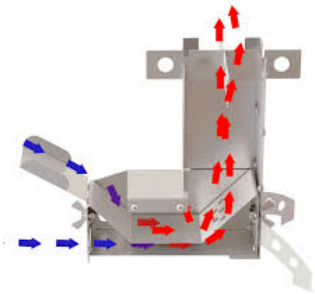
Rocket Stoves

What is a Rocket Stove?

A rocket stove is a cooking container designed to increase the efficiency of the material being burned resulting in a higher cooking temperature. A rocket stove usually consumes wood, charcoal or a variety of biomass. It is designed to burn efficiently by moving air through the burning chamber at a high rate. Air is accelerated into the chamber as hot air and gases move up the chimney portion of the stove. Higher combustion temperatures and burn efficiency are key characteristics of a good rocket stove. These stoves can be made out of many different materials and can take on many different shapes.



How does the stove function?

Pre-heated air is pulled into the burn chamber which brings a more oxygen to the combustion process. As the fuel is burns more efficiently, gases that are released (usually seen as smoke) are burned completely. As more hot air rises, more air is pulled into the combustion chamber which can at times sound like a "rocket roar", hence the name of the stove. This results in a high temperature at the chimney flue exit.

https://www.pewpewtactical.com/best-rocket-stoves/

What makes a good Rocket Stove?

Not all rocket stoves are created equal. Some are more efficient. During the initial part of the burn process, smoke and gases are released from the fuel. If the combustion process is not complete, smoke (unburned gases) exit up and out the flue. Conversely, If the temperature inside the combustion chamber and flue are hot enough, these gases are ignited resulting in even greater heat and less/no smoke exiting the flue. A very efficient rocket stove usually will have a long flue and will usually be insulated to reduce heat lost into the surround flue material (i.e. brick, clay, earth mass). The stove in the photo to the left, I constructed in my back yard. The combustion chamber and flue are made of black stove pipe and are insulated with perlite. The exit (cooking area) can easily be over 500 F degrees with a small amount of wood feeding the combustion chamber.

Examples of Rocket Stoves:

Rocket stoves can be made from many types of material. A search on the Internet will result in many types and designs. It can be a fun experiment to research and find a design that works with materials you have.

https://homesthetics.net/Rocket-stove-plans/
https://www.pewpewtactical.com/best-rocket-stoves/
https://www.pinterest.com/davidkorab/rocket-stove-design/
https://onlinebarracks.com/rocket-stove-rocket-mass-heater/
https://survivalistgear.co/rocket-stove-plans/
https://www.pinterest.com/Hop2itdotUS/rocket-stove-design/
https://www.skilledsurvival.com/rocket-stove/

Rocket stoves can also be purchased. Many countries, that rely on wood for cooking, encourage the use of rocket stoves to help people cook food or heat buildings while consuming less biomass. I do not endorse or have any financial interest in these stoves but a quick search on online stores will result in dozens of stoves with various characteristics.

Rocket Stove Links:

Principles- How it works:

History and combustion physics: (very good resource)
https://www.youtube.com/watch?v=aXAVxqZPrSo

https://physics-network.org/what-is-the-principle-of-a-rocket-stove/#Can_you_cook_on_a_rocket_stove
https://en.wikipedia.org/wiki/Rocket_stove

Examples of how to build:

https://www.youtube.com/watch?v=24EWuaaANA8
https://www.youtube.com/watch?v=r66jjYdBmg8
https://www.youtube.com/watch?v=e-WaOIM_9AM
https://www.youtube.com/watch?v=j8nkF0bYYLE
https://www.youtube.com/watch?v=r66jjYdBmg8&t=113s
https://www.youtube.com/watch?v=tZrydh4lyfY

J shape cinder block

https://www.youtube.com/watch?v=7jR6iuFABB8&t=63s
https://www.youtube.com/watch?v=kmDYUrVHPWc
https://www.youtube.com/watch?v=xBr-WegLQJE&t=31s

Possible places to buy stoves:

https://www.amazon.com/gp/product/B0CC8W3HCF/ref=ox_sc_act_title_1?smid=A3NDS2KZG525D&psc=1
https://www.amazon.com/gp/product/B0CWW1ZQZD/ref=ox_sc_act_title_1?smid=A1EIQSZBFALM8G&th=1
https://www.amazon.com/gp/product/B085Y6PHLM/ref=ox_sc_act_title_1?smid=A1YSIC8JB3NVEK&th=1

This flyer is intended to provide information. Your experience may vary. Author: David Poulter