Iron at Argillite

Greenup County | Fuel, water power, and industrial work

Grades 4-8 | Adaptable for families | **45 minutes** | No model or internet needed

THE BIG QUESTION

How could one industrial site use both fire and moving water for different jobs?

A PLACE AND A QUESTION

Argillite Furnace combined charcoal fuel with water-driven air-blast machinery. The historical marker dates its construction to 1818 and its last blast to 1837.

STUDENTS WILL

Distinguish fuel from mechanical power; explain a furnace/forge difference; calculate a time interval without inventing operating days; evaluate whether a picture supports a local claim.

PREPARE

Within this lesson, print pages 2-3 (picture study) and page 4 (worksheet) for learners. Keep pages 1 and 5 for the teacher. Supply pencils. Use the numbered cartoons during the reading step; captions distinguish a process illustration from a local fact.

TEACH IT IN FOUR STEPS

Start (5 minutes). Ask why the words furnace and forge might be confused.
Read (10 minutes). Read the student box. Mark the two energy roles and the two dates.
Reason (20 minutes). Complete the questions, including the interval calculation. Discuss why a date range cannot count working days.
Share (10 minutes). Compare evidence needed to describe the actual site with evidence useful only for explaining a general process.

ADAPT AND EXTEND

Younger learners can sort the words fuel, water, and air into roles. Older learners can identify what information an operating ledger would add to a historical marker. Keep discussion and diagrams on paper.

CLOSE THE LESSON

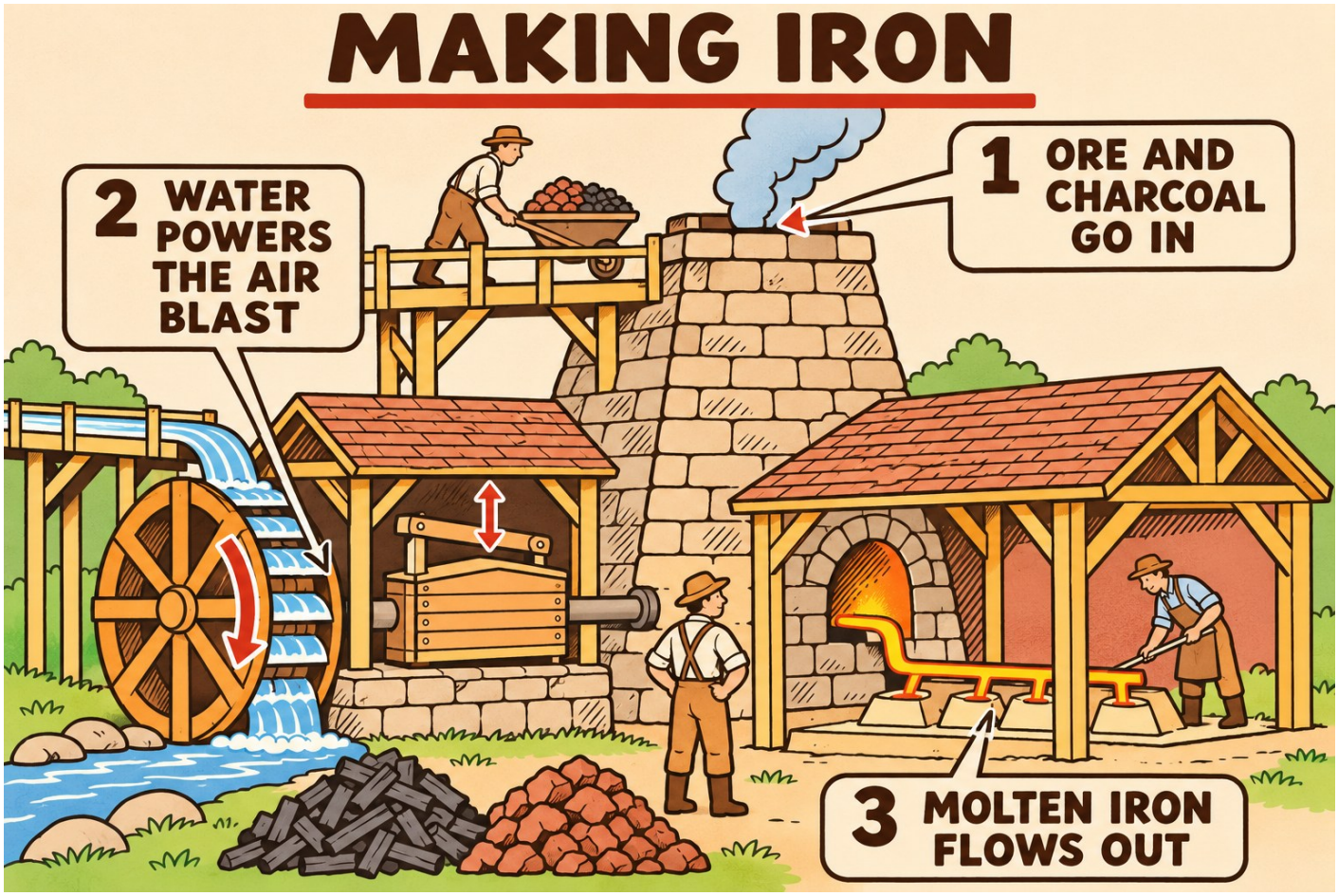
Ask learners to explain why a photograph of a blacksmith is not automatically a picture of a blast furnace.

