

WEEK 5 Controlling the environment and a new worldview

Unit 1: The role of philosophy in shaping our worldview

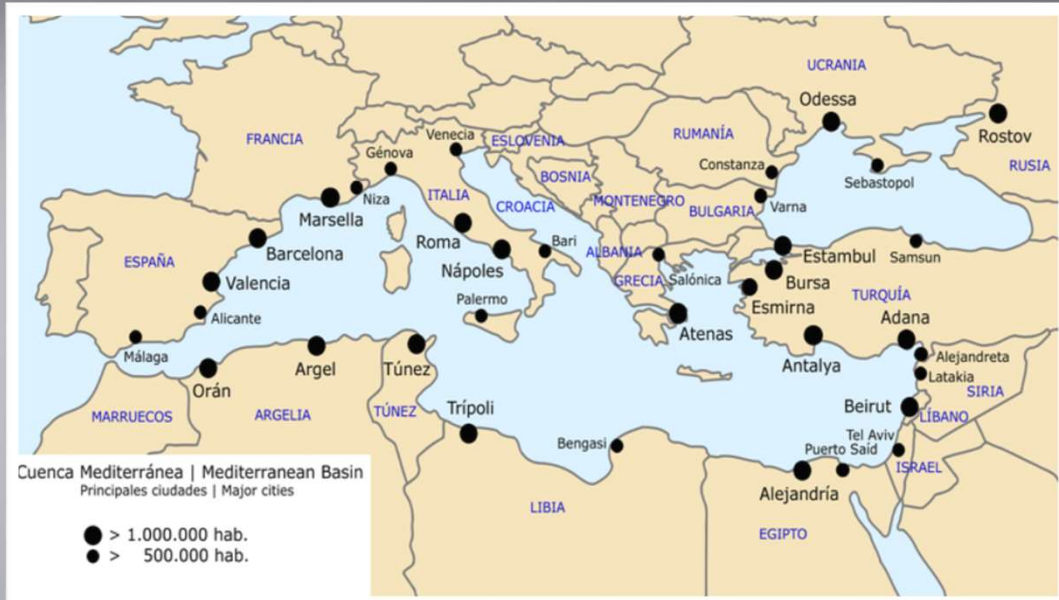
Philosophy



Raphael's *The School of Athens* (1509)

- ❖ **Philosophy** by definition means love of knowledge
- ❖ Philosophy attempts to provide **natural** explanations, not supernatural ones.

Ancient Greece



Philosophy

- ❖ In the West, **Greek philosophers** began to systematically describe the nature of the world, humans, and society.
- ❖ The first philosophers were called the **cosmologists** since they sought to explain the origin, structure, and process governing the universe or cosmos – a totality of things that were believed to be ordered.

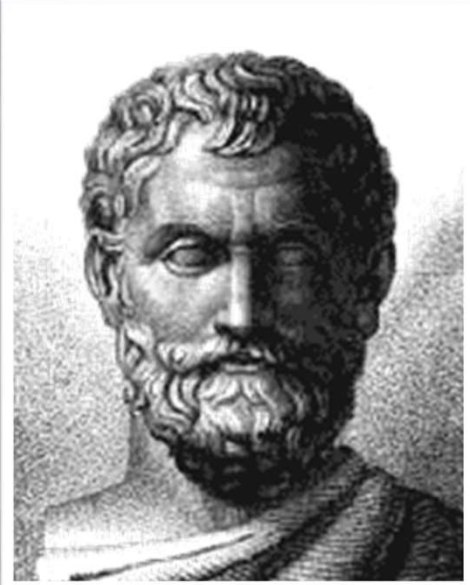
Understanding order and change

- ❖ The step away from **supernatural** explanations to natural explanations was an enormous conceptual leap.
- ❖ In nature, there is **order and change**. Some of the early philosophers believed that the world was ordered and it can be understood by using human abilities, such as logic, observation and rigorous analysis.

Understanding the self and the universe

- ❖ The **self** can be aware of nothing except its own experiences and mental states.
- ❖ The question was no longer what is the **universe** made of but what can humans know and how can they know?

Thales (625–543 BC)



- ❖ He is considered as the father of Greek philosopher and science.
- ❖ He argued for **natural** explanation rather than supernatural ones.

Thales (625–543 BC)

- ❖ He stated that the universe consists of natural substances and are governed by **natural principles**, they do not reflect the whims of gods.
- ❖ The universe is therefore **knowable** and within the realm of human understanding.
- ❖ He searched for one basic substance or element, called **physis**, from which everything else is derived. He concluded that water was such a substance since all many matters contained water.

Thales (625–543 BC)

- ❖ He welcomed **critical analysis** by inviting his students and colleagues to criticize his ideas and improve to them.
- ❖ He started the **critical tradition** of Greek philosophy.

Heraclitus (610–540 BC)

- ❖ He observed that everything in nature seemed to be in a constant state of change.
- ❖ He raised the following fundamental question:
How can something be known if it is changing constantly?

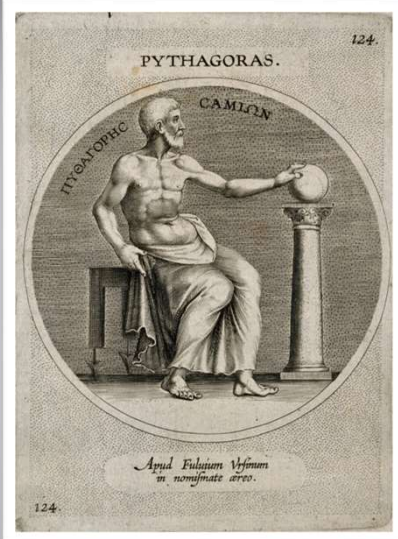
Perception and reality

- ❖ If something is different at two points in time and therefore not really the same object, how can it be known with certainty?
- ❖ Thus, our senses became a questionable means of acquiring knowledge because they could only provide information about a constantly changing world.

