Importance of Basics in Learning

Basics in learning are building blocks to greater understanding. They involve the knowledge and skills that students must know about a discipline before they can understand and learn something new. Students must be able to recall basic information with little or no effort; therefore, they must know the basics well. When students recall the basics automatically, they can use that information for higher-order thinking.

The amount of knowledge and skills students have directly affects the efficiency and capacity of their short-term/working memory. When prior knowledge is high, students can identify and understand new information, process information more quickly, work with more information in short-term/working memory, and retain more information.

In high school math classes, students must know and be proficient in basic math facts and order of operations, and they must understand the notation and terminology from all prerequisite classes. If students are deficient in any of these basic concepts, they will spend their time trying to figure them out. As a result, they will not spend enough focused time learning the new concept.

For example, when I introduce right triangles, sine, cosine, and tangent in Trigonometry, students will need to know what triangles are, what the hypotenuse and legs are, the notation for representing multiplication and division, the multiplication and division tables, and how to isolate an unknown variable to determine its value. If my students readily know that 3 divided by 6 is ½, they can focus on understanding that the sine of an angle is the ratio of the length of the opposite side to the length of the hypotenuse.

When I introduce the concept of slope, students will need to know how to read and plot points on a coordinate grid, what the y- and x-intercepts are and how to find them, the notation for representing coordinate pairs, and how to use variables. If my students readily understand that (x_1, y_1) and (x_2, y_2) are two different points on a line, they can focus on understanding that the "rise" over the "run," or $(y_2 - y_1)/(x_2 - x_1)$, is the slope of the line.

I will review with my students the basics they will use with each new topic. I will assess my students to identify what basic concepts or skills they are lacking. I will design review assignments or mini-lessons to address the basic weaknesses of my students. In this way, I will strengthen the foundation of proficient students and help to build a strong foundation for struggling students. On these strong foundations, students can build the new knowledge and skills I will teach them.