have helped people forage, hunt, and plow.

As hoes and sickles enabled cultivation and harvesting in the fields, implements for cooking and illumination such as pots, spoons, and oil lamps met everyday needs within the home.

These tools are of such import that representations of them, or the tools themselves, often appear as objects of social and economic status with sacred meanings and ritual significance. For example, hoes represent fertility and continued survival while dance axes and sickles are used as part of initiation and funeral rites. Similarly, iron is fashioned into jewelry and body adornments, as well as currency to be used for bridewealth and in exchange of goods.

Blacksmiths produced tools sized to be most effective for their intended roles. They also created elegant versions that, when worn as body ornaments, not only protected the wearer, but also announced his or her status. Mangbetu women controlled their elegant hairstyles with equally elegant iron hairpins; Zande man wore pins with tall blades to complete their adornment, and many groups wore beautifully forged necklaces and bracelets, some displaying miniature tools.

Forging Curriculum Connections: Artistry in Miniature

Students can work with softer, more malleable metals to create their own jewelry. Copper sheet and wire are available at hardware and art supply stores. With them, students may fashion miniature versions of blacksmith tools with simple implements (and no heat!). Students can add them to necklaces, bracelets, and belts.

Print cloths, boasting a variety of patterns, including images of tools, have long been popular for wear by both men and women in Africa. Students may make a print block of a tool image or motif and print repetitions of the image on fabric, following the lead of today’s textile designers.
Iron’s Empowering Roles

From the hand of the blacksmith, an earthbound practitioner, iron seeks the attention of a deity to enable sacred acts and arts. Blacksmiths are thought of as superhuman, connecting their world with the outer world of spirits, ancestors, and gods.

In sub-Saharan Africa, the world—plants, animals, rivers, humans, words, gestures, music—is alive with spirit. Iron figures prominently as a medium that activates spiritual power. The blacksmith, as a master of the transportive processes of making iron into the community’s tools and weapons, is often charged with making the very objects used to invoke and represent supernatural deities.

Iron is an important component of power figures known as minkisi (singular: nkisi). Carvers produce the receptacle, often in the form of a human or animal. While it may look immediately impressive, it is not considered powerful until a ritual expert (nganga) activates it by inserting power-giving items into the figure. Even then the piece is not complete because the appearance of the nkisi changes with the addition of iron pieces such as nails to its surface. These awaken protective spirits and attest to oaths sworn in legal proceedings. Over time, the added metal and other substances transform the appearance of the nkisi as it serves to affirm justice while arbitrating in conflicts. When the conflicts are resolved, the litigants pound in pieces of iron, thereby performing the equivalent of signing a legal contract.

Forging Curriculum Connections: Embodying Justice

Present students with images of minkisi, and ask them to write down their first impressions of the artwork. Explain why minkisi are known as power figures in Central Africa. Describe the process of making an nkisi. It begins as a wooden carving. Invite students to sketch what they envision such an unadorned wooden form would look like. Discuss the purposes of minkisi as a part of a community’s justice system. How does this information change what students’ think about the artwork? Inform students about the use of iron pieces such as nails. Invite students to sketch such additions onto their imagined wooden form. Does their illustration now manifest more power? Direct students to look again at the artwork. What more would they want to know to understand this power figure?
**Blades of Power and Prestige**

Swords, knives, daggers, axes, and spears provided defense against aggression and served as weapons of war. They also acquired other roles as symbols of power and prestige. As blacksmiths re-encountered these forged objects, they used their skills to modify shapes, dull blades, and embellish handles. Through this process, their skills converted iron from the most practical objects of defense and aggression to symbols of important power. Such insignia in religious, political, and ceremonial realms are valued throughout the African continent. The beauty of these objects enhances their efficacy.

Luba chiefs and kings display their high status by wearing finely sculpted axes, their blades made blunt, over their left shoulder. Such empowering emblems have been found in high-status graves dating to the 9th century A.D., displaying continuous use of iron vested with sacred power.

