Appendix F – The Habits of Mind Poster – Secondary Version

HABITS of MIND

We would like students to:

1. Develop a "curiosity" about mathematics and seek the "whys" behind the "how to's";
2. Recognize that hard work, persistence, and risk-taking are needed to do mathematics;
3. Develop and demonstrate self-confidence when doing mathematics and analytical thinking;
4. Value the process of exploration and investigation of mathematical concepts;
5. Make and test conjectures and verify or contradict those conjectures;
6. Recognize the need for logical arguments, proofs and deductive reasoning to verify conjectures and recognize that intuitive explanations are important;
7. Realize the need to communicate mathematics in writing and orally;
8. Recognize the role of estimation and the need to examine the reasonableness of results;
9. Recognize the need to employ strategies and heuristics in solving problems and when to employ them;
10. Demonstrate that solving problems in mathematics involves analyzing examples and appreciating the subtleties of an assumption or its limitations;
11. Value the use of technology, learning to apply it only when needed and appropriate, and recognize that technology does not replace knowledge of basic facts and skills;
12. Appreciate that mathematics is the language of nature and science and is a tool for quantitative reasoning;
13. Recognize that failure is a fact of life and that to be successful at challenges, one will experience failure, but will, hopefully, learn from it; and
14. Work as a member of a group, but proceed independently to draw inferences.

"Acquisition of these habits of mind supercedes mastery of content knowledge. Their achievement is necessary because 'It is not enough to know something; the learner must possess the ability to do something with that knowledge, whether it is to solve a problem, reach a conclusion or present a point of view.'"

(Bob Kansky, *Report Summary: Understanding University Success)*

The "Habits of Mind" above are adapted and compiled from
Understanding University Success and A Consensus Model for
Preservice Teacher Education in Mathematics and Science.