Free to copy for classroom, community, and home learning. Print on US Letter at 100%. Lesson timing is a planning estimate. These are classroom activities; no site visit or machinery demonstration is required.

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Look closely. Follow the numbered labels, then talk through the questions below.



Workers feed ore and charcoal into the stack and tap molten iron below. Charcoal supplies heat; moving water powers the air-blast machinery. The arrangement explains a process, not Argillite Furnace's exact appearance.

TALK ABOUT THE PICTURE

1. Find two different energy jobs. What provides heat, and what provides motion?

2. What enters the top of the furnace, and what leaves the bottom?

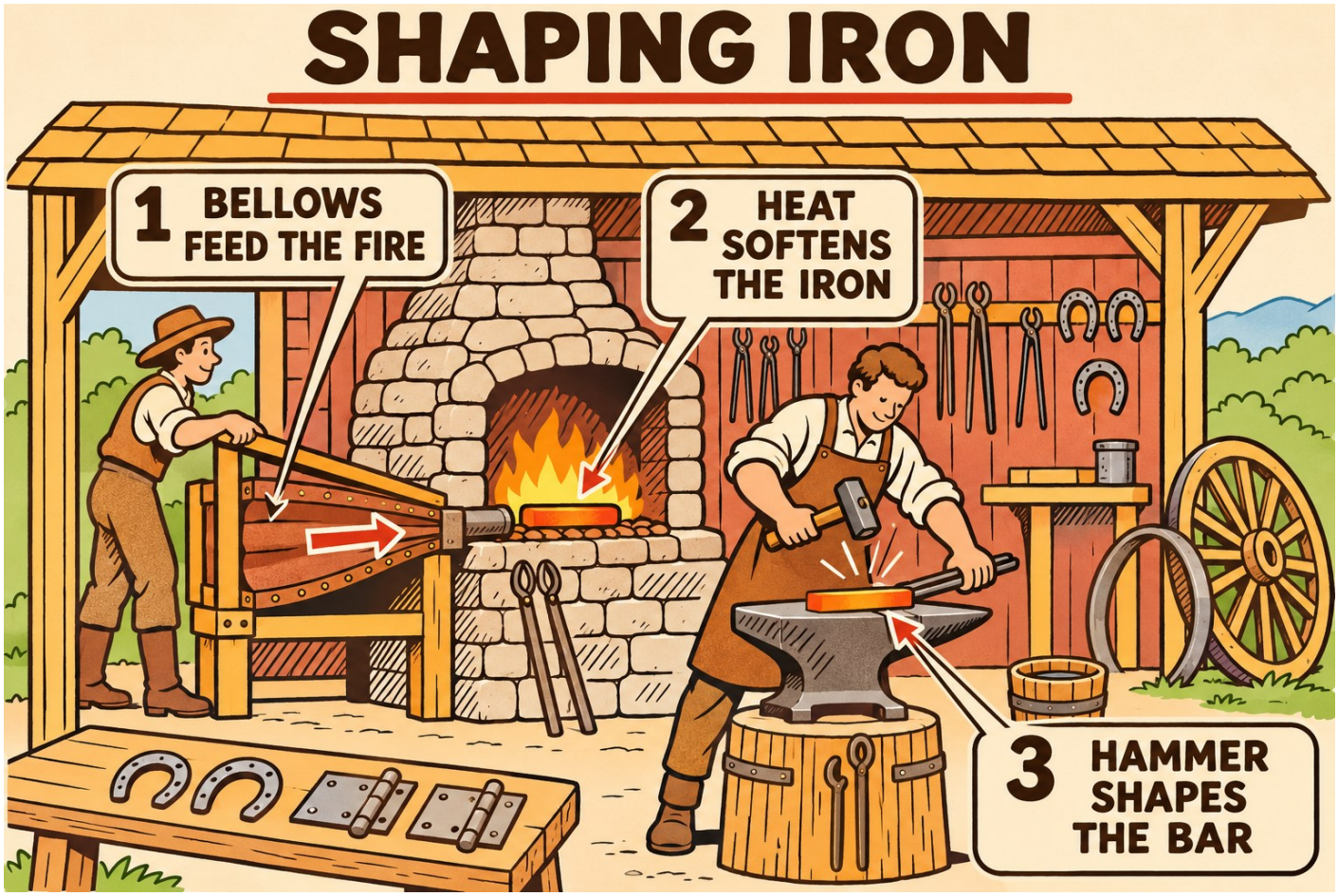
Modern AI-generated educational illustration. Representative scene, not an exact reconstruction. Free to print for education.

