Graphs and What They Tell Us

Goals
- Learn why graphs are important and how to read graphs
- Learn about baseline conditions and experimental control
- Identify experimental designs
- Identify potential confounding variables
- Learn guidelines for graphing.

Terms to know
- *Data*: product for measuring some_____ of behavior
- *Graph*: visual format for displaying data
- *Independent variable (IV):* the procedure or intervention that is being evaluated as being a method of changing behavior
    - º example: positive reinforcement (i.e. praise) = independent variable
- *Dependent variable (DV):* the behavior being measuring/targeted for change
    - º example: hanging up coat

Staff are responsible for demonstrating that the procedures used in intervention are in fact causing the desired change in behavior.
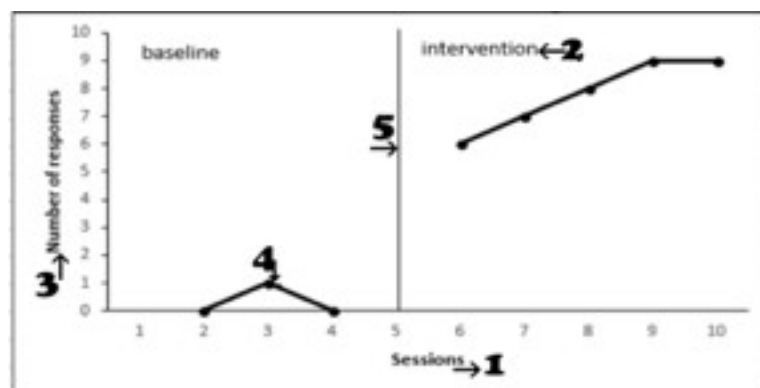
Graphs
- Allow for visual inspection of data
- _____ can be detected
- Graphing and analyzing data allow for objective decisions about programing
- If the graph showed no change over time, the supervisor would_____

Line graphs allow one to:
- Observe the specific level of behavior at a given point in time
- Observe specific levels of behavior under specific conditions before the intervention begins, known as__,
  and after intervention starts.
- Observe if behavior changed in one direction or another; increase or decrease
- Show which condition or procedures may be causing the change

How to read a graph

1. _____
2. _____
3. _____
4. _____
5. _____

Graphs and What They Tell Us

Graph components:
- X axis = shows passage of time such as_____or_____
- Y axis = quantitative unit being measured, including:
  - ◦ # Of responses or _____
  - ◦ Min, sec, etc. when graphing _____
 - ◦ % When using_____or _____

