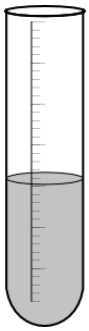
Water Quality
Grass River Natural Area
Bellaire, Michigan



Date_____
Time_____

➲**Temperature** - Collect water sample in tub & check temperature _____ °C

---

❶**Turbidity** – the relative clarity of water. Turbid water can be caused by sediment or microorganisms in the water.

1. fill plastic jar to turbidity fill line
2. hold chart over jar while looking down on jar
3. compare the disc icon to the chart

Check Turbidity Result
☐0 JTU (excellent) 4 points **Points**_____
☐0-40 JTU (good) 3 points
☐40-100 JTU (fair) 2 points
☐>100 JTU (poor) 1 point

---

❷**pH (potential hydrogen)** – zero *(acidic)* to 14 *(basic),* 7 is neutral. Living things live in a certain range and can be affected by change.

1. fill test tube to 10 mL line **or** use pH strips
2. add one pH tablet
3. cap and mix until tablet dissolves
4. compare color to chart **Points**_____

Circle pH Result:

OJ	tomato	rain	banana	water	eggs	b.soda	soap	antacid
4	**5**		**6**	**7**		**8**	**9**	**10**
	poor		good	excellent		good	poor	
points *--(1)*			*(3)*	*(4)*		*(3)*	*(1) ----**points***	

---

❸**Phosphate** – a nutrient needed for plant and animal growth, but high levels can create excess algae, plant growth, and bacteria and can decrease dissolved oxygen. Excess can come from waste, pollutions, and farms.

1. fill test tube to 10 mL line
2. add one phosphate tablet
3. cap and mix until tablet dissolves
4. wait 5 minutes for blue color to develop

Check Phosphate Result:
☐1 ppm (excellent) 4 points **Points**_____
☐2 ppm (good) 3 points
☐4 ppm (fair) 2 points
☐>4 ppm (poor) 1 point

❹ **Nitrate** – a nutrient needed by all aquatic plants and animals to build protein. Nitrate comes from decomposition and animal waste, but high levels can be harmful to plants and animals. Excess comes from sewage and fertilizers.

1. fill test tube to 5ml line and add one nitrate tablet
2. cap and immediately put test tube in protective sleeve
3. mix for 2 minutes
4. wait 5 minutes for red color to develop

Check Nitrate Result: **Points**_____

☐<5 ppm (good) 3 points
☐5 ppm (fair) 2 points
☐20 ppm (poor) 1 point
☐40 ppm (poor) 1 point

---

❺ **Dissolved Oxygen** – the amount of oxygen dissolved in the water. All aquatic animals need oxygen to survive. High levels support a diversity of aquatic life.

1. fill small glass tube with water sample
2. drop 2 Dissolved Oxygen tablets into tube
3. cap and mix for 4 minutes
4. wait 5 minutes and check color with temp.

Points_____

Check Saturation % Result:
☐91-110% (excellent) 4 points
☐71-90% (good) 3 points
☐51-70% (fair) 2 points
☐< 50% (poor) 1 point

% saturation

Dissolved Oxygen

Temp°C	0 ppm	4 ppm	8 ppm
2	0	29	58
4	0	31	61
6	0	32	64
8	0	34	68
10	0	35	71
12	0	37	74
14	0	39	78
16	0	41	81
18	0	42	84
20	0	44	88
22	0	46	92
24	0	48	95
26	0	49	99
28	0	51	102
30	0	53	106

*Calculations based on solubility of oxygen in water at sea level, from Standard Methods for the Examination of Water & Wastewater, 18th edition.

Total results

Add the points together from each of the tests you completed.
Total = _____

Divide your total by the number of tests completed to get the average. _____

What is the health of our water?

☐ 4 = excellent
☐ 3 = good
☐ 2 = fair
☐ 1 = poor

Describe the health of the water using the words and information from each of the tests.

_____

_____