The *eben*, a fan-like ceremonial sword, has been part of the court of the oba of the Benin Kingdom dating back to the 16th century. Its shape and its handle allow it to be raised aloft, whirled and tossed in the air by courtiers honoring the king and his ancestors—dramatic gestures of allegiance, fealty, praise, and prayer.

Some axes have shafts of carved wood that end in delicately sculpted anthropomorphic heads or full figures from which forged blades—“tongues”—emerge. We can imagine that these blades lent themselves to metaphor, as captured in the phrase, “wise words are a sharp tool.” Worn over the shoulder or held in the hand while dancing, such axes and adzes expressed the eloquent or “cutting edge” speech of those privileged to bear them.

**Forging Curriculum Connections: Replicating Lines**

Ekonda blacksmiths, honored as founders of their lineages, produce iron work prized for improvised forms and ornamentation that is strictly for show. Both men and new mothers are honored to carry the swords in local ceremonies, particularly when a woman has delivered her first child. Invite students to replicate the complex angles and swerving curves of the blades using contour drawing techniques.
Blades of Value

African kings, warriors, farmers, and other users of the blacksmiths’ art extolled the smiths’ mastery as transformers. Iron work, forged and embellished, was sought and proudly displayed, and the smiths’ technical skills became linked to notions of value. Blades and weapons became tokens of payment themselves, with the blades dulled and sizes altered.

A wide variety of shapes were formed based on a simple agricultural tool: the hoe. Besides iron, hoe currencies were fabricated from copper, bronze, and brass. Most often the money was used as bridewealth, a pre-marriage institution that exists throughout Africa. The term bridewealth refers to compensating the bride’s family for the loss of a daughter’s services, which will now benefit the groom’s family instead. The practice reinforces a solidarity between the two families whose children are to be married.

In addition to those that were inspired by tools and weapons, other items have been used for currency in Africa, including beads, ivory, cowrie shells, and livestock. African currency is still notable for its variety, and in many places various forms of bartering continue today.

Forging Curriculum Connections: Art and Money

Invoke students to look closely at one of the elaborate blades displayed in the exhibition. Provide sketching materials, and instruct students to draw a simple outline of the blade that is at least several inches in size. Instruct students to study the blade closely, paying attention to lighting, surface appearance, etc. Add details to the drawing while keeping the blade the subject (no added people, background, etc.). By embellishing their drawing with varied designs, students will learn how a blacksmith transformed a utilitarian item into a highly valued currency.

Students may also compare and contrast the currencies in Striking Iron with forms of money that they use on a regular basis, such as dollar bills, coins, credit cards, etc. Younger students may be encouraged to research the people or places depicted on bills and coins. Older students may research other media of exchange, such as bartering practices, credit cards, and Bitcoin.
As students enter the Striking Iron exhibition at the Fowler Museum at UCLA, iron “sounds” around them. Heartbeats and breaths, fueled by the iron in our blood, are made audible. As we walk into the environment of smelter and forge, the making of iron can be heard as well as seen. Still today blacksmiths offer prayers and songs as the bellows are pumped with air and hot iron is struck by hammers. Resulting iron products ring, clang, and rattle. These sounds are used in dance, prayer, masquerades, and to announce important events. Through sounds of iron, people’s voices are directed to the ancestors and gods with requests for attention and approval. As people progress through important life stages, music will play an important role in the traditional ceremonies. With varying rhythms and tones, Africans and their instruments of iron form ensembles and orchestras, making music and telling the stories of the people.

Most instruments fashioned of iron and other metals are percussive, such as gongs, chimes, bells, and cymbals. Some create sound through the vibrating core of their principle material, whether struck, plucked, scraped, or rubbed. Rattles and rasps are in this group. Wind instruments include flutes and horns. A popular instrument is the thumb piano, also called lamellophone by some groups. Other names include mbira (Shona and related peoples of Zimbabwe), chisanji (Chokwe peoples, Angola), and kankobele (Tabwa peoples and groups in the Democratic Republic of the Congo).

