Experimental Design Graphic Organizer- Drought Monitoring

Question: How fast is the water retreating during the drought?	Is this a comparison or the relationship between two things? Relationship
What is this about? Falls Lake, drought, water retreat, sandbars	What is the Dependent Variable (DV)? Amount of shoreline

What affects the DV? — How will I manage the effect of these? (Look to right)

- Water recession → INDEPENDENT VARIABLE
- Location of measurement → Same Location each time
- Days of drought → Measure each day until rain
- Units of measurement → Measure in centimeters
- Man made features → Do not measure there
- Runoff → IGNORE
- How to measure → From nearest tree to shoreline, use same trees
- →
- →
- →

Options:

- Set levels at _____
- Hold IV constant at _____
- Equal numbers of ___&___
- Use same subject at different times: _____
- Divide equally between control and experimental groups
- Observe and measure

*****From the list above, circle or highlight the Independent Variable (IV).**

Comparison: Is this control VS experimental? No OR Is this group VS group?

What is the first group or control? Day 1 of drought What is the second group or experimental? All other days

What am I measuring or observing?	Units?	When will I measure?	What formula will I use?
DV: Amount of Shoreline	cm	1 per day	
IV: Water recession during drought			

Hypothesis:

If [I.V.] water recession continues during a drought,

Then [D.V.] the amount of shoreline will increase.

How will data look if I am correct? Shoreline amount will increase

How will data look if I am wrong? Shoreline amount will decrease

Independent Variable	**Dependent Variable**	**Constant**	**Control**
Part of the experiment changed by the experimenter	Part of the experiment that changes because of the IV- is measured or observed to get data	Parts of the experiment that remain the same to prevent affecting the experiment's outcomes	Level of the IV that you compare back to- unchanged or in the natural state

Experimental Checklist

Complete the checklist below and check each step as it is completed.

What could go wrong in this experiment?	How can I prevent or deal with these problems?
Reference tree could fall,	Choose a different tree

- ☐ Make a timeline showing the events in your experiment and the times you will measure or observe.
- ☐ Write a clear procedure that other people can follow step by step.
- ☐ Create an organized data table.
- ☐ Complete the experiment.
- ☐ Make adjustments to the written procedure if necessary and explain changes.
- ☐ Display the data in an organized chart or graph (if possible).
- ☐ Complete required follow up for the experiment (questions, lab report, evaluation, etc.).
- ☐ Complete the sections below on results and the next step.
- ☐ Sign and date this form.

Results: When (I.V.) Then (D.V.)	
SCIENCE DOES NOT STOP: What is my next step?	What NEW questions need to be answered?

Name Date

Experimental Procedure

- Choose 3 locations on the Fall Lake shoreline
- Mark a 10 foot wide section of shore
- Measure from the shore (waters edge) to the nearest tree
- Measure every foot in your 10 foot section of shore
- Record these measurements
- Draw a map of the region you are measuring
- Measure every day in a drought until it rains

Example map: