**Freshmen Essential Skills**

**(How we perceive most incoming freshmen students at each level.)**

***1. Basic Math Skills:***

Students demonstrate algebraic problem solving skills and are able to solve equations for unknown variables.

**HONORS:** In first semester, students solve the equation using the quadratic solution

In second semester, students solve the equation 2 3  for any variable.

**PHYSICS:** Students solve the equation for any variable.

**SURVEY:** Students solve the equation F = ma for any variable.

***2. Reading Comprehension & Writing:***

Students demonstrate technical reading comprehension skills and the ability to write clear arguments.

**HONORS:** Students read and apply knowledge before an in-class discussion. Students generate their own notes from readings which then drives a class discussion and conversation.

**PHYSICS:**  Students read and pull detailed information from reading to discuss during class. Students can make connections between the reading, class experiences, and real world.

**SURVEY:** Students can extract basic information from reading such as key terms.

***3. Science Laboratory Skills:***

Students demonstrate comfort with laboratory skills and are able to work with a variety of measuring tools to collect data within small groups.

**HONORS:** Students understand **what** data to collect and why they should collect it. They can correctly create and run an experiment, recognize why they’re doing the experiment, and identify changes that should be made to trouble shoot. Students can generate properly formatted data tables and graphs, discuss specific sources of error, identify nuances that lead to variation or error in an experiment, and can consistently estimate what the results should be.

**PHYSICS:** Students can generate properly formatted data tables and graphs and understand **how** to properly collect data with a variety of measuring tools.

**SURVEY:** Students properly use lab equipment when given specific directions, examples or demonstrations, and formatted data tables are provided.

***4. Scientific Logic and Reasoning:***

Students demonstrate the ability to apply deductive reasoning to draw relationships and conclusions from information.

**HONORS:** Students independently identify known and unknown information and can analyze complex situations in lab, readings, or problem solving. They have awareness of whether their answer is logical in given situations (example: length of a football field is 5 miles). Students will independently reevaluate a solution to check if an outcome makes sense.

**PHYSICS:** Students ask for teacher confirmation to check if an outcome makes sense. Students can see basic trends and relationships in data.

**SURVEY:** Students require a lot of repetition, practice, and guidance and will complete and turn in work without regard to if it’s right or wrong.

***5. Academic Identity:***

Students understand their role as a learner in the classroom.

**HONORS:** Students are intrinsically self-motivated. They will make up work without instruction by the teacher and demonstrate strong self-advocacy sills. Students strive for mastery and will seek out additional resources and practice. They are able to teach concepts and solutions to peers.

**PHYSICS:** Students are motivated through minimal guidance (incentive is often grade-driven).

**SURVEY:** Students are motivated through teacher-driven incentives.