**NGSS Crosscutting Concept And Science & Engineering Practice Elements Relevant to Mathematics Instruction in Grades 6-8**

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| **Ele-ment** | **Text** | **Potential Classroom Applications** |
| CCC1.MS2 | **Graphs, charts**, and images can be used to identify patterns in data. |  |
| CCC1.MS3 | Patterns in **rates of change** and other numerical relationships can provide information about natural systems. |  |
| CCC2.MS2 | Phenomena may have more than one cause, and some cause and effect relationships in systems can only be described using **probability.** |  |
| CCC3.MS2 | **Proportional relationships** (e.g. speed as the ratio of distance traveled to time taken) among different types of quantities provide information about the magnitude of properties and processes. |  |
| CCC3.MS5 | Scientific relationships can be represented through the use of **algebraic expressions and equations** |  |
| SEP2.MS2 | Develop or modify a model – based on evidence – to match **what happens if a variable or component of a system is changed**. |  |
| SEP2.MS4 | Develop and/or revise a model to show the **relationships among variables**, including those that are not observable but predict observable phenomenon. |  |
| SEP4.MS1 | Construct, analyze, and/or interpret **graphical displays of data** and/or **large data sets** to identify **linear and nonlinear relationships**. |  |
| SEP4.MS2 | Use graphical displays (e.g., maps, charts, graphs, and/or tables) of large data sets to identify temporal and spatial relationships. |  |
| SEP4.MS5 | Apply concepts of **statistics and probability (including mean, median, mode, and variability)** to analyze and characterize data, using digital tools when feasible. |  |
| SEP4.MS7 | Analyze and interpret data to determine similarities and differences in findings. |  |
| SEP5.MS2 | **Use digital tools (e.g., computers) to analyze very large data sets for patterns and trends**. |  |
| SEP5.MS3 | **Use mathematical representations** to describe and/or support scientific conclusions and design solutions. |  |
| SEP5.MS4 | Create **algorithms** (a series of ordered steps) to solve a problem. |  |
| SEP5.MS5 | Apply mathematical concepts and/or processes (such as **ratio, rate, percent, basic operations, and simple algebra**) to scientific and engineering questions and problems. |  |
| SEP6.MS1 | Construct an explanation that includes **qualitative or quantitative relationships between variables** that predict(s) and/or describe(s) phenomena. |  |