

Today's Goals

Make plausible (reasonable and valid) inferences, predictions or interpretations.

Giving reasons and evaluating evidence and alleged (declared but not proved) facts.

Well Testing

You will be testing wells today in order to survey the groundwater of Fruitvale for pesticide contamination.

Each group will have \$36,000 to spend for the project, and it Costs \$3000 to drill and test one well. Therefore you can test 12 wells.

You can only test three wells at a time.

Jobs

Chairperson – chairs the discussion to decide which of the wells will be selected for testing each round and makes sure that the view points of all members are discussed before a final decision is made.

Tester – Takes the chemplates to the wells, collects the samples, and calls teacher to add 1-2 drops of indicator for testing; wells are tested in groups of three. Start with chemplate 1.

Reader – Match the color of the well test samples with those listed on the chart and decide results with input from the group.

Recorder – Record the results of the test and related information on student Sheet 4.3

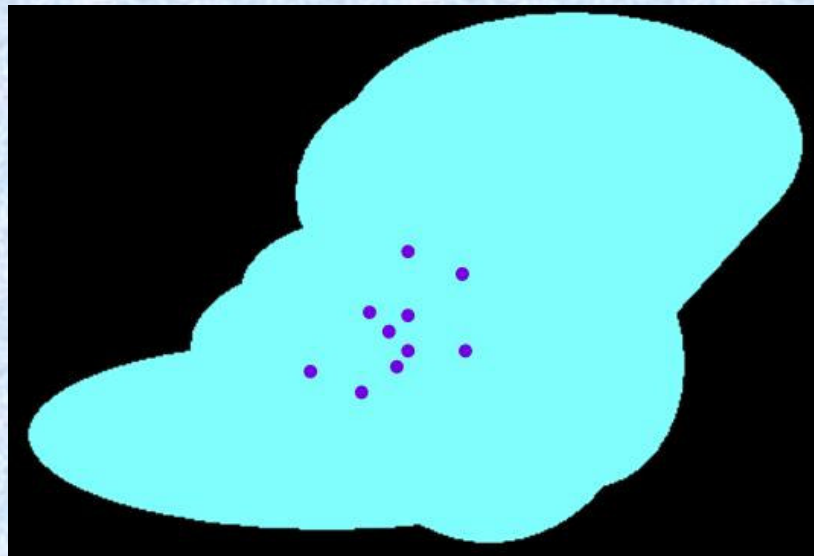
Switch jobs after each group of tests.

Take about ten minutes and decide together which three wells to test first.

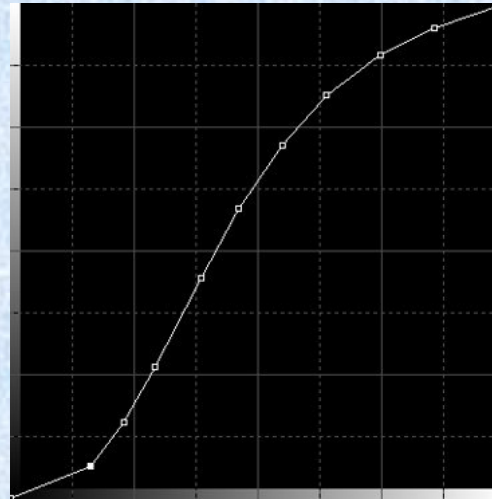
Think about a strategy.



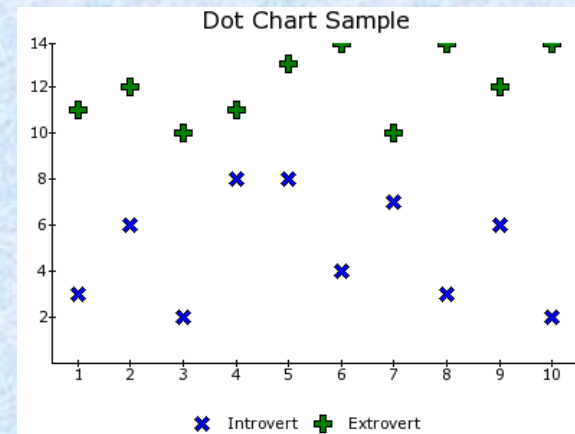
Will you do a clustered sampling?



A linear scheme?



Or a scattered testing?



All have advantages and disadvantages.

You can re-evaluate and change strategies as you test.

Procedure for testing wells:

1. Chairperson lead discussion and decide which three wells you will test.



2. Recorder - Write down the numbers you choose on student sheet 4.3 in appropriate spot. Make sure they match.





3. Tester take the chemplate to the wells and squeeze five drops of each well solution into the corresponding number and take it back to your table.

4. Tester – Call teacher to add 1 or 2 drops of indicator to each well cup.

5. Reader – Match the color of the well test samples with those listed on the chart and decide results with input from the group.



Results may vary slightly from chart.

Use common sense to decide color placement.



6. Recorder – Record the results of the test and related information on student Sheet 4.3. Write the code for the well numbers in the correct place. (*ND stands for not detected*)
Also write the code result on the corresponding well on your Fruitvale Map.

Switch rolls and begin again. Continue until you have tested 12 wells.

Wells higher than 1ppb may contain groundwater that is unsafe for human consumption.

Why is it important that maps be accurate as possible?

- 1. In order to excavate the area that is most highly contaminated, the exact location of the source is needed.**
- 2. Residents of Fruitvale who obtain drinking water from wells need to know whether the water is safe to drink.**
- 3. An accurate map will help determine the speed of movement of the contamination plume and its direction of movement.**

Next Task

Decide which areas of Fruitvale may have underlying groundwater that is unsafe for human consumption.

Remember:

This is any well that tested above 1ppb

On your Fruitvale map draw a plume around the contaminated wells.

Include all wells that are in the 3, 4, or 5 concentration category.

Next Task

Obtain a piece of transparency paper from your teacher.

Sketch a tentative 1ppb boundary using the results of your 12 wells on a transparency placed over your map.

Why are the plumes not exactly alike?

Conclusion - Were you able to:

Make plausible inferences, predictions or interpretations?

Give reasons and evaluate evidence and alleged facts?