

## **MODELING PHOTOSYNTHESIS BEAD ACTIVITY**




\* I adapted this lesson from another person's YouTube video at this link:

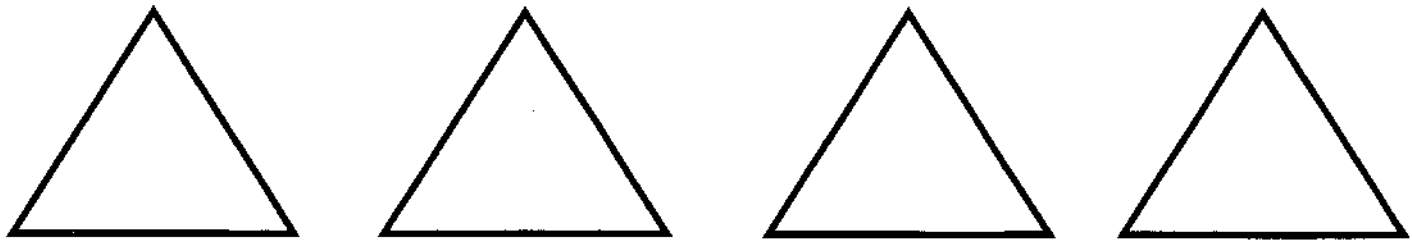
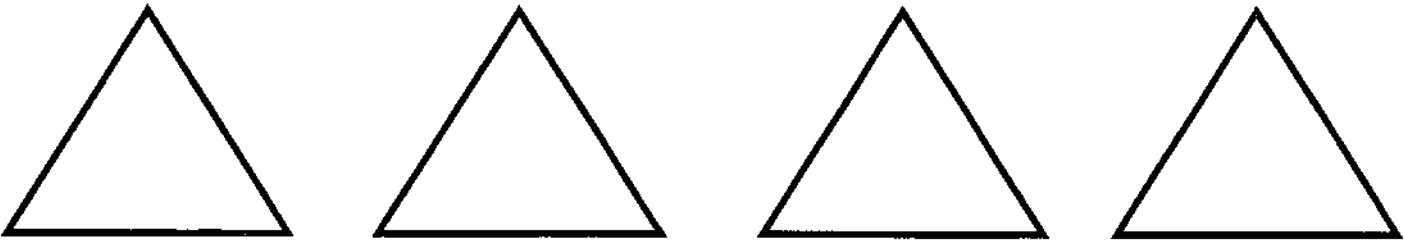
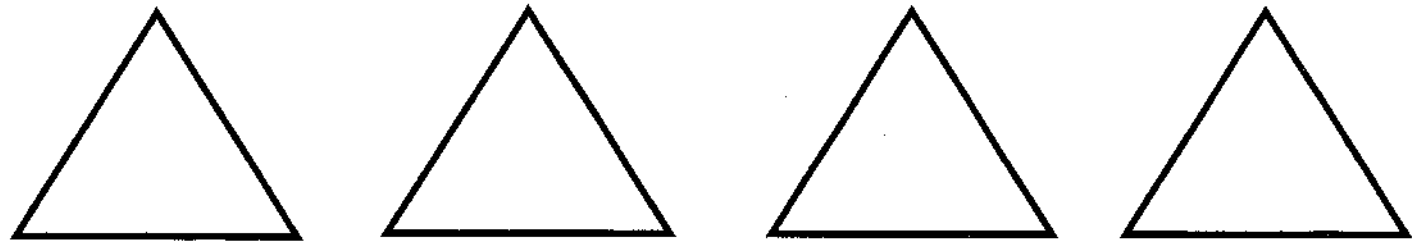
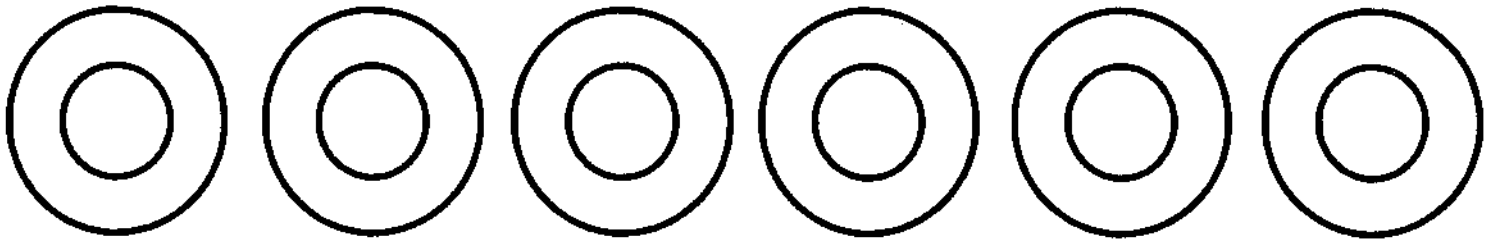
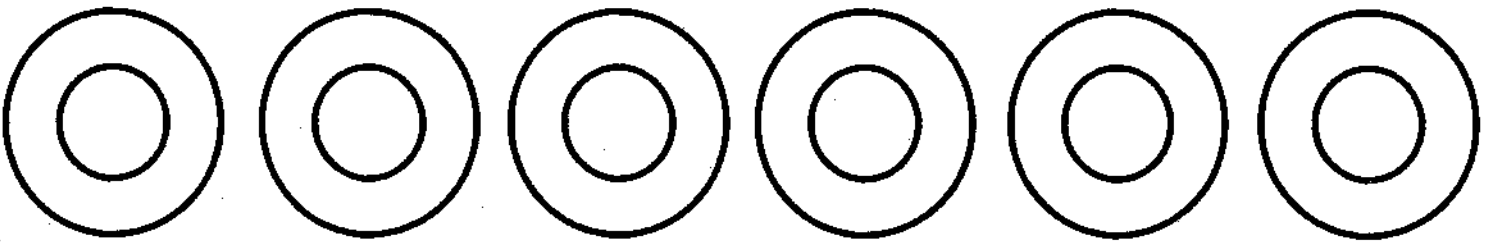
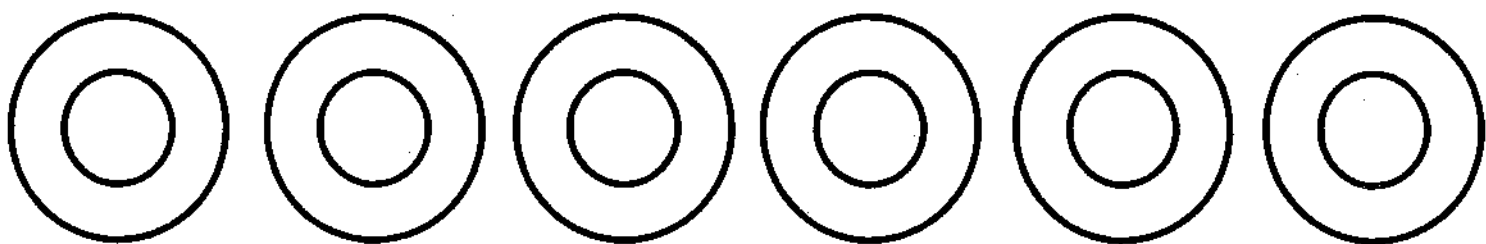
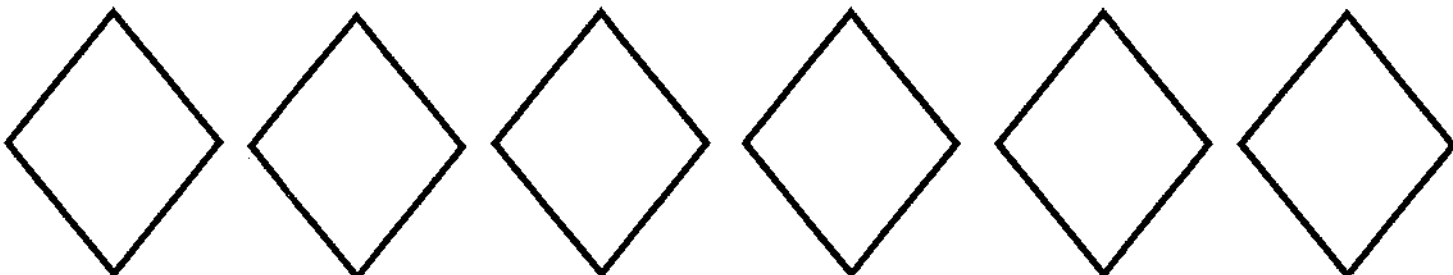
<https://www.youtube.com/watch?v=YNcBGdQtMDg>

