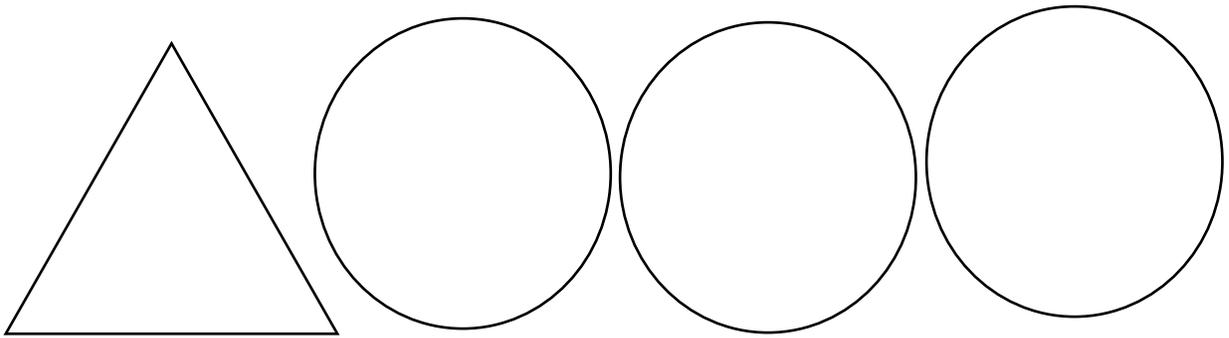
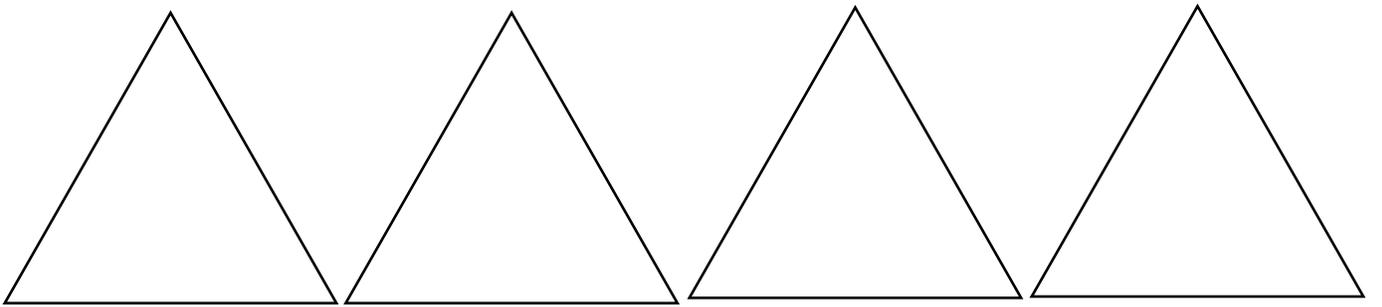
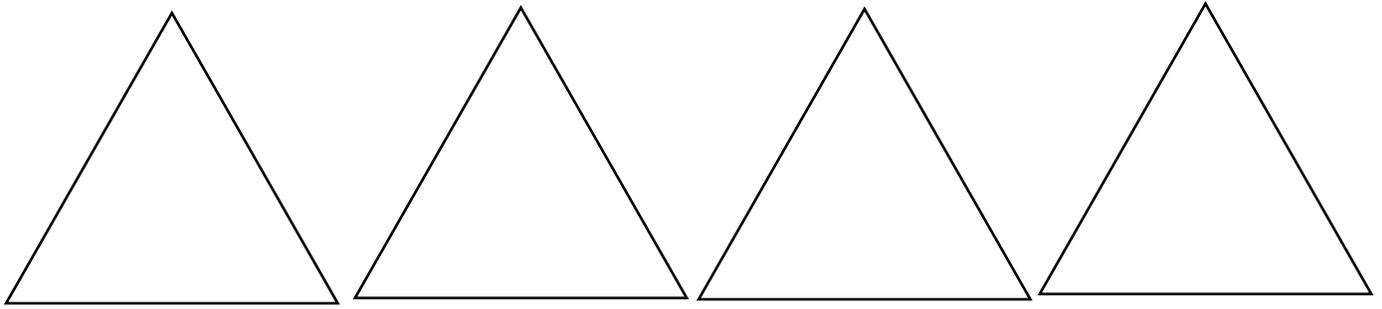
