

Structured Observation Students Observing Thinking

The following activity can be used to help students see and understand their own thinking and the thinking of others. During the last two phases of the students work on their experiments, hand out the Data Analysis checklist and ask each group to review.

Data Analysis Skills	Comments
Responds positively to complex problems	
Maintains concentration in an active environment	
Persists with challenging problems	
Takes a systematic approach to support decisions and conclusions	
Uses mathematics to represent natural phenomena	
Analyzes the relationship between two data sets by using scatterplots	
Models data represented in scatterplots with regressions equations	
Determines how well regression equations fit particular data sets	
Communicates discoveries about the relationships between real-world data sets	
Models real-world phenomena with a variety of functions	
Represents and analyzes relationships using tables, verbal rules, equations, and graphs	
Recognizes that a variety of problem situations can be modeled by the same type of function	

Ask students in each group to choose a person to be the observer who will:

- Observe the rest of the group while they:
 - Produce a scatterplot, analyze it, choose a function over the scatterplot using spreadsheet software, and write an equation
 - Continue their research by finding phenomena that produce similar graphs and equations
- Record in the checklist what the group observes about the strategies and processes the group uses while they work:
 - Make check marks or brief comments when observing any of the behaviors listed in the chart
 - Coach the group in problem solving strategies instead of solving the problem
- After giving students time to work on the problem, ask the students being observed to check the thinking strategies they think they used and compare them to the observers. Have students discuss their thinking strategies and support their statements with evidence.
- Ask students to reflect in their journals about any new understandings they take away from the activity.