\* I also show the Study Jams Photosynthesis video prior to starting to activate prior knowledge.

### **Lesson Steps**

- Pass out the kits/supplies and the first work mat (handout).
- Instruct the kids to lay out all the beads following the key at the top of the handout.
- Discuss the key components for photosynthesis – carbon, hydrogen, oxygen to make carbon dioxide and water, sunlight and chlorophyll. Have students identify which objects in their kits will be used to represent each ingredient.
- Then, have students build 6 H<sub>2</sub>O molecules and 6 CO<sub>2</sub> molecules.
- Have students add these 12 molecules to the green bag (chloroplast/chlorophyll) and add the yellow puff (sunlight). Then, tell students that they are taking on the role of the chloroplasts in a plant cell and that they should gently use their hands to “break down” the bonds between the molecules so that they can be converted into glucose. (Essentially, they are just taking the beads off the pipe cleaners but I wanted to explain to them why.)
- Now students should dump the contents of the bag back out and resort the beads by color. The other items can be set aside.
- Pass out student simplified glucose molecule work mat (2<sup>nd</sup> handout). Tell the students that it is their job to convert their materials into a glucose molecule by creating the pattern on mat. They can just set the beads on the mat, or you can extend this part by providing 1 additional full length pipe cleaner. Between the short pipe cleaner pieces, beads, and the long pipe cleaner, the students could create a more 3-dimensional ring structure.
- Either way, the big “aha” comes at the end when they realize that when they are done all that is left is a pile of blue beads – the OXYGEN!

LAY YOUR BEADS OUT ACCORDING TO THIS KEY:  = CARBON     = HYDROGEN     = OXYGEN



# SIMPLIFIED GLUCOSE MOLECULE

