

APES- Water Quality Index (WQI) Webquest

Name: _____

**After teacher presentation OR go to the following website:
<http://www.pathfinderscience.net/stream/cproto4.cfm#table1>**

Define each of the following and EXPLAIN how they can affect water quality (*good or bad*):

* Water Quality Index (WQI):

* Water Quality Factors and Weights:

* Dissolved Oxygen:

* Fecal Coliform:

* pH:

* BOD:

* Change in Temperature:

* Phosphates:

* Nitrates:

* Total Dissolved Solids:

* Turbidity:

Student Water Quality Practice:

Go to: <http://www.water-research.net/watrqualindex/index.htm>

Instructions: Conduct the necessary calculations to *determine the water quality* of the case study below.

Introduction: You are an APES student at **Kearny High School- SCT** and have been asked to do water quality testing of the *San Diego River*. You go to the river and collect water samples and bring them back to the lab. During the lab you conduct the tests below and your results are listed. Using your results, **determine the Q-value** for each of the tests and **multiply by the weighing factor** for each one. Total up the values for the 9 tests to **determine your overall water quality score**.

Sample Values for San Diego River

Temperature Change: 7

pH: 7

Turbidity: 70

Total Dissolved Solids (TDS): 300

Dissolved Oxygen (DO): 75

Biological Oxygen Demand (BOD): 15

Phosphates: 3

Nitrates: 20

Fecal Coliform: 5

Conclusion: Based on your data, what is the **Water Quality** of this particular water sample? *Explain how you determined this:*

Sample # or Location _____					
WQI Data Table					
	A		B	C	D
Test	Results	Unit	Q-Value	Weighting factor	Subtotal
Temperature Change, ΔT		°C		0.11	
pH		pH unit		0.11	
Turbidity		NTU		0.08	
Total Solids		mg/L		0.07	
Dissolved Oxygen		% sat.		0.17	
5-Day BOD		mg/L		0.11	
Total Phosphate		mg/L PO ₄ -P		0.10	
Nitrates		mg/L NO ₃ ⁻ -N		0.10	
Fecal Coliform		CFU/100 mL		0.16	
				Score	

The 100 point index can be divided into several ranges corresponding to the general descriptive terms shown in the table below.

Water Quality
Index Legend

Range	Quality
90-100	Excellent
70-90	Good
50-70	Medium
25-50	Bad
0-25	Very bad