Parmenides (515 BC)

- ❖ Parmenides took the exact opposite view of Heraclitus and by stating that all change was an illusion.
- ❖ There is only one reality; it is finite, uniform, motionless, and fixed and it can be understood only through **reason**.
- ❖ Knowledge is attained only through **rationality** because sensory experience provides us with only illusion.

Pythagoras (569–475 BC)

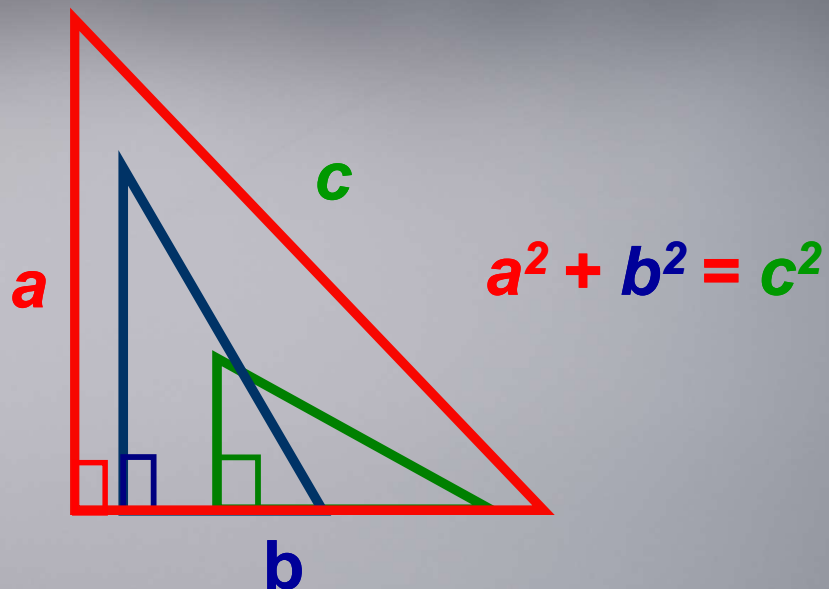


- ❖ He was a mathematician and philosopher and known as "the father of numbers."
- ❖ He and his students believed that everything was related to mathematics, and thought that everything could be predicted and measured in rhythmic patterns or cycles.

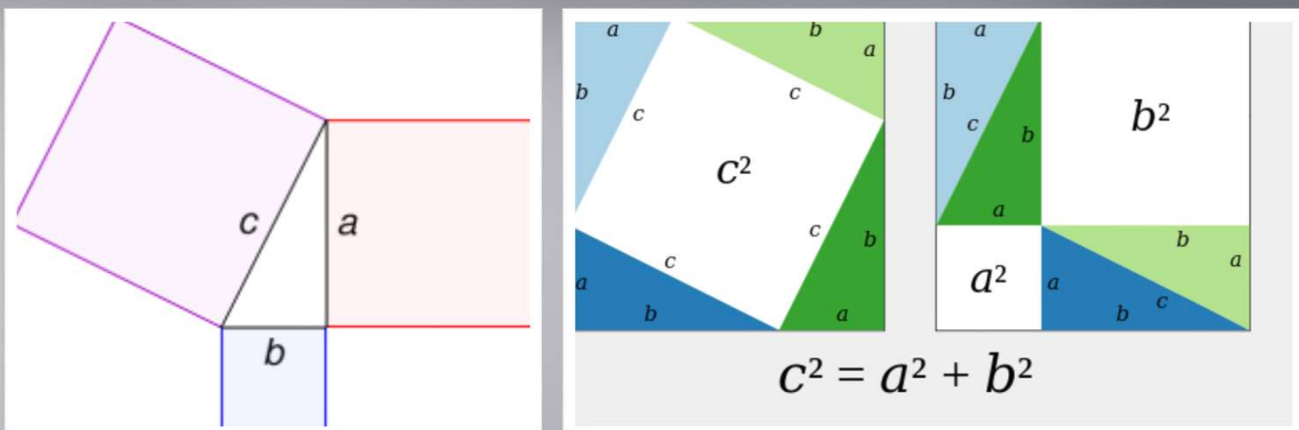
Pythagoras (569–475 BC)

- ❖ The world of numbers could be known in pure form only through **reason** and not experience.
- ❖ He assumed a dualistic universe:
 - 1) **abstract**, permanent, and intellectually knowable, and
 - 2) **empirical**, changing, and known through the senses.

