

Teacher Notes – Modeling Instruction

Steel Wool Experiment

Procedure

1. Students measure initial mass of steel wool and paper plate. (Total of both together.)
2. Students record mass in lab notebook and draw an image of what steel wool looks like.
3. Students should note the current color of the steel wool – (silvery grey)
4. Students carefully spread out the fibers of the steel wool to loosen them.
5. Students should recheck total combined mass of plate and steel wool.
6. Students use tongs to hold steel wool over Bunsen burner flame.
7. Student record observations in lab notebook.
8. Students allow steel wool to cool and return it to the paper plate.
9. Students record final mass of steel wool and paper plate.
10. Students should note any color changes – (blackish blue)
11. Group members should use white boards to draw before and after particle diagrams

CER Questions

1. What some ways to measure STUFF? **Mass, volume, length, width, etc.**
2. What was the mass of STUFF before the experiment? **Masses will vary.**
3. Did the mass change after you spread out the STUFF? **No.**

WHAT WE KNOW SO FAR: # of particles stays same and identity stays same

4. Did the mass change after you burned the STUFF? **Yes**
5. What other changes did you see? **Color changes to bluish black; wool crumbled.**
6. Does your white board reflect that the mass changed? If not, how can you show that? **Add more particles, change color or shape of new particles.**
7. What does the increased mass mean in terms of STUFF? **More stuff. New stuff**
8. Where did the extra mass come from? **Air ... if students say oxygen, ask what other gases are in air and how they know oxygen is the new stuff and not another gas. How can you test it?**

WHAT WE KNOW NOW: # of particles changed and identity changed

9. Which part of the experiment represented a PHYSICAL CHANGE? **Stretching wool**
How do you know? **No evidence of new substance.**
10. Which part of the experiment represented a CHEMICAL CHANGE? **Combustion**
How do you know? **Wool changed color, glowed reddish orange, became brittle, etc.**

