

## Notes on How to Conduct any Science Educational Activity

It is important, based on the latest research on learning, to help the student discover for themselves how things work by using the inquiry and experimental methods of teaching. This was best stated, however, in ancient times by one of the first teachers;

*"I hear and I forget. I see and I remember. I do and I understand."* - Confucius

Another important element for any training activity is assessing the level of experience and understanding of the student, and then tailoring your presentation to the appropriate level.

For instance, 2<sup>nd</sup> and 3<sup>rd</sup> graders, in general, may have difficulty understanding that the filament in a light bulb is made of tungsten and that tungsten's resistance to the flow of electricity is what causes it to heat up to over 4000 degrees Fahrenheit and emit light. However, this is not beyond most 7<sup>th</sup> and 8<sup>th</sup> graders, but they may have difficulty understanding the process that causes atoms of the tungsten to evaporate from the filament and deposit on the inside of the glass bulb which eventually results in the filament failing.

There is always more to learn about even the simplest activity. Assessing the ability of the students to grasp each part of the lesson is an important part of teaching.

When teaching science activities, it is also helpful to relate the simplified activity or experiment to what the student may have already experienced in their everyday environment. In addition, whenever possible, describe how this information can be used. As an example, when demonstrating gyroscopes, you can talk about how there are two gyroscopes on a bicycle helping to keep it going straight and upright. You can point out that gyroscopes are used on airplanes and ships to help them navigate and on the Hubble telescope to keep it pointed toward a distant star. This makes science 'real' and meaningful.

As people learn more about science, they begin to wonder about other questions and want to discover more through observation and experimentation. Science is all around us, and the understanding of it brings the world to life in a whole new way.