

Table 1 Comparison of classroom tools and research-grade tools

	Frank's instruments	High-tech classroom version	Low-tech classroom version
	<b>LI-COR LI-250A light meter plus LI-COR LI-193 underwater spherical PAR sensor</b>	<b>Vernier PAR sensor</b>	<b>Secchi disk</b>
<b>What it does</b>	Measures PAR in $\mu\text{mol}/\text{m}^2/\text{sec}$	Measures PAR in $\mu\text{mol}/\text{m}^2/\text{sec}$	Measures depth of light penetration
<b>Cost</b>	\$681.10 for light meter \$759.50 for underwater spherical sensor	\$189 for PAR sensor	~\$10 for Secchi disk
	<b>YSI Multi-probe 556</b>	<b>Vernier LabQuest with optical dissolved-oxygen sensor and temperature probe</b>	<b>Dissolved-oxygen kit and thermometer</b>
<b>What it does</b>	Measures pH, dissolved oxygen, temperature, and conductivity	Measures temperature (F or C) and dissolved oxygen in mg/L	Measures temperature (F or C) and dissolved oxygen in mg/L
<b>Cost</b>	\$1650	<ul style="list-style-type: none"> <li>• \$329 for LabQuest interface</li> <li>• \$389 for optical dissolved-oxygen probe</li> <li>• \$79 for stainless steel temperature probe with extra-long cable</li> </ul> Total = \$797	<ul style="list-style-type: none"> <li>• \$38.50 for dissolved-oxygen kit</li> <li>• \$6 for thermometer</li> </ul>
	<b>Polycarbonate point water sampler from Aquatic Research Instruments</b>	<b>Water sampler from The Science Source</b>	
<b>What it does</b>	Allows for water sampling at varying depths, horizontally or vertically	Allows for water sampling at varying depths, horizontally or vertically	
<b>Cost</b>	\$190	\$90	
<b>TOTAL</b>	\$3280.60	\$1076	\$144.50

Table 2 Summary of data collected by students to explore relationship between temperature (Temp), dissolved oxygen (DO), light, and zooplankton.

1- or 2-meter increments				0.5-meter increments	
Depth (m)	Temp (°C)	DO (mg/L)	Zooplankton (individuals)	Depth (m)	Light ( $\mu\text{mol}/\text{m}^2/\text{s}$ )
0	0.23	12.27	4	0.0	
1	1.45	12.06	22	0.5	254.60
2	2.42	11.45	7	1.0	118.64
3	3.14	10.63		1.5	78.77
4	3.25	10.35	15	2.0	64.21
5	3.31	10.12		2.5	51.27
6	3.36	9.83	19	3.0	41.54
7	3.38	9.74		3.5	35.36
8	3.41	9.65	1	4.0	29.58
9	3.43	9.51		4.5	24.40
10	3.47	9.4	0	5.0	21.49
11	3.51	9.38		5.5	17.99
12	3.55	9.34	5	6.0	15.16
13	3.63	9.29		6.5	13.03
14	3.70	9.21	9	7.0	9.90
15	3.62	9.24		7.5	8.98
16	3.65	8.64		8.0	7.90