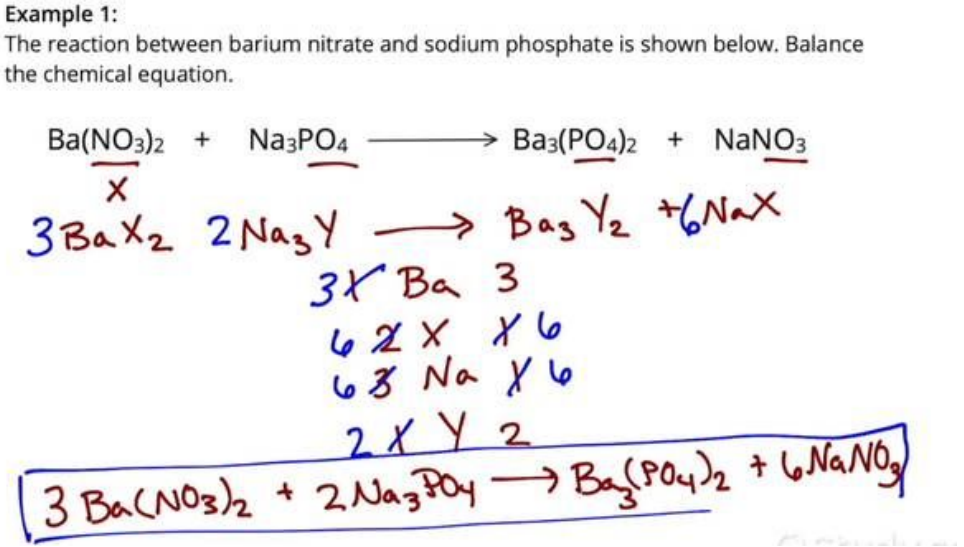
Chemistry Model Sets

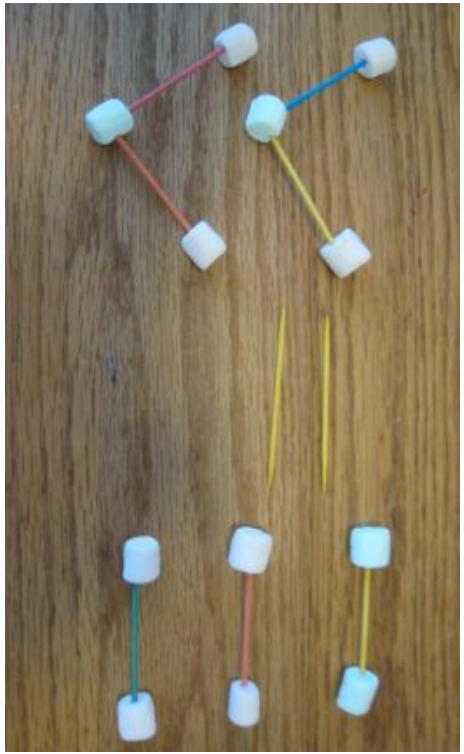
Becky Sanders
Life Science 7th grade

Helps students to wrap their minds around balancing chemical equations.

Balancing chemical equations is the most challenging task that 7th graders are asked to perform. It includes interpreting chemical formulas, understanding the meaning of subscript and coefficient numbers, and visualizing how atoms bond to one another.



Helps students to wrap their minds around balancing chemical equations.



In the past, we have used marshmallows to represent atoms and toothpicks to represent chemical bonds. This presents the following challenges:

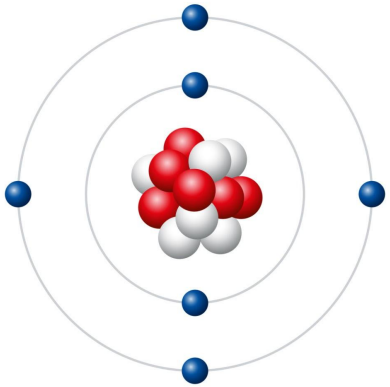
- Marshmallows are wobbly and can have an unlimited number of toothpicks stuck into them. This can be confusing since real atoms are limited to the number of bonds they can make.