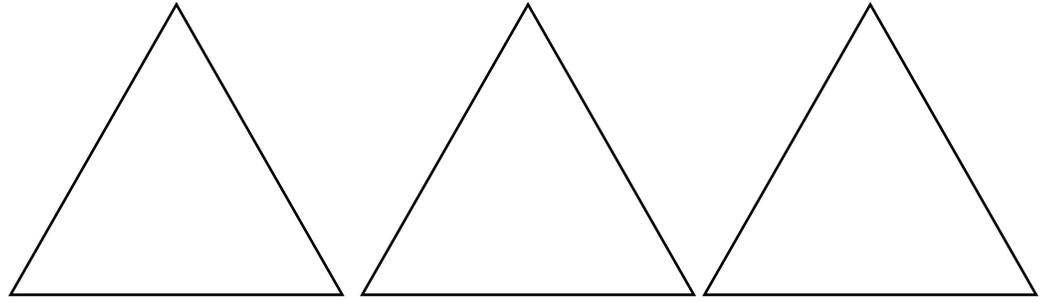
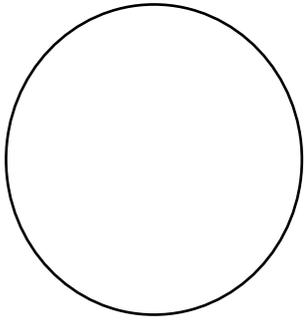
