



# The Scientific Revolution

## with Dr. Ted Davis

### Lesson 3.1: Science in Antiquity: Greek Natural Philosophy

#### Outline:

##### Science in Antiquity: Greek Natural Philosophy

- When Christianity was born, science already existed. Strictly speaking, there were no scientists then and there was no science either. Nevertheless, the skies had great significance in the Ancient Near East.
- The Greek tradition reached a high point in 4<sup>th</sup> century Athens with Plato and Aristotle.
  - Aristotle divided philosophy into four branches, one of which he called Natural Philosophy.
  - Natural Philosophy and natural philosopher were widely used well into the 19<sup>th</sup> century. These terms were the closest terms to science and scientists today.
  - Philosophical matters remain central to science today.
  - Metaphysics comes to the surface when a particular science takes a fundamentally new direction.
- The Greeks were the first to offer vigorously defended, carefully argued largely naturalistic explanations for a wide range of phenomenon.
  - This was especially true for astronomy.
  - Plato's dictum: What circular motions, uniform and perfectly regular, are to be admitted as hypotheses so that it might be possible to save the appearances (explaining what we see in the sky) presented by the planets?
  - Why circles and spheres?
    - Plato, Aristotle, and Ptolemy assigned to the heavens certain attributes of divinity.
    - We had a moral obligation to contemplate and understand the heavenly bodies.
  - The ancients regarded the stars as fixed (in location) stars. Ancient farmers knew when to expect seasonal changes.
  - Wandering stars called "planets" move at various speeds but their overall motions also fit constant patterns over long periods of time.
  - The heavens seemed to be eternally the same, and this, for the Greeks, was the marker of divinity.
  - The creator "invented and gave us sight to the end that we might behold the courses of intelligence in the heaven, and apply them to the courses of our own intelligence which are akin to them, the unperturbed to the perturbed; and that we, learning them and



- partaking of the natural truth of reason, might imitate the absolutely unerring courses of God and regulate our own vagaries.” Aristotle
- Plato wanting Athenians to study astronomy for practical purposes and for instilling piety.
  - Ptolemy: “Only astronomy is devoted to the investigation of the eternally unchanging...which is a proper attribute of knowledge...making it the best science to help theology along its way.”
  - “The testimony of the ages confirms that the motions of the planets are orbicular. It is an immediate presumption of reason, reflected in experience, that their gyrations are perfect circles,” because “among figures it is circles, and among bodies the heavens, that are considered the most perfect.” Kepler
    - Kepler would soon break with the circular tradition and introduce ellipses. These ideas had a long shelf life though.
  - Only a few ancient thinkers postulated a rotating Earth rather than a rotating stellar sphere.