

Biosphere Module – Master Materials and Equipment

Equipment by Activity

NOTE: Italicized entries indicate items not available from PASCO. The quantity indicated is per student or group.

Act	Title	Materials and Equipment	Qty
1	Standardizing Data Analyze sample data to determine metabolic rates and calculate the micromoles of gas consumed or produced.	Calculator Pencil	1 1
2	Cellular Respiration in Animals Quantify the rate of cellular respiration for a macroinvertebrate or fish and determine the oxygen consumption rate	Data collection system PASPORT Carbon Dioxide Sensor with sensor extension cable and 250-mL sampling bottle <i>Beaker and material for an airtight seal (optional)</i> <i>Macroinvertebrates or fishes</i>	1 1 1 3 to 5
3	Plant Photosynthesis and Cellular Respiration Measure the carbon dioxide levels in a closed environment to determine rates of photosynthesis and respiration for different plant species.	Data collection system PASPORT Carbon Dioxide Sensor with sensor extension cable and 250-mL sampling bottle PASCO EcoChamber™ or large sampling bottle <i>Balance, accurate to 0.01 g or greater</i> <i>Light source (lamp with timer or window)</i> <i>Small Plant</i> <i>Paper towel</i> <i>Scissors</i> <i>Plastic wrap ~(20 cm × 20 cm)</i> <i>Ruler</i>	1 1 1 1 1 1 1 1
4	Decomposition Investigate the rate of decomposition in different soil and substrate samples.	Data Collection System PASPORT Carbon Dioxide Sensor with sensor extension cable and 250-mL sampling bottle PASPORT Fast Response Temperature Sensor <i>Substrate Samples, 100-mL</i>	1 1 1 3 to 5
5	Ecological Accounting Determine how carbon cycling, photosynthesis, and respiration relate on a micro-scale by calculating the number of moles of available nutrients in a finite space.	<i>Calculator</i> <i>Pencil</i>	1 1