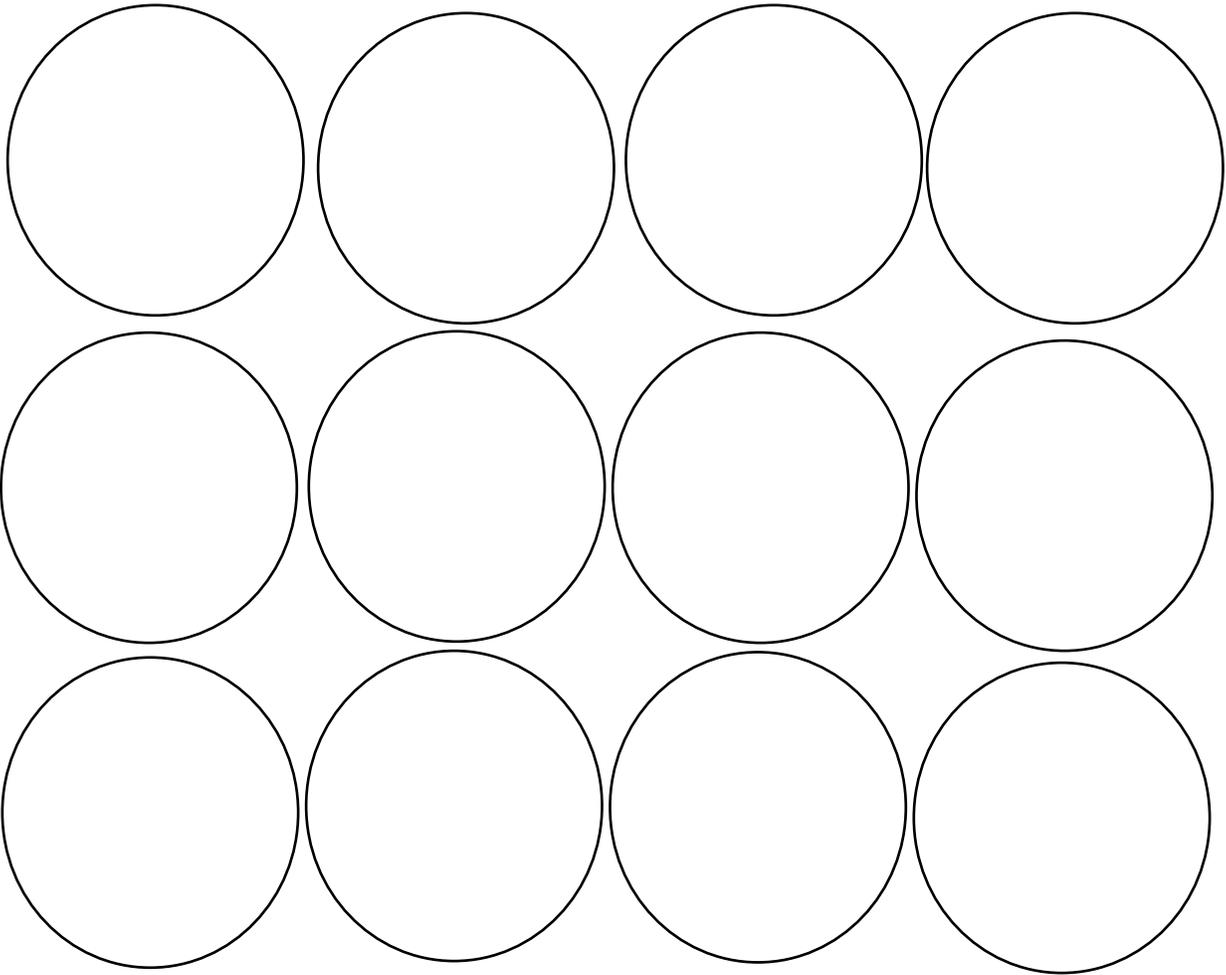
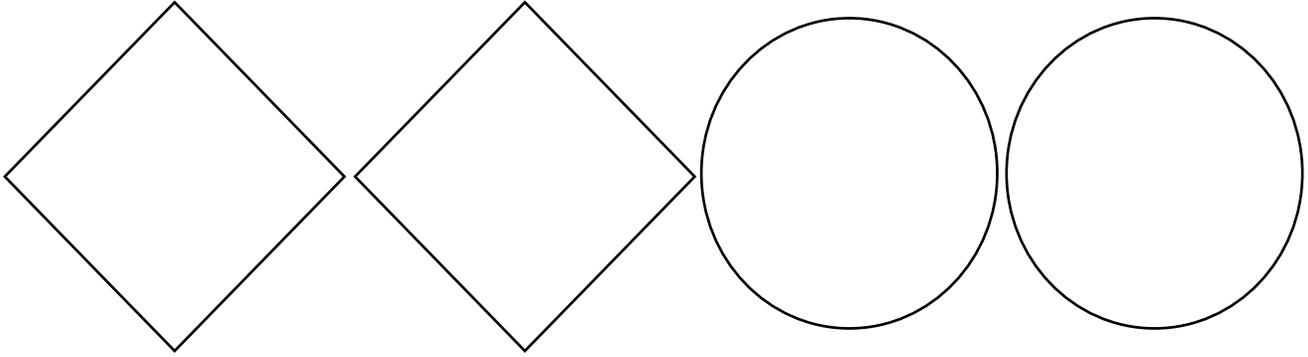
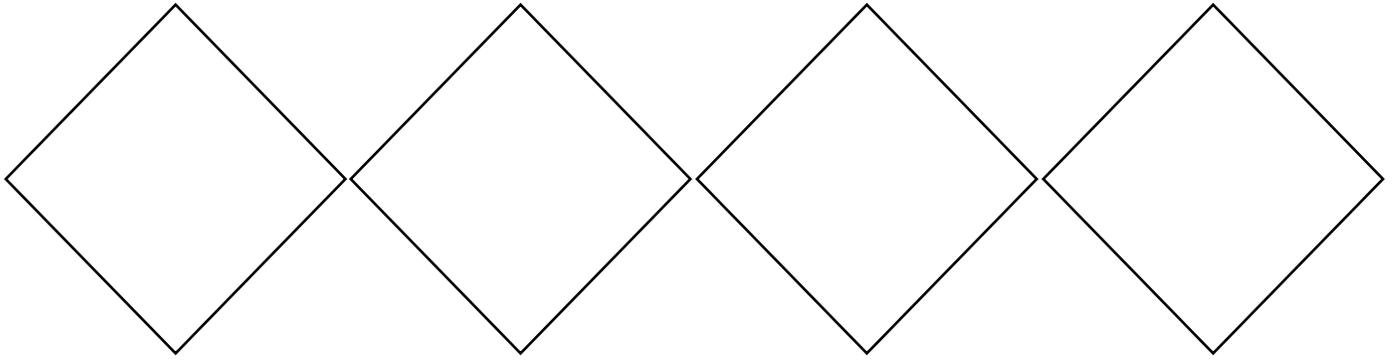


