

Blacksmiths Through Time
By Lisa Scherman & Christine Leipheimer

Grades: 6th 8th

Subject: English, Reading, Science and Social Studies, Technology

Focus:

The roles blacksmith's have performed directly affected our world's development. How are they still influencing our lives today?

Time: Eight class periods

Montana Standards:

Literature content standard 1-6

Reading content standard 1,5

Writing content standard 1,2,6

Career and Vocational content standard 1,4,5

Science content standard 1-6

Social Studies content standard 1-6

Technology content standard 1,3,5

Objectives:

1. Compare the role of yesterday's blacksmith to the roles they play today.
2. Recognize how the blacksmith changed society.
3. Understand the basic vocabulary of the blacksmith.
4. A timeline will be produced by students from Pre 1492-present

Materials: Computer with Internet, Tour of Grant Kohrs Ranch, interview questions, paper, pencils, markers, scissors

Activity days 1 & 2:

Procedure:

Break students up into groups of 2-3 depending on computer access. Each group will be assigned a different period in time.

Pre -1492

1492-1700

1700-1800

1800-1860

1860-1910

1910-1970

1970-present

Each group will take a different aspect of blacksmithing and research their time using available resources. They will construct their time period facts into a timeline that will be added to a classroom timeline dating from Pre 1492-present.

Each fact-finding project must include:

Characteristics of a blacksmith
Tools
Vocabulary
Clothing
Materials used to forge
How those materials are used
Location of worksite
Career opportunities

Students need to prepare questions to ask the blacksmith.

Vocabulary:

Alloy: compound of one or more metals or elements

Anneal-annealing: the annealing process requires metal and then cooling it at a slow, consistent rate, makes the work piece softer

Anvil: common anvil has flat work surface and a pointed end called the horn.

Bellows: is a blower in which air is forced through the Tuyere

Braze: soldering

Clinker: is a coagulated slag or metal impurities that “melt” from the coal, as it becomes coke.

Coke/Charcoal: Coke and charcoal are nearly pure carbon and burn the hottest in a forge. When burned in the absence of air, coal becomes coke and wood becomes charcoal (distillation)

Drift/drill: two methods of making holes in metal

Ferrous: of or pertaining to iron

Flux: any compound used to prevent oxidation of the welding surface and aid in removing impurities

Forge: (n) refers to the entire blacksmith shop and it may refer to the actual hearth, (v), the act of shaping metal and can be done hot or cold

Hand-Hammers: a variety weighing from 1 lb. to 16 lbs, 2-2.5 lb. hammer is the preferred choice

Hardness: before science developed equipment to precisely measure the hardness of iron and steel, the blacksmith simply held the piece to the grindstone and observed the spark pattern

Malleable: capable of being hammered and rolled into shapes without breaking

Metallurgy: the science of metal and extraction from their ores

Non-ferrous: pertaining to other metals, such as aluminum, tin or copper

Power/treadle hammers: free one hand and save a lot of work, it uses a foot treadle to operate ram or hammer and is operated by electric or air pressure, a foot pedal controls the hammer's impact and frequency

Rivet: metal pin with battered ends

Soldering: alloys contain a mixture of lead, copper, silver, zinc or other metals

Tempering: requires heating the metal and then quenching it in water, oil, etc.

Tongs: implements that allow a blacksmith to handle hot metal without burning

Tuyere: is a nozzle or vent in the firepot of a forge

Vise: jawed device that holds the work piece

Welding: work pieces are brought to welding heat and joined by hammering them together

Work hardening: a hammer is swung, you are "work hardening" the hammer's face, this is a simplified term for compressing the molecules

Activity day 3:

Procedure:

Tour the Grant-Kohrs Ranch. Students will interview the blacksmith using their prepared questions.

Activity day 4 & 5:

Procedure:

Students assemble individual time lines.

Activity day 6 & 7:

Procedure:

Students' presentations

Activity day 8:

Procedure:

Accumulate timelines into unified timeline to display.

Evaluation: The time lines

Contact Resources:

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Grant-Kohrs Ranch

266 Warren Lane

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