- Marshmallows are sticky

Helps students to wrap their minds around balancing chemical equations.

What makes the models so great?

- Each atom is represented by a different color
- The model atoms have exactly the number of holes that match the number of electrons it needs to be stable, which demonstrates the capability of bonding.
- Example: Carbon is represented by black. It has 4 valence electrons, which means it can accept or share 4 electrons. Therefore it has 4 holes in the model atom.

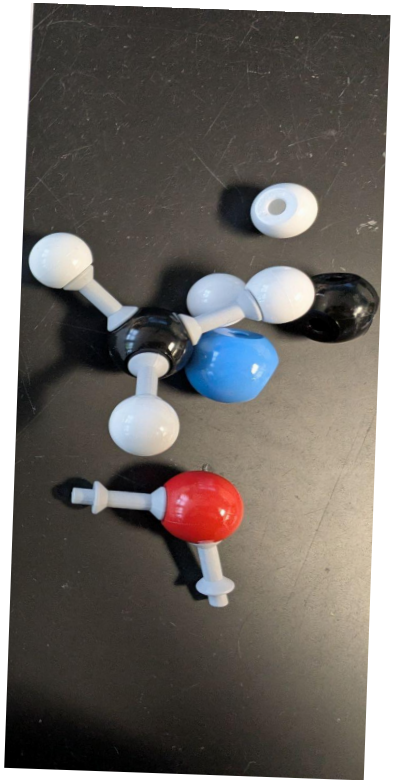


$^{12}_{6}C$

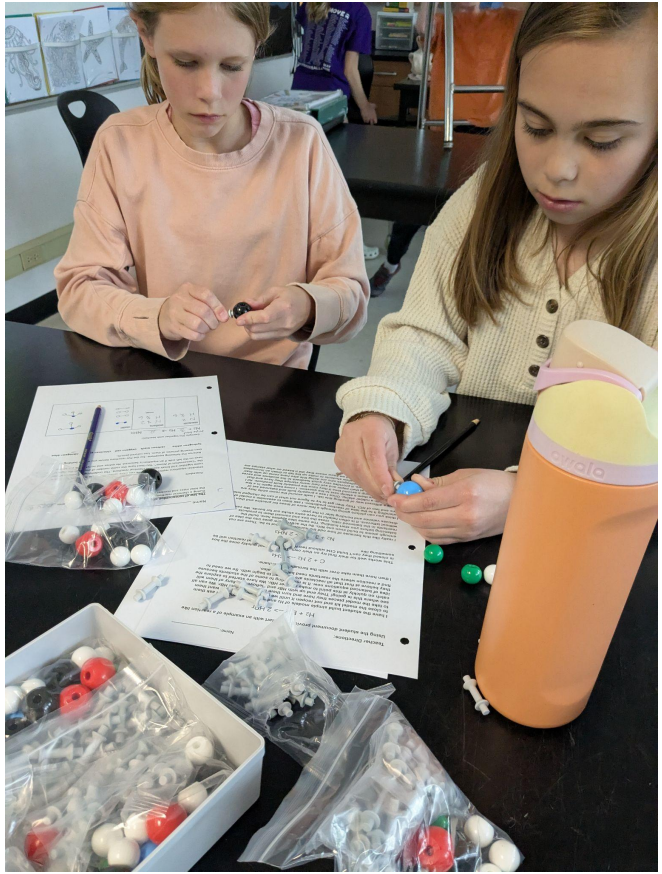
Carbon

Electron Configuration: $1s^2\ 2s^2\ 2p^2$

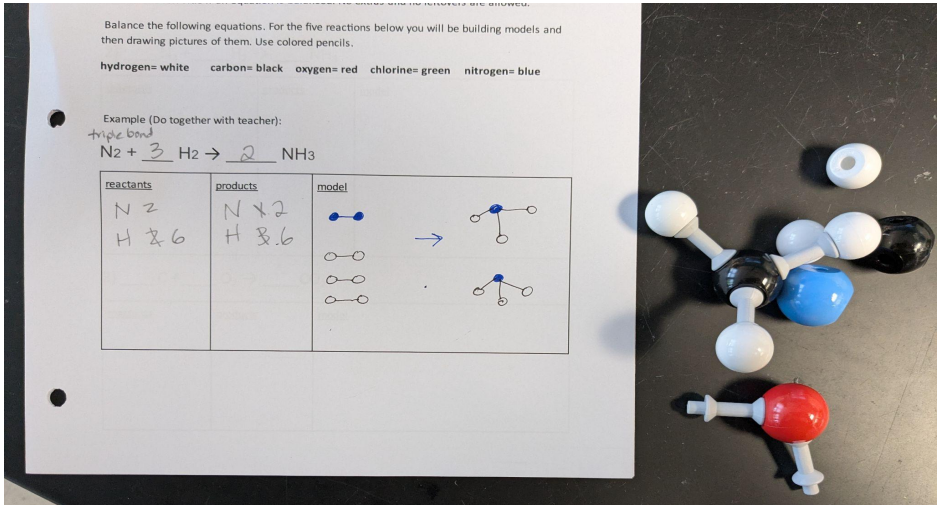