STEAM Understanding Photosynthesis Through Art Lesson Plan
 Ashley Valentine

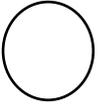
Activity Title:	Photosynthesis Alive
Grade level:	5-6
Content Area:	Science and Art
Objective(s):	Students will build their understanding of how plants use photosynthesis by building and designing molecule strands
Materials:	Red, Blue and Green Beads, White Pipe cleaner, Small medicine cups, White paper, Black Marker Students should work in groups of 3 (Each kit should contain 6 blue, 18 red, and 12 green beads and 12 pieces of pipe cleaner pieces (1 long piece of pipe cleaner cut into 2 makes 2 pieces), 1 lab sheet, 1 glucose lab sheet, 1 green cellophane bag, gold glitter)
Time Needed	2- 30 to 45 minute sessions
Activity(ies):	<p>DAY ONE</p> <ol style="list-style-type: none"> Each group should be given a lab sheet It should be explained to students that plants use a process called photosynthesis to create their own food. They use this food to grow. Give students the lab sheet (remember they are working in groups of 3 so each group should only be given 1 lab sheet) Students should then place the beads on the lab sheet, matching each color to an element based on the number of beads they have (all beads need to be used) There should be 6 carbon (blue beads), 18 oxygen (red beads) and 12 hydrogen (green beads) atoms arranged on the lab sheet Once beads are placed on lab sheet, explain to students that plants need sunlight, H₂O (Water), and CO₂ (Carbon Dioxide) to produce sugar, which gives them energy to grow Now each student is responsible for one color bead (oxygen- the busiest builder, 1 for hydrogen, one for carbon) Students need to first build CO₂ (1 carbon, 2 oxygen) place the beads on one pipe cleaner piece Students need to now build H₂O (2 hydrogen, 1 oxygen) place the beads on one pipe cleaner piece Students need to continue building CO₂ and H₂O molecules until they have used up all of the atoms (beads) In the end there should be 6 CO₂ and 6 H₂O Explain to students that plants have “green stuff”, chlorophyll, in their leaves (the purpose of the green bag) and energy from the sunlight (the glitter) to produce food.

