

Name:

Date:

Class:

## Cookstove Lab II: Testing the Redesigned Cookstove

**Instructions.** Follow the same steps as in the Cookstove Lab I handout to conduct the boiling test on your redesigned cookstove.

1. Paste two pictures (or detailed sketches) from different angles of your stove below. Also, record the number of small, medium and large holes in your cookstove.

Picture 1	Picture 2	Holes
		Small: _____  Medium: _____  Large: _____  Total: _____

2. Record the mass of the cook stove. Always remember units! \_\_\_\_\_
3. Fill the cook stove  $\frac{2}{3}$  full with charcoal. Record the mass of the stove and the fuel. Always remember units! \_\_\_\_\_
4. Subtract to find the mass of the fuel used. Record that here. Always remember units! \_\_\_\_\_
5. Add/remove charcoal so that it matches the mass the class decided upon. Record the new mass of the can and the charcoal. Always remember units! \_\_\_\_\_
6. Ask your instructor where the room temperature water is. Use a graduated cylinder to measure **exactly** 100 mL of room temperature water.
7. Pour the water into your “pot.” (Reminder: This is a small aluminum loaf pan or steel mug.)
8. When instructed, go to the hood (or outside). Set up apparatus as shown in Figures 1 and 2 below using a ring stand, ring clamp, and wire mesh.

(Insert Figure 1 here.)

(Insert Figure 2 here.)

9. Your teacher will help you light your fuel. (Paper or twigs may be needed to help light it.) When the fire has burned out and the coals are glowing or have “ashed” over, the cook stove is ready for testing.
10. Start a timer.
11. When the water begins to boil, stop the timer. Record the time it took to boil water. Always remember units! \_\_\_\_\_

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12. Use tongs, hot hands, etc., to pour your remaining water down the drain or in the grass, and pour your remaining coals in the Dutch oven. Cover the Dutch oven to fully extinguish the fuel. Clean up your work area.
13. Upload your two pictures of your cookstove, the number of holes, and the time it took to boil 100 mL water on the Cookstove Class Data Sheet.

**Questions.** Answer using the Cookstove Class Data Sheet.

1. Based on the class results, what conclusions can you now draw? (Are there any trends, etc.?)
2. Did your redesign have a longer or shorter boil time? \_\_\_\_\_
3. What are your thoughts as to why?
4. If you could redesign it again, what would you do?