Pythagoras theorem



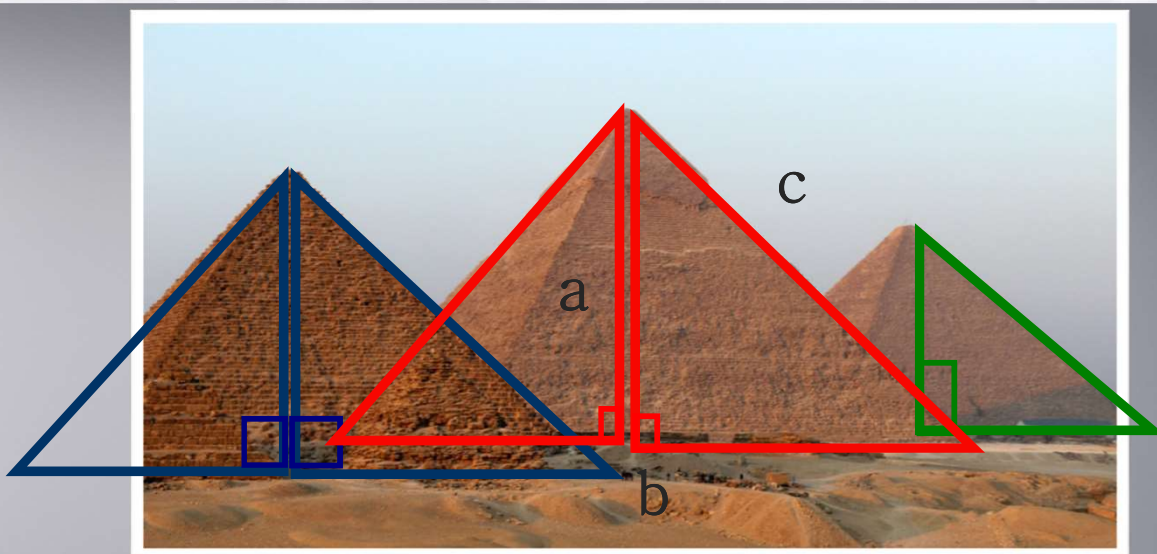
Pythagoras theorem



Pythagoras (569–475 BC)

- ❖ When Pythagoras theorem is applied rationally, it is flawless; when it is applied to actual triangles, the results are not absolutely correct because there are no perfect triangle in the empirical world.
- ❖ Experiences of the flesh are inferior to those of the mind. This idea has been adopted by Plato and by Christian theology.

Belief and universal



$$a^2 + b^2 = c^2$$

Empedocles (495–435 BC)



- ❖ He was a student of Pythagoras who argued that rather than one basic element, four basic elements existed from which everything in the world is made:

Earth, Fire, Air, and Water

Empedocles (495–435 BC)

- ❖ He believed that when these four elements are not in **proper balance** illness will occur.
- ❖ He was the first to provide a theory of perception by stating that objects in the environment throw off tiny copies of themselves called **eidola** or "emanations" which enter the body through the pores of the body."

Sophists and relativity

- ❖ **Sophists** argued that there was not just one truth but many. Truth was considered relative, and therefore no single truth was thought to exist.
- ❖ They believed that anything is true if you can convince someone that it is true.
- ❖ They were professional teachers of rhetoric and logic. They believed that effective communication determined whether an idea was accepted, rather than the idea itself.

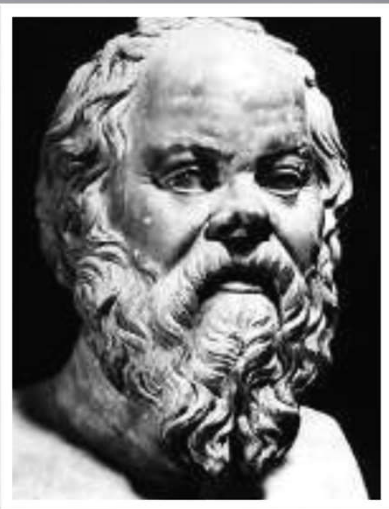
Protagoras (485–415 BC)

- ❖ Protagoras is the best-known Sophist who claimed that truth depends on the perceiver rather than on physical reality.
- ❖ Because perceptions vary with the previous experience of the perceiver, they will also vary from person to person who have different personal experiences.

Protagoras (485–415 BC)

- ❖ What is considered to be true will be, in part, culturally determined because one's culture influences one's experiences
- ❖ To understand why a person believes as he or she does, one must understand the person.
- ❖ This line of argument represents a **shift from the physical world to human concerns.**

Socrates (469–399 BC)



- ❖ Socrates was committed to the use of critical reasoning in his search for the **truth.**
- ❖ He was initially interested in investigating the physical world, but later moved to the study of the development of **moral character.**

Socrates (469–399 BC)

- ❖ He was a soldier, a stonemason and when he retired, he devoted his life to **philosophical dialogue**.
- ❖ He became devoted to **free-thinking** and actively engaged in discussion with students questioning their beliefs and values and **certainty of their knowledge**.

Socrates (469–399 BC)

- ❖ Unlike the Sophists, Socrates refused to accept payment for his work with students and he **rejected material success**.
- ❖ Athenian jury found him guilty of corrupting the youth and interfering with the religion and found his ideas threatening.
- ❖ They sentenced him to death and he drank hemlock and died in 399 BC.

Teachings of Socrates

- ❖ Socrates agreed with the Sophists that individual experience is important as summarized by the following: **Know thyself and unexamined life is not worth living.**
- ❖ He, however, disagreed with Sophists' or relativist's view that no truth exists, beyond individual perception.
- ❖ He believed that Sophists would undermine morality with the relativistic teachings.

Teachings of Socrates

- ❖ In his search for truth, he used the inductive reasoning, which started with an examination of instances of such concepts as beauty, justice, or truth and then moved on to the basic questions:

“What is it that all instances of beauty have in common?”

Teachings of Socrates

- ❖ He asked what makes something beautiful, just, or true? In this way he sought to discover general principles from examining isolated examples (known as the method of induction).
- ❖ He believed that these general principles, or concepts, transcend their individual manifestations and are therefore stable and knowable.

Essence

- ❖ What Socrates sought was the **essence** of such things as beauty, justice, and truth.
- ❖ The essence of something is its **basic nature**, its identifying, and enduring characteristics.
- ❖ It is not enough to identify something as beautiful; one must know **why** it is beautiful.

Knowledge

- ❖ One must know what **all** instances of beauty have in common; one must know the essence of beauty.
- ❖ For Socrates, the understanding of essences constituted knowledge, and the goal of life was to **gain knowledge**.

