GET WET!


Montgomery, New York
Spring 2008
Montgomery, NY
Image © 2008 New York GIS
Image © 2008 DigitalGlobe
Google
Pointer 41°31'42.87" N 74°14'14.61" W elev 99 m Streaming 100% Eye alt 5.08 km

Follow the PowerPoint Guidelines

- Introduce What, Why, & Where
- Present results as graphs
- Use lots of pictures
- Wrap-up ideas

What, Why, Where, & How

- Tell the audience what you were testing for
- Tell Them why you were testing for those parameters
- Tell them where the testing takes place
  - include:
    - Habitat Types
    - Geology (historical?)
    - Land-use (causes?)
- Tell them how you tested the parameters

What?

- Hardness
- pH
- Conductivity
- Nitrates
- Iron
- Sodium & Chloride

Why?

- Drinking water issues worldwide
- Drinking water issues in New York relating to:

PRIVATE WELL WATER
And
TOWN WELL WATER

Where?

- What are the land use issues that may effect groundwater wells

- Does the well water come from an aquifer, unconfined aquifer (water table), or bedrock fractures

Most domestic wells in Orange County withdraw water from fractured bedrock aquifers, most being variants of shale (lithified mudstone). Common quality problems include hardness, iron, sulfur, and sometimes minor methane. Clearly chloride would be from roads mostly or sometimes from water softener discharges to septic systems. Nitrate over 3 mg/l may be from septic systems.

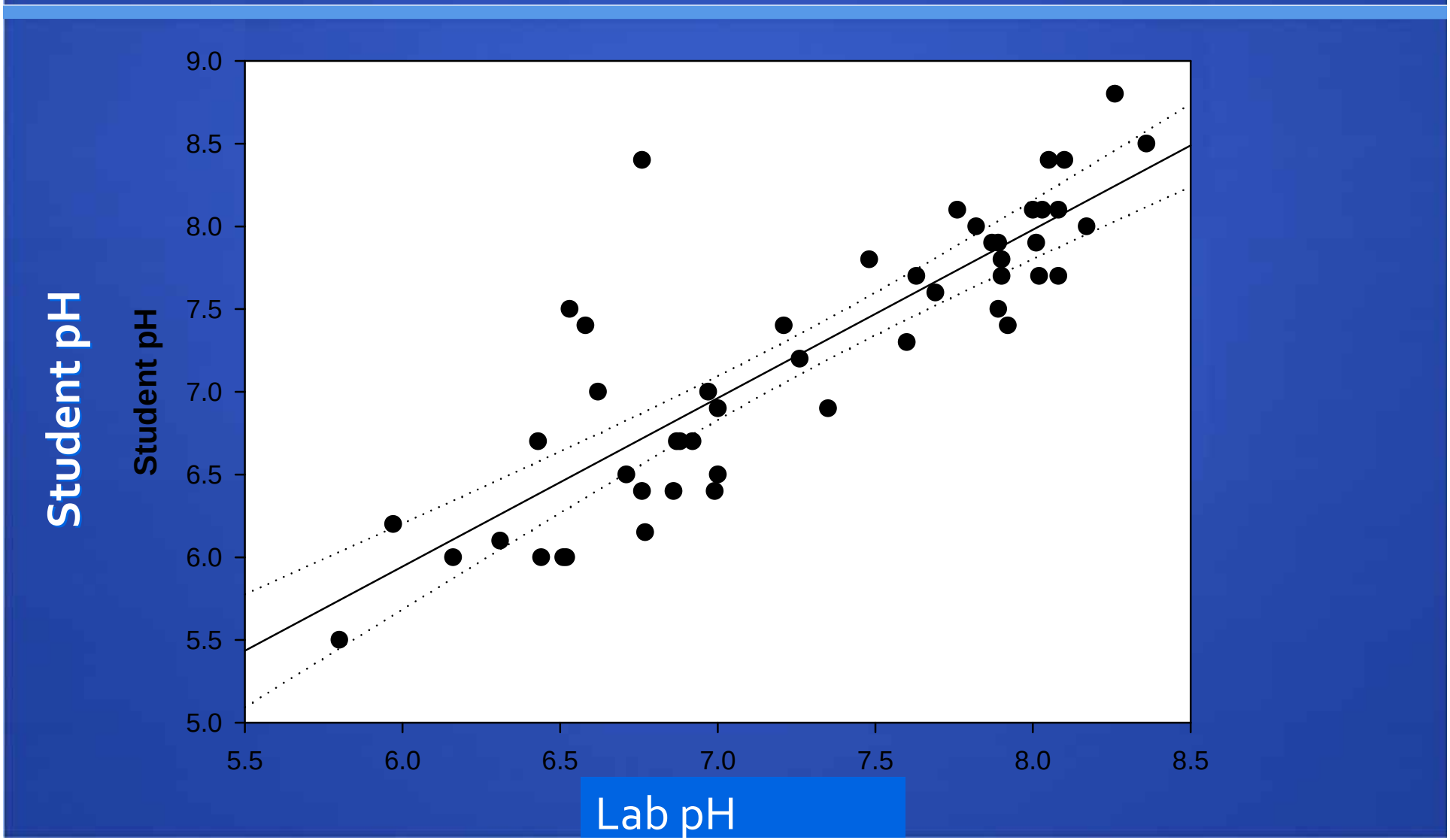
How?

