

# Blacksmithing

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1. Define blacksmith and blacksmithing.
2. While both forging and fabrication can be a part of blacksmithing, your projects may or may not include fabrication. Discuss with your instructor the basic differences between forging and fabrication and be able to explain the differences.
3. Discuss with your instructor the safety rules for blacksmithing. Be sure you understand why they are important and explain or demonstrate them when asked.
4. As you discuss with your instructor the process of treating metal, develop a basic understanding of the principles of hardening and tempering metal.
5. Identify and explain the nine basic items required for blacksmithing.
  - a. Forge
  - b. Fuel
  - c. Blower (or billows) and ducting
  - d. Anvil
  - e. Hammer
  - f. Tongs
  - g. Vise
  - h. Safety glasses
  - i. Ear plugs
6. Identify the parts of a London pattern anvil and identify their uses.
  - a. The body (and base)
  - b. The horn
  - c. Table or step
  - d. The face
  - e. The Hardie or Hardy hole
  - f. The Pritchel hole.
7. Explain the two basic classes of forges (solid fuel and gas) and demonstrate ability to identify the parts of the one you will be using.
  - a. Solid Fuel Forge
    - i. Blower
    - ii. Fire pot or pan
    - iii. Tuyere
    - iv. Ash dump
    - v. Clinker breaker
    - vi. Tuyere plate
  - b. Gas Forge
    - i. Forge or fire box
    - ii. Hose
    - iii. Pressure gage
    - iv. Regulator
    - v. Burner
8. Identify the basic parts of a hammer and list the basic classes of hammers used in blacksmithing. (The shape of a hammer reflects the task that it is designed to do).
  - a. Parts of a hammer
    - i. Handle
    - ii. Head
      - (1) Face
      - (2) Peen

- b.** Types of blacksmith hammers
        - i.** Cross peen
        - ii.** Angle peen
        - iii.** In-line or straight peen
        - iv.** Ball peen
- 9.** Discuss tooling with your instructor and explain how it is used. Although many types of tooling have handles, how is tooling different than a hammer?
- 10.** With your instructor, discuss and review the basic types of tongs available in blacksmithing. (Tongs are classified by the shape (or description) of the jaw, which affect their use.) Some basic types are:
  - a.** Flat
  - b.** Box
  - c.** Bolt
  - d.** V
  - e.** Clip (ring)
  - f.** Scrolling
  - g.** Wolf Jaw
- 11.** Discuss how to properly start and put out a fire in the forge you are using.
  - a.** Solid Fuel:
    - i.** Start
    - ii.** Put Out
  - b.** Gas
    - i.** Start
    - ii.** Turn Off
- 12.** Discuss how to properly clean and maintain the blacksmithing equipment you are using.
  - a.** Forge
  - b.** Anvil
  - c.** Hammers
  - d.** Tongs
- 13.** While each hammer, tong and tool serves a specific function, there are only a few foundational skills of a blacksmith. Discuss with your instructor the three to five skills they feel are most important for their style of blacksmithing.
  - a.** Drawing
  - b.** Tapering
  - c.** Upsetting
  - d.** Spreading
  - e.** Twisting
  - f.** Bending
  - g.** Drifting (or Punching)
  - h.** Slitting (or Splitting)
- 14.** With supervision make two projects. You will be using low carbon steel at least  $\frac{1}{4}$  inch thick and utilizing techniques your instructor will teach you. These projects need to include the following techniques:
  - a.** Draw out the end of a square piece by forging a round taper and placing a finial (curly queue) on the end.
  - b.** Use the horn of the anvil to forge a U-shaped bend.
  - c.** Form a decorative twist in a piece of square steel.

15. Choose one of the following:
  - a. Prepare a worship talk discussing blacksmithing from the Bible and/or the spirit of prophecy and discuss its application to our lives.
  - b. Write a 250 plus word paper about metal processing or blacksmithing from the Bible and/or the spirit of prophecy and explain its application to today.
  - c. Using your artistic ability, draw, create or make a short video etc. using blacksmithing from the Bible and/or the Spirit of Prophecy to illustrate a spiritual lesson and present to your pathfinder group.
16. Blacksmithing and metal working are ancient arts. When and where are they first mentioned in the Bible? What kinds of things were made?
17. There are many references to “smiths” in the Bible. What is the significance of the blacksmith in the following texts:
  - a. 1 Samuel 13:19-21
  - b. 2 Kings 24:14
  - c. Isaiah 54:16

Be safe and enjoy yourself.

Blacksmithing has the potential to cause injury, therefore it must be taught by a competent instructor. To locate an instructor, contact your local or state blacksmithing association. Contact information for most states can be found under the affiliates tab on the ABANA website at <http://www.abana.org/>. Contact your state or local affiliate to find out if they have an instructor in your area.

Due to the hazards involved and the manual dexterity required, it is recommended that the honor be limited to teens, TLT’s and adult leaders with a ratio of no more than four students per instructor/forge. You will also need one anvil for every two students or a lot more time and extra steel to replace the steel that is burned up.

## Resources

### Books:

- Anvils in America, by Richard Postman. 1998 ISBN-10: 9066325605 <[amazon.com/Anvils-America](http://amazon.com/Anvils-America)>
- The Backyard Blacksmith, by Lorelei Sims. 2006 ISBN-10: 592532519 <[amazon.com/The-Backyard-Blacksmith-Lorelei-Sims/dp/0785825673](http://amazon.com/The-Backyard-Blacksmith-Lorelei-Sims/dp/0785825673)>

### Instructional Videos:

- Basic Blacksmith Shop Tools by David Burress of Calerin Forge. Nov. 2013. <<http://www.calerinforge.com/calerin-forge-videos.html>>
- Do’s and Don’ts of Blacksmithing by RealWoodsmen. Sept. 2013. <<https://www.youtube.com/watch?v=82xI5GOvGg8>>.
- Essentials of Blacksmithing by The Consummate Dabbler. Apr. 2014. <<https://www.youtube.com/watch?v=ZToka1-8oQA>>.
- BBC Presents Mastercrafts of Blacksmithing by 3 River Blades. Dec. 2012. <[https://www.youtube.com/watch?v=ozCdCdGoliE&list=PLix\\_\\_fGJ5GkhxCr9fTQyZIWCS5Tul3j\\_L](https://www.youtube.com/watch?v=ozCdCdGoliE&list=PLix__fGJ5GkhxCr9fTQyZIWCS5Tul3j_L)>.

### Websites and Online Resources:

- [anvilfire.com!](http://www.anvilfire.com/) An online question and answer forum, excellent resource. <<http://www.abana.org/>>
- Artist Blacksmith’s Association of North America (ABANA). Use them to find a local affiliate. <<http://www.abana.org/>>
- Kayne & Sons Blacksmith’s Depot carries a complete selection of blacksmithing supplies. I recommend the wolf jaw set as a starter set of tongs. <[www.blacksmithsdepot.com](http://www.blacksmithsdepot.com)>

## Skill Level 2

New in 2015