Morality

- ❖ When one's conduct is guided by knowledge, it is necessarily **moral**. For example, if one knows what justice is, one acts justly.
- ❖ Knowledge and morality were intimately related; knowledge is **virtue**, and improper conduct results from ignorance.
- ❖ His ideas were perpetuated and elaborated by his student, Plato and then by Aristotle.

Alcmaeon (500 BC)

- ❖ He was critical of temple medicine and tried to develop a more rational, **naturalistic medicine**.
- ❖ He believed that **balance** is the key to good health, between warm and cold, moist and dry, and bitter and sweet.
- ❖ It is the role of the physicians to discover the imbalance and restore the balance to the body, thereby regaining health.

Human body

- ❖ He was the first to dissect the human body to learn that the brain was connected to the sense organs.
- ❖ He concluded that sensation, perceptions, memory, thinking, and understanding occurred in the brain.

Hippocrates (460–377 BC)

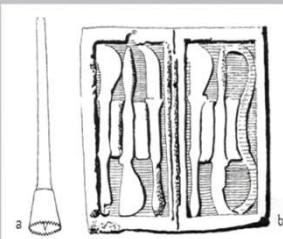
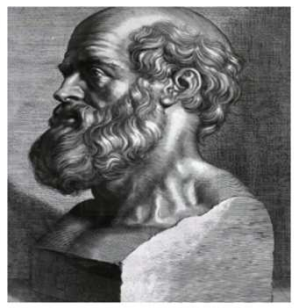
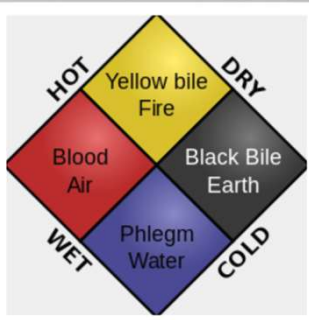


FIG. 15. Types of instruments used by Greek surgeons.
 (a) Simple trephine with centre pin. (b) Case of scalpel.
 (c) Sixteenth-century instrument of ancient type. (d) Relief in the Asklepeion, Athens.

- ❖ He was a Greek physician considered to be "the father of medicine."
- ❖ There are in fact, two things: science and opinion; the former is the basis of knowledge, the latter is the basis of ignorance."

Hippocratic Oath



- ❖ He introduced patient confidentiality and Hippocratic Oath to help and not harm patients.
- ❖ He introduced personality traits based on the four fluids in the body: phlegm (calm), yellow bile (fire, choleric, angry), black bile (melancholic, depressed), and blood (sanguine, optimistic).

Modern Hippocratic Oath

1. To teach medicine to the sons of my teacher.
2. Not to teach medicine to other people.
3. To practice and prescribe to the best of my ability for the good of my patients, and to try to avoid harming them.
4. To never deliberately do harm to anyone for anyone else's interest.

Modern Hippocratic Oath

5. To never attempt to induce an abortion.
6. To avoid violating the morals of my community.
7. To avoid attempting to do things that other specialists can do better.

Modern Hippocratic Oath

8. To keep the good of the patient as the highest priority.
9. To avoid sexual relationships or other inappropriate entanglements with patients and families.
10. To keep confidential what I learn about my patients.

Medicine and treatment

- ❖ He was interested in **illness, treatment, and cure**.
- ❖ He kept **detailed records** that gave precise accounts of mumps, epilepsy, hysteria, arthritis, and tuberculosis based on his observations.

Treatment

- ❖ He concluded that all disorders were caused by **natural factors**, such as inherited susceptibility to disease, organic injury, and an imbalance of bodily fluids.
- ❖ He believed that body had the ability to **heal itself** and it was the physician's job to facilitate natural healing ability.

Cures

- ❖ The **cures** that he recommended included rest, proper diet, exercise, fresh air, massage, and baths.
- ❖ The worst thing that a physician can do would be to **interfere** with the body's natural healing power.

Medicine and treatment

- ❖ He argued for treating the **whole, total, and unique person** rather than treating the disease.
- ❖ He emphasized developing a **trusting relationship** between physicians and patients.

Democritus (460–370 BC)



- ❖ He believed that all things are made of tiny, indivisible, and unalterable parts called **atoms**.
- ❖ The differences in objects can be explained by the shape, size, number, location, and arrangements of atoms.

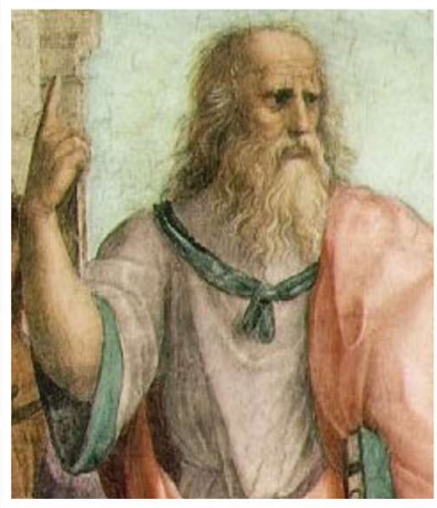
Democritus (460–370 BC)

- ❖ Everything can be explained in terms of arrangements of atoms and did not separate the material from spiritual. Humans, too, are bundle of atoms.
- ❖ He believed that the behavior of atoms was **lawful** and behavior is determined (i.e., behavior of objects and humans can be explained by atomic activities).

Democritus (460–370 BC)

- ❖ His position represents **elementism** (since every entity is comprised of basic elements or atoms) and **reductionism** (he explains observable phenomena in terms of events on another level – atoms and their activities).
- ❖ He provided first completely **naturalistic view** of the universe, devoid of supernatural and metaphysics.

Plato (427–347 BC)



- ❖ He was born to a relatively affluent aristocratic family.
- ❖ As a student of Socrates, he was deeply affected by the death of his teacher. He traveled extensively in Italy, Sicily, Egypt, and Cyrene in search for knowledge.

