

Habits of Thinking

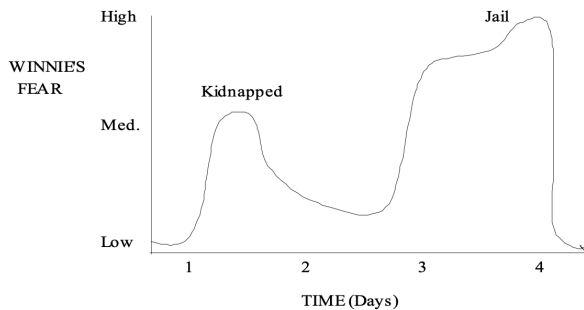
a routine or behavior repeated regularly that tends to occur subconsciously

A practitioner in habits of systems thinking...

OBSERVES HOW ELEMENTS
WITHIN SYSTEMS CHANGE
OVER TIME, GENERATING
PATTERNS AND TRENDS

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Graphs illustrate stories.
Can our students tell those stories?



Behavior-over-time graphs are a tool to monitor **reading comprehension**. The graph to the left shows Winnie's Fear over the course of four days in *Tuck Everlasting*. Note the vertical axis represents three ranges of fear—low, medium, and high. Can students identify the specific plot elements that create a change in direction or a trend as increasing or decreasing? As students become more complex thinkers, they can draw the graph themselves and then explain.

<http://www.clexchange.org/gettingstarted/botg.asp>

Behavior-over-time graphs are a tool to monitor **critical thinking**. The graph to the right shows the population from 1000 to 1700. The dates 1350 and 1650 are the two plague events over this time period. What does the steepness of the curves after each event mean? How long was population recovery? Why was one recovery longer than the other? As students become more complex thinkers, they can ask their own questions about patterns and trends in the graphs.

The Black Death
(Bubonic Plague)

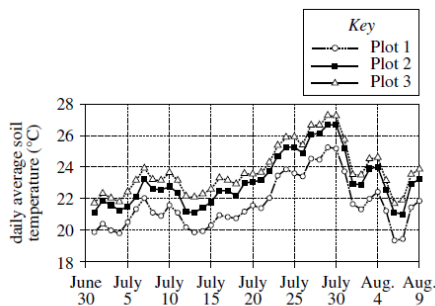
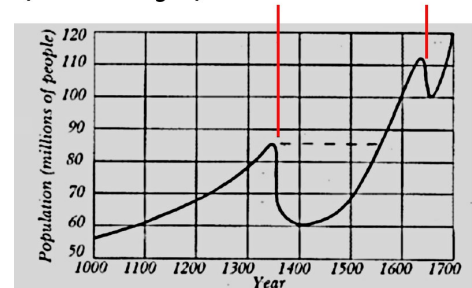


Figure 2

Behavior-over-time graphs are a tool to monitor **acquisition of scientific skills**. The Science section of the ACT tests skills rather than knowledge, including assessment of data representation. The graph shows daily average soil temperatures in three plots of land. What patterns can be seen among the three plots of land related to temperature? What assumptions can be made about rainfall? Nationally, the Science section of the ACT is frequently the lowest scoring section. As students become more complex thinkers, they can interpret data more easily.

Do you need a quick and easy resource for graphs? The New York Times provides a free resource called What's Going on In This Graph? for educators. All graphs are not behavior-over-time graphs, but they all tell a story in diverse and interesting ways. Check it out by clicking the link.