Data point:
- Shows the specific_____on the _____
- Independent variable: top of graph shows what condition is being implemented. such as intervention or _____
- Condition or phase change line change line shows when_____changed
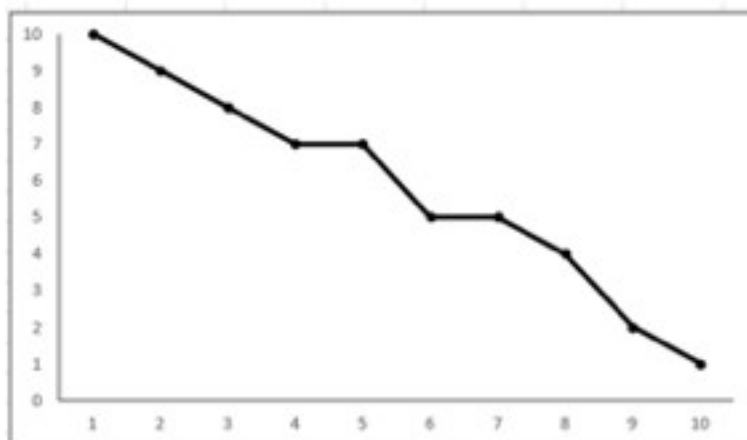
Baseline:
- Baseline condition comes first shows the child's responses before the intervention began.
- Compare baseline date to intervention data
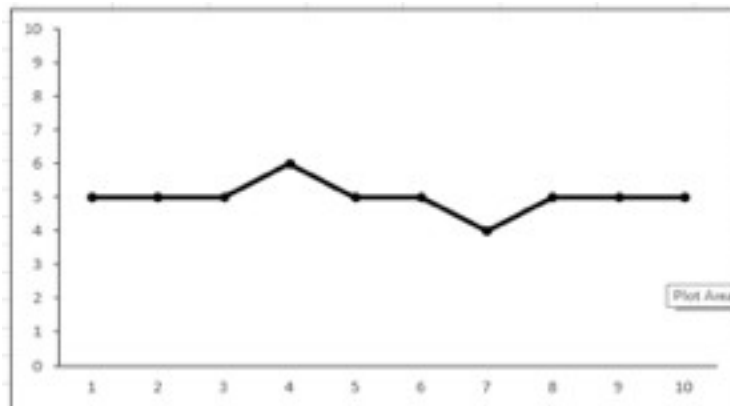
Data trends:
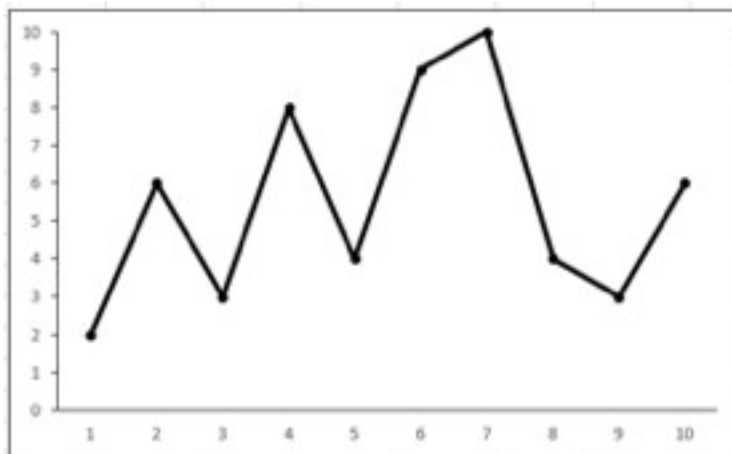- The data path is:
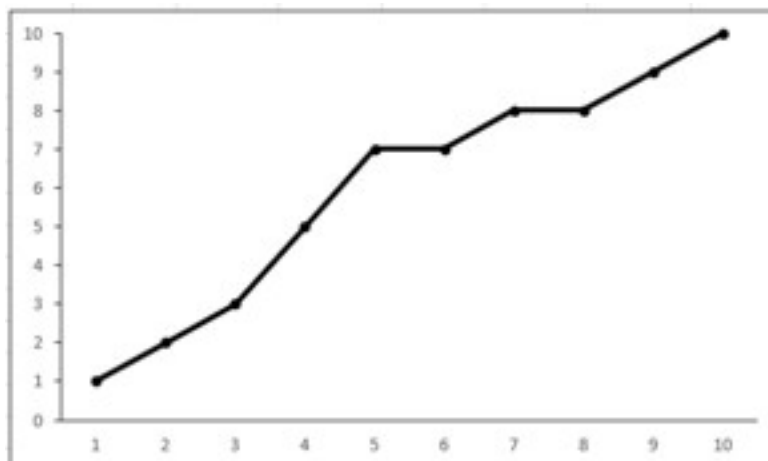
Ascending = going up

Descending = going down

Graphs and What They Tell Us

Stable over time = flat line

Variable = big jumps up and down

Experimental control:
- When the data show the change in the behavior was the direct result of the independent variable (intervention)
- This change can be repeated and reliably demonstrated over time

Experimental Design

Four main types

1. AB design
   - Most simple design
   - Commonly used to track skill acquisition and challenging behavior
   - Label different conditions with letters:
     o baseline (comes before intervention) = A
     o intervention = B
   - Compare A&B conditions
   - This design_____show experimental control

2. Reversal design
   - ABAB
   - Baselines/ treatment/ withdraw treatment (baseline)/ reintroduce treatment
   - This design demonstrates that the intervention is responsible for the change
   - This design does demonstrate _____

Graphs and What They Tell Us

Do not use a reversal design when:
- Intervention results in the student learning a new skill that cannot be unlearned.
  - Ex: addition,_____
- Behavior being tracked is a severe challenging behavior that could cause injury to student or others

3. Multiple baseline design
   - This design uses the same intervention or_____implemented across 3 or more students, environments, responses or staff members using the AB design
   - Baseline starts simultaneously for all. Once baseline is established:
     - Start the 1st student/environment/response in the intervention phase
     - Start with 2nd condition after 1st intervention has been established
     - Start with 3rd condition after 1st and 2nd intervention has been established
   - If the same intervention showed change behavior across different children this does demonstrate_____

4. Alternating treatments design
   - Utilizes 2 or more interventions plotted on the same graph, for the same child, for the same behavior
   - Allows staff to compare multiple treatments to see which is the _____
   - If there is consistent contrast between the two interventions and their effect on behavior, this _____ demonstrate experimental control

Confounding variables
- Factors unrelated to the independent variable (may be uncontrollable) that likely impacts behavior being measured
  - Examples: different interventions at home vs. school, changes in_____, _____, _____

Guidelines for graphing

Always consult with your agency first, but in general:
- Graph data regularly per supervisor instructions
- Identify changes in behavior quickly
- Makes necessary modifications to intervention as soon as possible
- Graphs should be clear so they are easy to read
- Use correct terminology
- Be objective when collecting notes on behavior/intervention
- If there are noticeable changes in data, tell you supervisor; this may indicate a _____
- After graphing data, spend time analyzing the graph and try to identify any patterns
  - Are we moving in the right direction? Analyze the data path to help determine if the intervention is effective