Plato (427–347 BC)

- ❖ He returned to Athens at the age of 40 and founded his own school, **Academy**.
- ❖ He was influenced by **Pythagoras**, the notions of numerical harmony; **Anaxagoras**, the idea that the mind or reason pervades everything; **Parmenides**, who argued for the unity of all things, similar to his concept of the soul.

Plato (427–347 BC)

- ❖ He wrote about **democracy** and **government**, influence of hereditary and environment of intelligence and personality, distinction between knowledge and opinion (subjective and objective).
- ❖ When Socrates was executed, he went into self-imposed exile in Italy, and he was influenced of Pythagorean views.

Plato (427–347 BC)

- ❖ Take three buckets of water: one **hot**, one **lukewarm**, and one **cold**.
- ❖ Place the left hand in the hot water and right hand in the cold. Then plunge both hands into the lukewarm water. The hand that was previously in the hot water will feel cold and the hand that was in the cold water will feel hot.
- ❖ The water is the same, and yet you feel it as hot and as cold.

Plato (427–347 BC)

- ❖ Your experience of the water is relative to the state of your hands.
- ❖ He argued that you do not **know** what the temperature of the water is: You only form some **opinion** about it.
- ❖ He acknowledges Heraclitean doctrine of that objects are **constantly changing**.

Plato (427–347 BC)

- ❖ We cannot have eternal, unchangeable knowledge about things that are constantly changing.
- ❖ We have perception of imperfect, relativistic picture of an ever-changing world of objects. This cannot be called knowledge.
- ❖ If we cannot not know the physical world, what can be know? **Knowledge cannot come from what does not exist.**

Plato (427–347 BC)

- ❖ Since knowledge is eternally true and not changing, the objects of knowledge must be eternal and unchangeable. He called these objects of knowledge **Forms** or **Ideas**.
- ❖ There is a **Form** for every class of objects to which we give a generic name such as dog, man, justice, or beauty.
- ❖ Thousands of dogs that one encounters are inferior copies of an abstract idea or Form of "dogness" that exists in pure Form.

Aristotle (384–322 BC)



- ❖ He became the royal court physician to the Macedonian royal court.
- ❖ He studied medicine and in 367 he traveled to Athens to study philosophy with Plato.
- ❖ He was a brilliant student, and he disagreed with some of Plato's teachings. He was not appointed to head the Academy when Plato died.

Aristotle (384–322 BC)

- ❖ He left Athens to travel, studying biology in Turkey.
- ❖ He returned to Macedonia in 338 to tutor Alexander the Great after he conquered Athens. He established his own school, the Lyceum.
- ❖ After Alexander's death, Athens rebelled against Macedonian rule, and fled to the island of Euboea, where he died soon after.

Rationalism and empiricism

- ❖ For Plato, essence or universals corresponded to the **Forms** that existed **independent** of nature and that could only be arrived at by **introspection** and by ignoring sensation.
- ❖ For Aristotle, essences existed, but it could only become known by using our senses in studying nature.

Rationalism and empiricism

- ❖ He believed that if enough individual manifestations of a phenomenon were investigated, one could eventually infer the **essence** that they exemplified.
- ❖ He integrated the position of **rationalism** (mental operations) with **empiricism** (the importance of sensory information in gaining knowledge).

Rationalism and empiricism

- ❖ He believed that the mind must be employed before knowledge can be attained (rationalism), but that it was the information furnished by the senses (empiricism) that was the object of rational thought.
- ❖ Basic principles could be discovered by studying individual instances and the analysis of the manifestations of the **abstract principle** involved underlying the individual cases.

Teleology

- ❖ His philosophy is **teleological** since everything in nature exists for a purpose.
- ❖ By purpose, he did not refer to conscious intention, but that everything in nature had a function built into it.
- ❖ This built in purpose or function is called **entelechy**. To truly understand a phenomena, we must know the causes behind it.

Causation

- ❖ There are **four types of causes**:
 1. **Material cause** is the matter of the object (a statue is made of marble).
 2. **Efficient cause** is the force that transforms the matter into a certain form (the energy that moved the hands of the sculptor).

Final and formal cause

3. **Final cause** is the purpose for which an object exists (the purpose to create a work of art).
4. **Formal cause** is the essence of an object, what makes it what it is, or defines it.

Soul

- ❖ All living thing's purpose or potential was determined by the possession of the one of the **three types of souls**:
 1. A **vegetative soul** is possessed by plants. It allows only growth, the assimilation of food, and reproduction.

Soul

2. A **sensitive soul** is possessed by animals. Organisms respond to the environment, experience pleasure and pain, and have a memory.
3. A **rational soul** is possessed only by humans and allows thinking or rational thought.

Soul

- ❖ The rational part of the soul is called **mind**. It is unique to human beings, capable of knowing abstract universals.
- ❖ As we experience different members of the same natural type, we note similarities, and develop the idea of universal.
- ❖ As one experiences a multitude of dog, one eventually forms an idea of what the essence of a dog is.

Aristotle's view of the universe

- ❖ **Common sense**: Earth is flat.
- ❖ Based on observations, he noted earth is **round**. Earth casts a round shadow on the moon during an eclipse.
- ❖ Earth is at the **center** of the universe.
- ❖ Objects on earth travel in **straight line**. It is finite and changeable.