	<p>DAY TWO</p> <ol style="list-style-type: none">13. Place all of the molecules (H₂O and CO₂) in the green bag, add glitter14. Have students fold the bag over so that the glitter doesn't spill out15. Shake the bag16. This is how the plant makes sugar! Give students the formula for sugar which is C₆ H₁₂ O₆ and give them one long pipe cleaner (they also still need the smaller pieces) to create sugar17. Allow studes to look at the glucose lab sheet to put together their glucose molecule18. The left over oxygen is what plants give off in the air for us humans to breath19. Have members show the group their completed glucose molecule
<p>Wrap-Up:</p>	<p>Remind members that in order to produce glucose (sugar) they need H₂O and CO₂. When we combine 6 H₂O and 6 CO₂ with sunlight, we make glucose (sugar) which is where plants get their energy. Through this process we get the oxygen we need to survive. This is how photosynthesis works!</p>

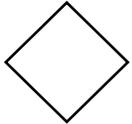




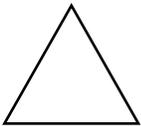
KEY FOR LAB SHEET



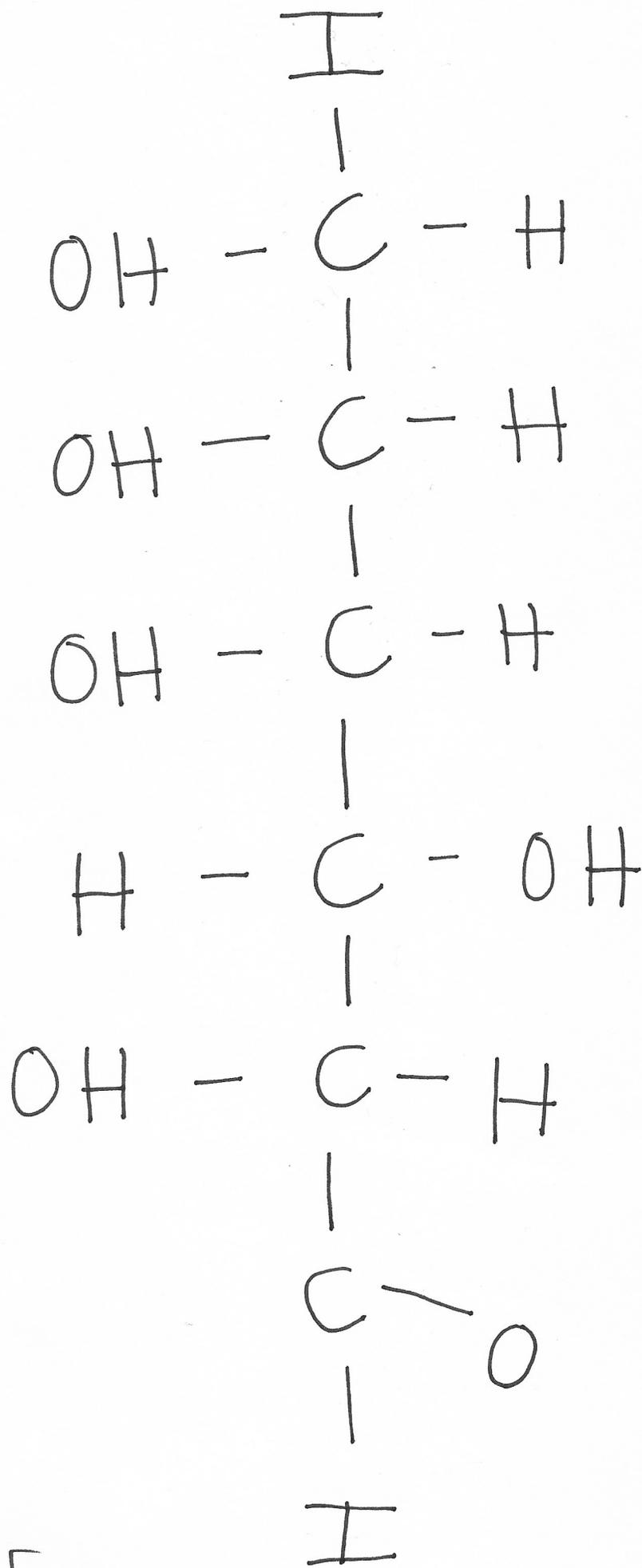
O (Oxygen)



C (Carbon)



H (Hydrogen)



GLUCOSE