6 Protons 6 Neutrons 6 Electrons



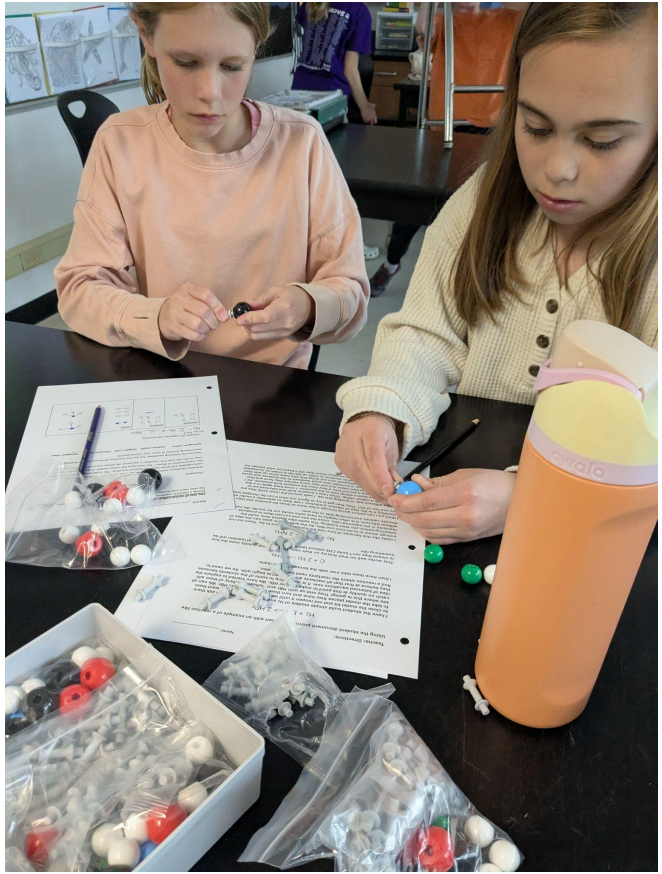
New ORGANIC Chemistry Model Sets in action:



All Physical Science students used the models to demonstrate the Law of Conservation of Mass during a lab activity called the Mole Ratio Model Building Lab. During this lab, they were able to demonstrate understanding of chemical equation balancing.



New ORGANIC Chemistry Model Sets makes balancing chemical equations easy!



Using the model sets will help students understand how chemical bonding works and increase their success in balancing chemical equations. Their confidence in science will inspire them to know they can pursue future science classes or career opportunities!