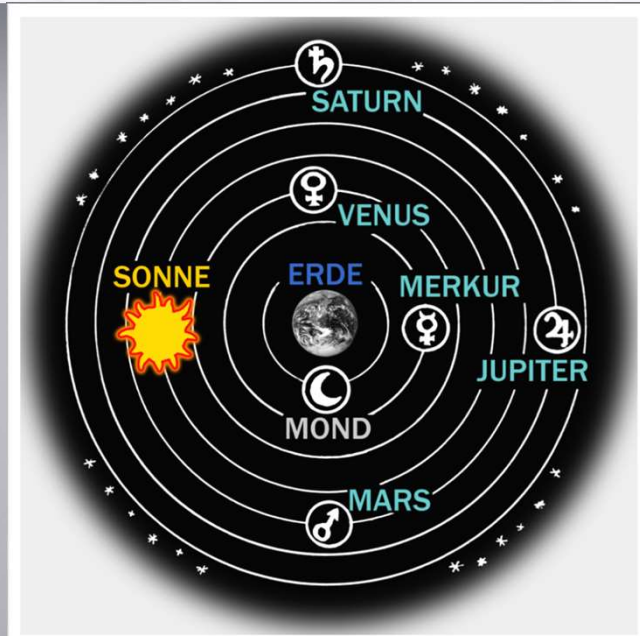
Eclipse



Aristotle's view of the universe

- ❖ Objects in heaven follow **circular motion**. It is infinite and unchangeable.
- ❖ Stars are **fixed** and while planets, including sun and the moon **revolve** around the earth.
- ❖ Planets, moon and the sun are fixed in **crystalline spheres** and nothing can penetrate the crystalline spheres.
- ❖ This view was adopted by the church until Copernicus, Galileo and finally Newton.

Aristotelian view of the universe

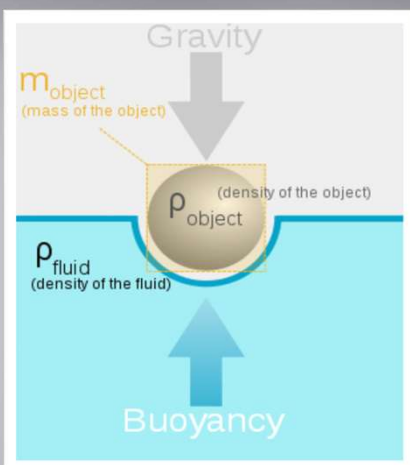


Archimedes (287–212 BC)



- ❖ He was born Syracuse, Sicily, a Greek city state and studied in Alexandria, Egypt
- ❖ He was a mathematician, physicist, engineer, astronomer and philosopher.

Archimedes (287–212 BC)



- ❖ He discovered the principles of density and buoyancy, known as Archimedes' principle, while taking a bath. He ran out to the streets naked shouting "Eureka" – "I have found it!"



Part II

Confucianism



Black and white

Right	vs	wrong
Just	vs	unjust
Moral	vs	immoral
Friend	vs	enemy
Objective	vs	subjective
Conservative	vs	liberal
Optimist	vs	pessimist
Introvert	vs	extrovert

Black, white as related to shades of grey

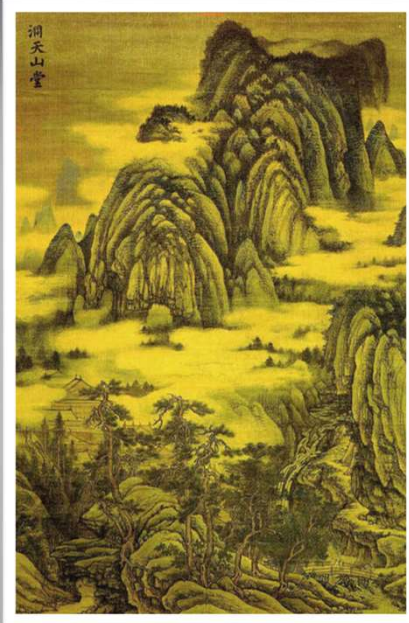


Human being in relational cultures

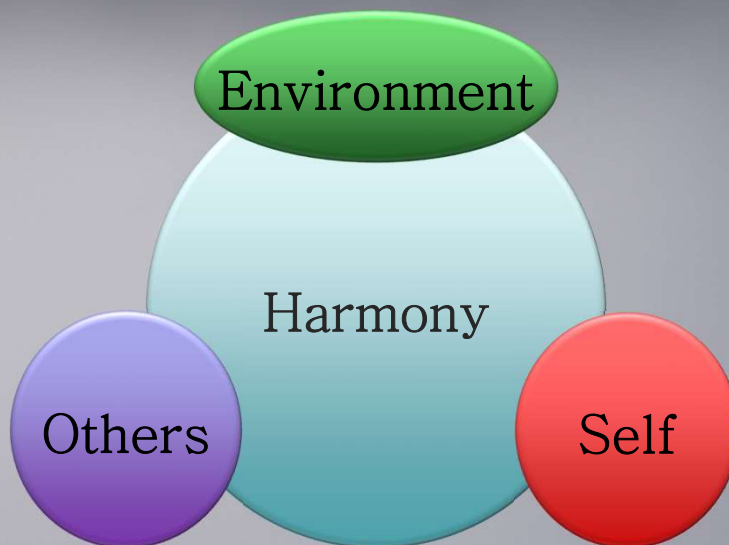
人 間

Human between

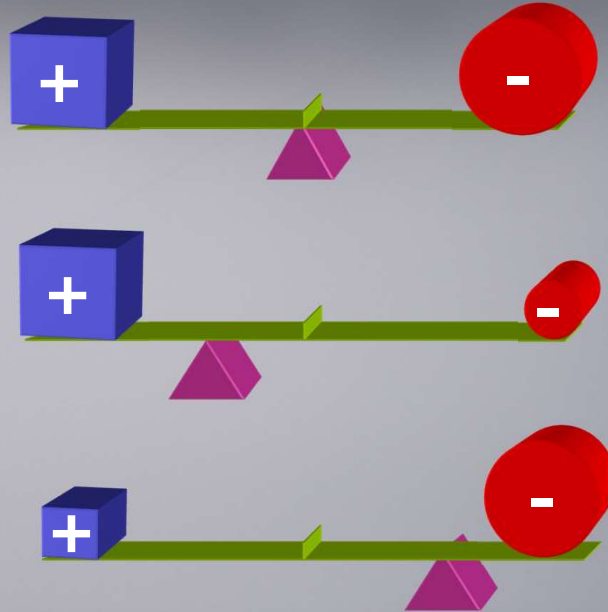
Chinese art



Harmony



Achieving harmony



Confucius (Kong Fuzi, 551–479 BC)



