

# Rendezvous with a Comet Remote (REM)

*Crop growth and food production are the primary responsibilities of the Remote team.*

| Standards  | Space Station Systems and CLC Teams   |
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| <p><b>National Science Education Standard:</b><br/> <i>Organisms have basic needs. Plants require air, water, nutrients and light. <b>Organisms can survive only in environments in which their needs can be met.</b></i><br/> <i>Each plant or animal has different structures that serve different functions in growth, survival, and reproduction.</i><br/> <i>Objects have many observable properties, including size, weight, shape, color, temperature, and the ability to react with other substances. Those properties can be measured using tools, such as rulers, balances, and thermometers.</i><br/> <b>Plants are producers – they make their own food. All animals, including humans, are consumers, which obtain food by eating other organisms.</b></p> <p><b>Mass Curriculum Framework:</b><br/> <i>Identify the structures in plants (leaves, roots, flowers, stem, bark, wood) that are responsible for food production, support, water transport, reproduction, growth, and protection.</i><br/> <i>Differentiate between properties of objects (e.g., size, shape, weight) and properties of materials (e.g., color, texture, and hardness).</i><br/> <i>Recognize that producers (plants that contain chlorophyll) use the energy from sunlight to make sugars from carbon dioxide and water through a process called photosynthesis. This food can be used immediately, stored for later use, or used by other organisms.</i></p> | <p><b>Atmosphere system</b> – atmosphere composition control, temperature and humidity control (greenhouse)</p> <p><b>Respiration (air exchange) system</b> – oxygen-carbon dioxide exchange, storage, venting</p> <p><b>Food production system</b> – crop growth, provision and production of food</p> <hr/> <p><b>During the CLC mission, students will apply what they have learned in the classroom to:</b></p> <ul style="list-style-type: none"> <li>○ Monitor greenhouse atmosphere conditions           <ul style="list-style-type: none"> <li>▪ Temperature</li> <li>▪ Relative humidity</li> <li>▪ Air exchange systems (Plants produce oxygen and remove carbon dioxide from the space station atmosphere.. In LS, the Lithium hydroxide filters – LiOH – remove carbon dioxide from the air. )</li> </ul> </li> <li>○ Monitor crop growth           <ul style="list-style-type: none"> <li>▪ Observe and measure plant structures</li> <li>▪ Extract chlorophyll from plant leaves through the process of chromatography</li> <li>▪ Identify bugs or insects found in the greenhouse as beneficial or harmful to the crops</li> </ul> </li> </ul> |

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