

## Physics Integration Lesson 8 – Just Being Fair

S. Gollmer (2020)

Simple machines are mechanical devices that multiply the force of the user to accomplish a task. The first documented study of levers, pulleys and screws was done by Archimedes (287 – 212 BC), who is more infamously remembered for running naked down the streets of Syracuse crying ‘Eureka’ when he discovered the solution to a king’s challenge using the principle of buoyancy. The value of simple machines is not restricted to making difficult tasks easier by increasing one’s leverage. By reversing the leverage of a device, its sensitivity can be increased when making measurements.

The simplicity of levers make them ideal as object lessons for certain ideas. An object lesson is a visual aid used to teach a concept or truth. We judge an object lesson successful when a physical object or activity illustrates an abstract concept with clarity and in a memorable way. When used to demonstrate spiritual concepts, care must be given to avoid misrepresentation and to acknowledge that illustration by analogy is always limited in its application. In other words, object lessons can only go so far and should not be equated to the truth itself.

So how do levers provide object lessons for biblical principles? Some might apply Allen Morgenstern’s phrase: “Work smarter, not harder.” Levers illustrate this idea quite well, but I am not aware of any biblical passage that makes this statement apart from “If the iron is blunt, and one does not sharpen the edge, he must use more strength, but wisdom helps one to succeed” (Ecclesiastes 10:10, ESV). If anything, the bible would encourage us to work wisely **and** work hard.

A much stronger illustration arises when one considers a lever with mechanical advantage of one (unity). We call this lever a balance or a scale. Proverbs 20:23 states “Unequal weights are an abomination to the Lord, and false scales are not good.” A false scale is one that is not set to unity and could be used to cheat others. A fair balance will measure the same for all objects and for all people. This object lesson or illustration is so ubiquitous that people from many societies associate the double pan balance as a symbol of justice.

1. The image is that of Lady Justice. Not only is the balance present to represent justice, but other symbols are used to convey abstract ideas. Name one additional abstract idea represented by this image and how is it communicated.
2. The bible uses a number of physical illustrations to convey abstract and spiritual truths. Name a truth other than fairness and justice and describe how it is demonstrated or illustrated in a memorable fashion in the bible.