Mencius (372–289 BC)

Confucian philosophy

- ❖ He articulated the key concept of Tao (道, 도, or the Way).
- ❖ Tao manifests itself in harmonious opposition of yin and yang, and in humans through *duk* (덕, virtue, goodness, moral excellence), and it is the base of all morality, *doduk* 도덕 道德.

Confucian philosophy

- ❖ It is through *duk* that a person is able to know the Heavenly Truth and it is the "locus where Heaven and I meet" (Lew, 1977).
- ❖ Through self-cultivation virtue can be realized.
- ❖ Virtue provides the fundamental source of insight and strength to rule harmoniously within oneself, one's family, one's nation, and the world.

Confucian philosophy

- ❖ Virtue is manifested through *in* (仁 "human-heartedness") and *yi* (義 "oughtness" or "righteousness").
- ❖ In "consists in loving others" and "the man of in is one who, desiring to sustain himself, sustains others, and desiring to develop himself, develops others" (Analects).

Confucian philosophy

Society

Trust 信

School

Knowledge 智

Family

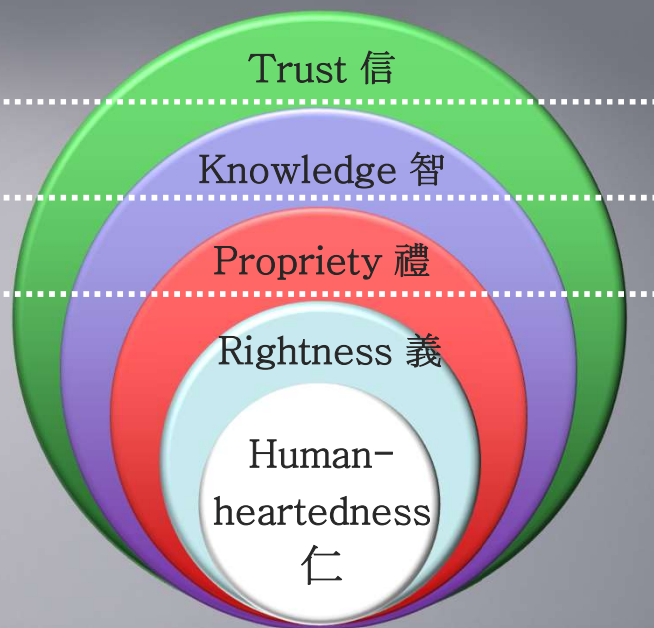
Propriety 禮

Self

Rightness 義

Human-heartedness

仁



Confucian philosophy

- ❖ One should not do to others "what you do not wish yourself" (Analects).
- ❖ Mencius notes that without *in*, a person cannot be considered a human being: "When you see a child drowning in a well, if you do not feel compassion, you are not a human."

Confucian philosophy

- ❖ *In* is an essential component of the relational mode in Confucian cultures.
- ❖ *In* and *ui* are considered two sides of the same coin. For example, a father of virtue fulfills his duties because he loves his son, and he loves his son because he is the father.

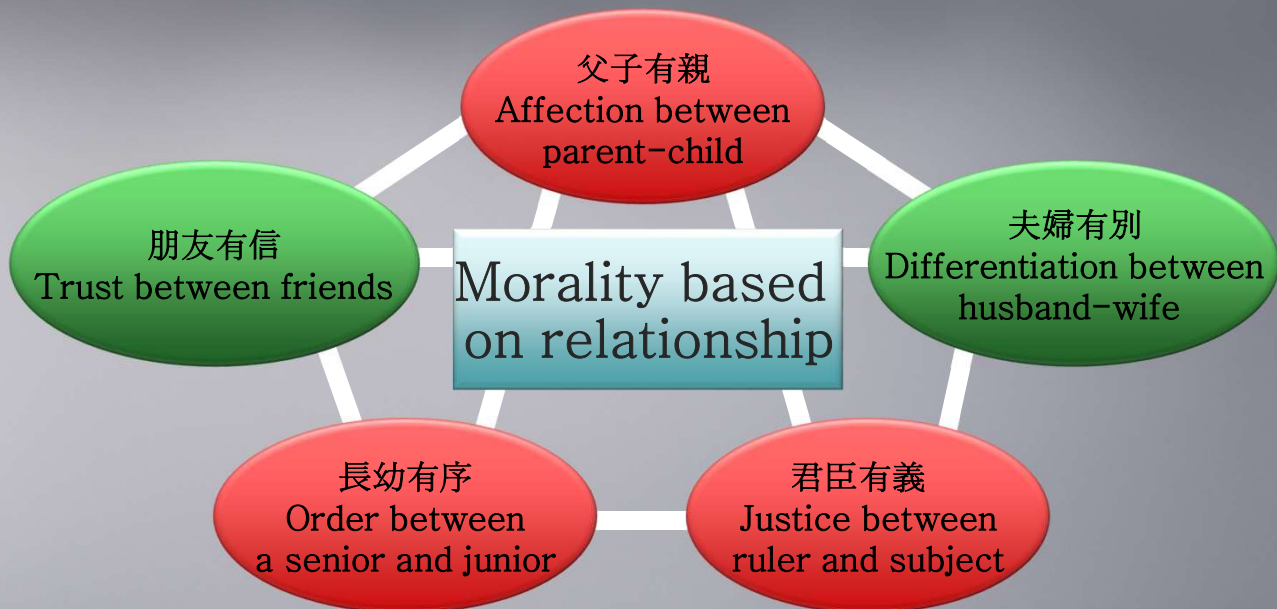
Confucian philosophy

- ❖ *Li* articulates that individuals must perform and fulfill their duties as defined by their particular status and role.
- ❖ Confucius considered society to be hierarchically ordered necessitating that each person must fulfill his or her duties as a moral imperative: "let the ruler be ruler, the minister, the father, and the son" (Analects).