Talk/Show your audience how you tested the parameters in the classroom

Results

- Graphs
- Statistics from Excel
- Excel spread sheets
- Google Earth Maps
- GIS Maps from the Orange County Water Authority

Student & Lab Comparison (for each of the six tests)



Statistics from Excel

RANGE	**0 - .3**	**MEAN**	**.08**
MEDIAN	**.09**	**MODE**	**0**
SD	**.08**		

DO STATISTICS FOR EACH OF THE SIX TESTS

EXCEL SPREAD SHEETS

Sample ID	Date	Chloride mg/L	Nitrates mg/L	pH	Conductivity uS/cm	Iron mg/L	Hardness mg/L	Source Type	Needs Letter
Mc 1	2/28/12	64	0	7.47	395	0	220	drilled	
Mc 2	2/28/12	288	0	7.06	621	0.3	380	drilled	x
Mc 3		160	3.5	7.27	537	0	300	town	
Mc 4	2/29/12	160	2	6.95	537	0	300	town	
Mc 5	2/29/12	128	3	7	548	0.3	240	drilled	
Mc 6	2/28/12	64	1.5	7.15	475	0.1	320	town	
Mc 7	3/1/12	128	4.5	6.97	424	0	280	drilled	
Mc 8	3/1/12	64	5	7.33	192	0.15	140	dug	x
Mc 9	3/1/12	160	0	8.51	605	0	80	drilled	
Mc 10	3/1/12	32	0	6.91	294	0	260	drilled	
Mc 11	2/28/12	60	3	6.94	288	0	100	dug	
Mc 12	2/28/12	160	0	7.54	328	0	140	town	
Mc 13	2/29/12	64	4	6.84	305	0.15	140	drilled	
Mc 14	2/29/12	192	2	6.97	605	0	300	town	
Mc 15	2/29/12	96	0	7.12	568	0	360	drilled	
Mc 16		544	0	6.73	1008	0	80	drilled	
Mc 17	3/1/12	224	1	7.14	608	0.1	440		
Mc 18		640	0	7.17	128	0.15	480	drilled	
Mc 19		64	0	7.03	463	0	320	drilled	
Mc 20		160	0	7.16	367	0	100	town	
Mc 21		128	0.1	7.3	497	0	340	town	
Mc 22		64	0	8.99	362	0	120	drilled	
		Green =	Above background levels						
		Red =	Above recommended levels						

EXCEL SPREAD SHEETS

Sample ID	Date	Sodium Chloride mg/L	Nitrates mg/L	pH	Conductivity mg/L	Iron mg/L	Hardness mg/L	Type	Needs Testing
Gi 1	3/7/08	128	0	7.75`	383	0.7	softener	drilled	x
Gi 2	3/7/08	544	0	6.93	112	0.1	780		
Gi 3	3/7/08	160	0	6.71	454	0.1	300		
Gi 4	3/7/08	160	0	6.85	388	0.05	180	drilled	
Gi 5	3/7/08	320	0	7.25	832	0.15	500		
Gi 6	3/7/08	160	0	6.56	408	0	280		
Gi 7	3/7/08	160	0	7.34	454	0.8	300	town/softener	
Gi 8	3/7/08	120	0	6.88	556	0	280		
Gi 9	3/7/08	128	0	6.99	255	0.03	140	town	
Gi 10	3/7/08	192	0	7.86	459	0.15	100		
Gi 11	3/7/08	256	0	7.32	240	0.18	760	drilled	
Gi 12	3/7/08	288	0	6.91	689	0.08	440	drilled	
Gi 13	3/7/08	224	0	7.04	577	0.08	460	drilled	
Gi 14	3/7/08	192	0	7.04	500	0.07	260	town	
Gi 15	3/8/08	1440	0	7.19	236	0.08	40	drilled	x
Gi 16	3/7/08	160	0	7.04	265	0.12	180	city	
Gi 17	3/7/08	224	0	6.67	556	0	300	town	
Gi 18	3/7/08	192	0	6.87	423	0.07	280		
Gi 19	3/7/08	288	1	6.56	714	0.6	340	drilled	
Gi 20	3/7/08	128	0	6.88	367	0.05	280		
Gi 21	3/7/08								

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Red =	Above recommended levels

Google Earth Maps

Use maps with pegs
-one with all points
-one with **nitrates**
-one with **salinity**
-one with iron

Conclusion

- Can you make assumptions based on results?
- How can you better define your results?
- Recommendations
- THANK YOUR AUDIENCE

Recap

- Intro: with what, where, and why
- How: (middle grades students)
- Results: graphs, tables, & statistics
- Conclusion: recommendations

THANK YOU!!!!