Today many lamellophones incorporate recycled material, as do many of the products available in contemporary African marketplaces. Blacksmiths make use of salvaged materials in their work, using their creativity and expert skills to repurpose and recycle as they prevent items from being lost to landfills.
Forging Curriculum Connections: Recycle and Resound

Students may create their own musical instruments using a variety of materials. Such experimentation will challenge students of all ages to design a usable form capable of producing sound. If students use recycled materials, they will be emulating artists and musicians all over the world, including Africa.

The sounding surface of most membranophones, a group of musical instruments that includes drums, was typically made of animal skins in the past. Today, various plastics, papers, and treated fabric are frequent substitutions. Bodies of drums are often wood, metals, ceramic, cardboard, and/or plastic. Chordophones, instruments with vibrating strings, produce rhythms and melodies to accompany stories and songs as they are plucked, bowed, struck, or strummed. Wind instruments or aerophones are heard throughout Africa as players blow into the tubes composed of reeds, horns, cane, wood, and metal. Self-sounding instruments known as idiophones produce sounds as you swing them, shake them, run a stick along their surfaces, tap them lightly, or strike them with a stick or mallet.
Resources for Teachers

*Striking Iron Interactive, Grades 9-12*

https://www.fowler.ucla.edu/exhibitions/striking-iron/striking-iron-k-12

This resource is designed for high school students of all backgrounds to explore African iron forging and its significance through the framework of five essential questions. While completing a variety of self-directed activities, students will learn to look closely and consider iron as both a vital resource and compelling artistic medium.

*Art and Life in Africa*

https://africa.uima.uiowa.edu/

This website provides information and photographs of various societies in Africa. It is organized into topical essays, which cover art from various regions, and chapters broadly organized by themes such as education, initiation, everyday endeavor, and key moments in life.

*Blacksmith in Agbara, Kwara state, Nigeria*

https://www.youtube.com/watch?v=codSvGM-WQo&t=113s

This 21-minute long video offers an in-depth look into one family’s forge in Kwara state, Nigeria. It covers the tools and techniques used by blacksmiths, as well as the social and cultural environment in which the family is working.

*Blacksmithing Market in Cameroon*

https://www.youtube.com/watch?v=1_tA_Imel2s

This 2-minute long video provides a brief glance at a blacksmith market in Cameroon.

*Dokwaza: Last of the African Masters*

https://www.youtube.com/watch?v=9yxdUwDe1JM

This documentary follows Dokwaza, a blacksmith, who is turning the ruins of an ancestral forge into a working space for ironworking again.
Credits

This resource was conceived and created by the Fowler Museum at UCLA in consultation with Lyn Avins, Museum Curriculum Consultant.

*Striking Iron: The Art of African Blacksmiths* is organized by the Fowler Museum at UCLA and its curatorial team is led by artist Tom Joyce, a MacArthur Fellow originally trained as a blacksmith, with co-curators Allen F. Roberts, UCLA Professor of World Arts and Cultures/Dance; Marla C. Berns, Shirley & Ralph Shapiro Director, Fowler Museum; William J. Dewey, Director, African Studies Program and Associate Professor of African Art History at Pennsylvania State University; and Henry J. Drewal, Evjue-Bascom Professor of Art History and Afro-American Studies at the University of Wisconsin-Madison.

The exhibition is made possible by major funding from the National Endowment for the Humanities* and in part by an award from the National Endowment for the Arts. Generous support is also provided by the Martha and Avrum Bluming Exhibition Fund with additional funding from the Fowler Exhibition Fund, Cindy Miscikowski, the Ethnic Arts Council of Los Angeles, Lee Bronson, Andrew Adelson, Richard Scheller and Susan McConnell, and Richard and Susan Ulevitch.

Lead sponsorship for the publication is provided by the Carl & Marilynn Thoma Art Foundation, with additional support from the Ahmanson Foundation on the recommendation of the late Foundation Trustee Emeritus, Lloyd E. Cotsen. Education programs are made possible in part by The Ralph M. Parsons Foundation.

*Any views, findings, conclusions, or recommendations expressed in this Web resource do not necessarily represent those of the National Endowment for the Humanities.*