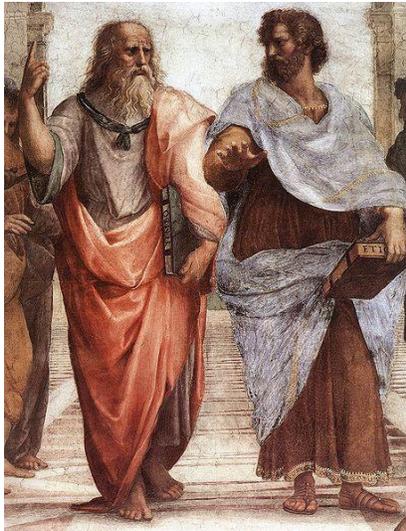


## Aristotle's Octopus

From his detailed observations off the island of Lesbos and other areas in the Aegean Sea, Aristotle (384 BC – 322 BC) recorded some of the most accurate and early descriptions of aquatic life, including the catfish, angler-fish, paper nautilus and octopus. He was among the first to classify fish distinct from the mammal species. While discredited until its rediscovery in the 19<sup>th</sup> century, his account of the hectocotryl arm of the octopus was two thousand years ahead of its time.



While searching for universal forms like his teacher, Plato, Aristotle diverged from him in locating the universal in the particular concrete entities existing in the observable natural world. Plato had argued that the universals existed as Forms or ideas, apart and unattached from particular material things, as either a property or a relation of other things, as a sort of prototype or exemplar of the particular object. These great truths were only found after being



Raffaello Sanzio's detail of Plato (left) and Aristotle (right) from the *School of Athens* 1509. Plato gestures to the heavens, to the Forms, the ideas, while Aristotle gestures to the earth, and empirical observation and experience, holding a copy of his *Nicomachean Ethics* in his hand.

freed from the chains and encountering the bright sun, while the [reflections on the wall](#), what are directly observable, remained ultimately illusory. But for Aristotle the observed octopus encapsulated a universal Form, arguing that universals were instantiated. If a universal could not be predicated in an object, surely it could not exist, argued Aristotle. "Forms" remain the unconditional basis for all phenomena. But they were accessible through the observable, found etched on the walls of the cave.

Aristotle's approach to universals and the particulars, his methodology, implies an ascent from particular phenomena to the knowledge of ultimate attributes and Forms, in essence an [inductive approach](#). Plato stressed the opposite method, a descent from *a priori* knowledge of universal Forms to a contemplation of particular imitations of these, in essence a [deductive approach](#). While Aristotle's "natural philosophy" was certainly inclusive of rigorous philosophical-based inquire as well as politics and poetry and other fine arts, it also embraced what would come to be called [empiricism](#) and in this sense anticipated the scientific method of today. Among his many works that have had such an impact on Western Civilization, his *Nicomachean Ethics* is widely considered one of the most important historical philosophical works, influencing a range of subsequent thinkers such as Thomas Aquinas and Christianity, and Niccolò Machiavelli, Francis Bacon and Thomas Hobbes and the beginnings of modernity.