

I collect data and results and use them to determine what to do next.

I find evidence of claims via experimentation.

I provide concrete examples when faced with abstract problems.

I look at my results and ask myself, “Does this make sense?” If it does not, I check my results for errors.

***EXPERIMENTER***

**I make an estimate of an answer and am within an order of magnitude.**

**I create a reasonable range for my final solution.**

**I use guess and check when confronted with a problem I don't know how to do.**

**I can make estimations of broad problems using no additional facts (aka Fermi estimation).**

**GUESSER**

**I make statements based on data and test them to see if they are accurate.**

**I test others' statements to see if they are true or not.**

**I create a rule for a situation that describes it accurately and generally.**

**I can generalize most situations I come across.**

**CONJECTURER**

**I can, given a problem, draw a picture that accurately represents what is going on in the problem.**

**I can create a visual of a process that is understandable by others.**

**I can interpret the pictures of others to understand what is happening in a problem.**

**I can accurately make changes to diagrams when the parameters of a problem change.**

**VISUALIZER**



**I wonder what happens when I change something.**

**I investigate situations by asking “What if I do this?” and then doing it.**

**I choose appropriate tools to best discover new data about a problem.**

**I encourage other students to wonder and be playful to help them understand a situation.**

*Tinkerer*

**I can explain my mathematical ideas clearly (both verbally and in writing) so that they are understandable by others.**

**I choose my words carefully so that they are precisely what I mean and no ambiguity exists about my statements.**

**I choose the best level of precision in a problem given that problem's constraints.**

**I can explain processes to help other students understand what is going on.**

*Describer*

**I detect patterns by noticing repeated changes.**

**I can describe the rules for generating a pattern in words, pictures, and mathematical notation.**

**I use patterns to predict future results.**

**I ignore irrelevant information that distracts from the patterns.**

**I can extend complex visual patterns far into the future.**

**PATTERN  
HUNTER**



I create shortcuts to work more efficiently.  
I generalize patterns and create models to represent situations.

I create new methods for solving problems and share those methods with others.

I notice the inherent structures of problems and can use those structures to solve future problems.

I share my inventions with other students to make it easier for everyone to learn.

***inventor***