Confucian philosophy

- ❖ He articulated Five cardinal relationships 五伦:
 - **Father and son** (父子)
 - **Ruler and subject** (君臣)
 - **Husband and wife** (夫婦)
 - **Elder and younger brother** (兄弟)
 - **Between friends** (朋友)

Five Cardinal Relations in Confucianism



Confucian philosophy

- ❖ Parents are conceived as vehicles through which the Tao is transmitted to, and manifested in, their children.
- ❖ Relationships between parents and children (and also between spouses and siblings) are not based on equality, but on *ui* and *in*.

Confucian philosophy

- ❖ Through *in* and *ui*, individual family members are linked together in Unity (Tao).
- ❖ The primary relationship is the parent-child relationship defined by *hyodo* ("filial piety").

Filial Piety

孔子謂曾子曰“身體髮膚 受之父母 不敢毀傷 孝之始也 立身行道 揚名於後世 以顯父母 孝之終也”（小學 第二明倫, 2章, 34節）

Our body comes from our parents. Therefore, we should avoid doing harm to our bodies. This is said to be beginning of the filial piety. And, achieving success in society and becoming a person of established reputation is the completion of filial piety. (The basic learning, II, Chapter. 2, 34)

Confucian philosophy

- ❖ Parents demand love, reverence, obedience, and respect from children. Children expect love, wisdom, and benevolence from parents.
- ❖ The parent-child relationship involves more than two individuals.
- ❖ Parents represent one's ancestors and children represent one's progeny.

Confucian philosophy

- ❖ To be a virtuous person, one must overcome selfishness and cultivate *in* and *ui*.
- ❖ Self-cultivation from within, coupled with care and support without, are considered the necessary and sufficient conditions for development of a truly moral, virtuous, and free person.

Confucian philosophy

- ❖ Confucius considered society to be hierarchically ordered and each person had *beun* ("portion" or "place") in life.
- ❖ Each *beun* had attached roles and each person must fulfill his or her roles.
- ❖ Duties and obligations of each *beun* is prescribed by *yea* (禮 rules of propriety).

Confucian philosophy

- ❖ *Yea* articulates behavioral expectations and duties of each individual according to their status and role.
- ❖ Social order and harmony are preserved when each person observes his/her place and fulfills the duties.

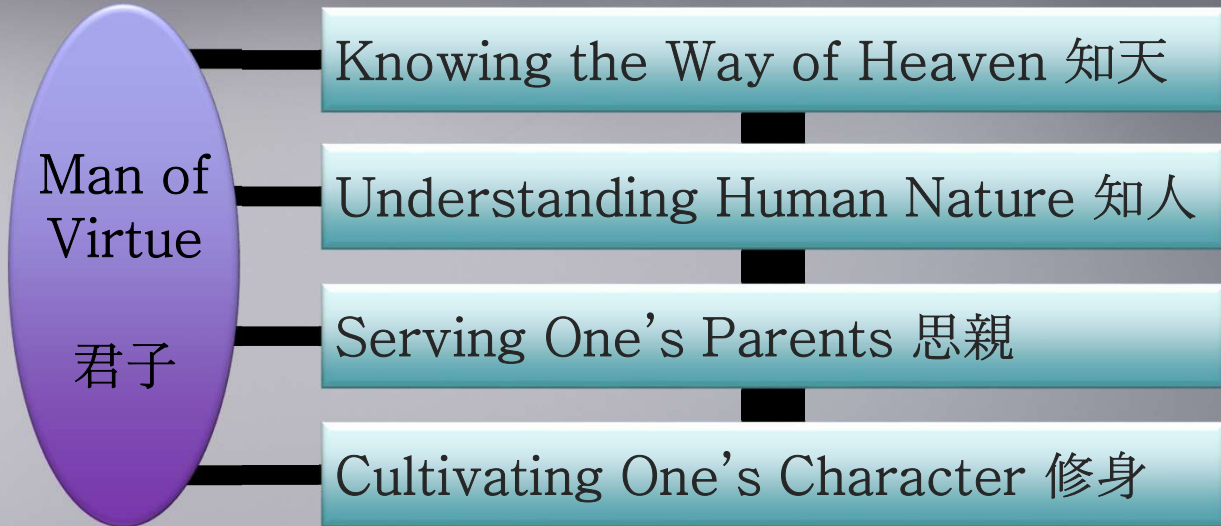
Confucian philosophy

- ❖ Confucius considered all individuals to be linked to others in a web of inter-relatedness.
- ❖ The fundamental principle for governing relationships among individuals, family, society, the world, and beyond is best articulated in his writing entitled "Righteousness in the Heart":

Confucian philosophy

If there be **righteousness in the heart**,
 there will be **beauty in character**,
 If there be beauty in character,
 there will be **harmony in the home**.
 If there be harmony in the home
 there will be **order in the nation**.
 If there be order in the nation,
 there will be **peace in the world**.

Confucianism



Society and culture