Learn more: National Park Service: ironmaking at Hopewell Furnace

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Look closely. Follow the numbered labels, then talk through the questions below.



A blacksmith heats and shapes iron already suitable for forging. The glowing bar stays solid. Raw pig iron first needed further refining. This is a representative workshop, not a documented shop at Argillite.

TALK ABOUT THE PICTURE

1. Find the bellows, hearth, hammer, and anvil. How do they help the smith?

2. Compare this picture with the furnace. How does shaping a bar differ from making iron from ore?

Modern AI-generated educational illustration. Representative scene, not an exact reconstruction. Free to print for education.

Learn more: National Park Service: Hopewell's iron industry and workshops

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Name: _____ Date: _____

Local evidence: KHS marker 975 describes Argillite as a charcoal-fueled furnace with water-powered air-blast equipment, built in 1818; its final blast was in 1837. **Process distinction:** a furnace makes iron from ore. A forge can refine or shape iron already made. The NPS describes refining and hammering at a different ironworks.

1. Fill the two roles: What supplied the fuel? What powered the machinery that supplied the air blast?

2. Explain one difference between a furnace and a forge. Which one is the documented Argillite site?

3. Calculate the interval from 1818 to 1837. Does that calculation prove the furnace worked every day? Explain.

4. A picture shows a blacksmith hammering a horseshoe. Is that enough to show how Argillite Furnace looked? Name one better source to seek.

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ANSWERS AND DISCUSSION

1. Charcoal supplied fuel; water powered the air-blast machinery.
2. A furnace makes iron from ore; a forge works existing iron. The local site is documented as a furnace.
3. 1837 - 1818 = **19 years between the dates**. This does not prove uninterrupted operation.
4. No. A dated image or plan identified specifically as Argillite would be stronger evidence of its appearance.

WHAT THE EVIDENCE DOES NOT ESTABLISH

Do not turn the furnace into a blacksmith shop or imply that Saugus machinery was installed at Argillite. The interval problem concerns calendar years, not a verified total of production time. This paper lesson is not a demonstration of fire, smelting, or metalworking.

CHECK FOR UNDERSTANDING

Use the picture labels and captions to guide the oral discussion. For worksheet answers, look for support from the reading and a clear distinction between evidence and a prediction. Accept spoken responses or labeled drawings.

NAMED SOURCES

Kentucky Historical Society, marker 975. Argillite Furnace, Greenup County. The source page spells its heading "Furnance."

https://history.ky.gov/markers/argillite-furnance

National Park Service, Iron Making: Refining into Wrought Iron. Explains a forge process at Saugus Iron Works. This comparison is not evidence of Argillite's equipment.

https://www.nps.gov/articles/000/iron-making-refining-into-wrought-iron.htm

Readings are short original paraphrases. Diagrams and exercises were created for this lesson. Source links are for further study; they do not imply endorsement. These historical accounts do not establish present-day site access.