

# Habits of a Scientist's Mind

(How to think like a young scientist...)

By the Class of 2009

<p>A scientist always examines <b>EVIDENCE</b> to support their idea and/or hypothesis</p> <ul style="list-style-type: none"> <li>❑ Using data from the experiment to find proof</li> <li>❑ How can history offer proof to our idea?</li> <li>❑ Identify something that is biased</li> <li>❑ What are some works of scientists that support/refute hypothesis?</li> <li>❑ How can other subject areas support/refute our hypothesis?</li> <li>❑ Make a conclusion based on data to back up.</li> <li>❑ How does the graph explain/prove the pattern?</li> <li>❑ How does the results prove/disprove your hypothesis?</li> </ul>	<p>All scientists see the <b>SIGNIFICANCE</b> of their work to other people, themselves, or the environment as a whole</p> <ul style="list-style-type: none"> <li>❑ What is your theory behind the experiment? What is your conflict with this idea?</li> <li>❑ How has the discovery helped humanity?</li> <li>❑ How does the experiment effect the environment and the human population?</li> <li>❑ What is the long term affects of the issue? Short term?</li> <li>❑ How does it affect different people? You?</li> </ul>	<p>Scientists push themselves to imagine <b>ALTERNATIVES</b> to look for creative methods and solutions to a problem or issue</p> <ul style="list-style-type: none"> <li>❑ What is the different variables tha affect the outcome?</li> <li>❑ How can we look at the observations differently?</li> <li>❑ Imagine how it would be different if a variable changed.</li> <li>❑ What will make the experiment better or worse?</li> <li>❑ List the different ways you can solve the problem?</li> <li>❑ How would you solve the problem if you were in charge?</li> <li>❑ How can you control the variables in the experiment?</li> <li>❑ What are the consequences to your ideas?</li> <li>❑ How can you do the experiment different to yield better results?</li> </ul>
<p>All scientists work with each other to make <b>CONNECTIONS</b> of their work to give it meaning and "juice"!</p> <ul style="list-style-type: none"> <li>❑ How does this topic relate to others?</li> <li>❑ How do 2 variables relate to each other?</li> <li>❑ Compare/contrast/relate results/trials/experiments.</li> <li>❑ How does it prove your point?</li> <li>❑ How does integrated science or other things (not science) relate?</li> <li>❑ How does your results compare with others?</li> <li>❑ How does this experiment relate to the outside world?</li> <li>❑ What's the pattern in the data?</li> <li>❑ Science to science connections</li> <li>❑ Explain how science maybe related to a different time.</li> </ul>	<p>Scientists are aware of the different <b>POINTS OF VIEW</b> to a problem or issue so that they can look at the world in an objective way.</p> <ul style="list-style-type: none"> <li>❑ Whose side is being expressed here?</li> <li>❑ Is this a biased article?</li> <li>❑ How can we do this procedure differently?</li> <li>❑ Whose side are you not hearing?</li> <li>❑ Understanding background behind someone's hypothesis.</li> <li>❑ How have different people interpret the results?</li> <li>❑ What are other subjects that affect the problem?</li> <li>❑ How might my ideas be flawed?</li> <li>❑ How can my ideas collaborate with others?</li> <li>❑ Which POV looks for evidence?</li> <li>❑ Use research and other ideas to formulate your own hypothesis.</li> </ul>	