

# Think **BIG**

*--across the Major and into GE*

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# Term Paper

- Would your students say these in a major science course?

起初的我，就像柏拉圖所描述的洞穴的比喻中，那些被加鏈鎖著的囚奴(Plato,5)，在中學裏一直死背硬記科學的知識，在考試中取得好成績，便自以爲了不起，卻從沒有詢問過背後發現的過程、科學的起源和發展。但了解過柏拉圖、亞里士多德對宇宙觀完美的執著、對真的追求，所透露出對大自然的奧妙的佩服，帶著謙虛的態度來探索。柏拉圖兩個世界的觀點中，認為相世界是永恆不變的、無形、

以行動和堅持來做自己應有的責任。也令我更為尊敬大自然之奇妙，奇妙之處在於她不僅僅教曉我知識，更令我進步和明白做人之道。所以面前那曲折多彎的山谷，我都敢去行，敢去闖。

Persistence of Plato and Aristotle in looking for a true cosmology and reality, admiration of the mystery of nature, humble attitude.

Respect on the wonder of nature. Nature did not only teach him knowledge, but also helped him make progress and understand how to be human.

Year-1 Science student  
(Dr. Cherry Lam's class)

# Seminar/Essay Questions

- Would you ask questions like this in a humanities course?

Q1: Some think **Aristophanes'** myth about Eros helps us understand the nature and psychology of love better than **Socrates'** myth of Eros. Do you agree? Who do you think would be a better lover?

Q2: If Confucius, Socrates, and Odysseus all come to teach in your university, whose course would you prefer to take?

He can talk the talk, but can he walk the walk? What is your preference?

Q3: 新亞學生會舉行人字拖設計比賽，參賽作品中有寫上「崇基逸夫在腳下」、「聯合摺埋過檔新亞」等字句的，也有把崇基校訓「止於至善」分拆，寫在人字拖左右設計圖上的。同學之間意見紛紜，網上開始出現罵戰；各書院學生會亦紛紛就事件發表聲明，嬉笑怒罵，不一而足。設想你是莊子，應中大學生會之邀出席論壇（或起草聲明）評論此事，你會提出甚麼觀點和回應？

Philosopher Zhuangzi on campus life and college motto.

Think of a work that is a  
must-read in your major.

Think of **3** important  
questions you will raise with  
students studying it in your  
major.



Briefly introduce your text to members of your group.

Share your **3** questions with them, and tell them why they are important.



# Think **Big** in science

“In Dialogue with Nature”



# Children: why why why ?

Why should we eat vegetables?  
The taste is bad!

Why should I have good health?

Why should I be happy?

Why should everyone be happy?

Vegetables contain nutrients that  
make you healthy!

If you are not healthy, you won't  
be happy.

Hm ...., yes, of course, everyone  
should be happy.

.....



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# Questions of different levels

## Technical science

- **Observation:** What is A?
- **Inference:** If B happens, what would happen?

Vegetables contain **nutrients** that **make** you healthy!

- **Meaning:** What does C mean?

If you are not healthy, you won't be **happy**.

- **Value:** Do I accept D?

## General education science

Hm ...., yes, of course, everyone **should be happy**.



# Big and particular questions

- Technical and GE sciences are about observation, ..., value.
- Technical science focuses on
  - Observation, Inference
  - *Particular questions*
- GE science focuses on
  - Meaning, Value
  - *Big questions*

## Technical science

- **Observation:** What is A?
- **Inference:** If B happens, what would happen?

- 
- **Meaning:** What does C mean?

- **Value:** Do I accept D?

## General education science



# AskBigQuestions.org

We help colleges, universities, and organizations engage young adults in reflective conversations about **purpose**, **identity**, and **responsibility**.

These conversations build **trust**, strengthen **community**, and deepen **understanding** across lines of difference.



Each group choose a text from those discussed just now.

Together, design **3 Big** questions you will raise with students studying the text for GE.



Share your **Big** Questions.



Generalize the differences  
between  
(1) questions you ask in **major**  
and  
(2) questions you ask in **GE**.



# Diascopic-science (透觀科學) Approach



## Technical science

- **Observation:** What is A?
- **Inference:** If B happens, what would happen?

• **Meaning:** What does C mean?

- **Value:** Do I accept D?

## General education science



Big questions

*Who am I?*

*What and how do I know about Nature?*

*What is life?*

...



Scientific  
knowledge?

Limitations?

# *In Dialogue with Nature*

## 與自然對話

Euclid: *Elements* (~ 300 BCE)

Dunham: *The Mathematical Universe*  
(1947—)

沈括: 《夢溪筆談》  
(1031-1095)

Sivin: *Why the Scientific  
Revolution Did Not Take Place  
in China—or Didn't It?*  
(1931—)

Needham: *The Shorter Science  
and Civilization in China*  
(1900-1995)

Kandel: *In Search of Memory*  
(1929—)

Poincaré: *Science and Method*  
(1854-1912)

Carson: *Silent Spring*  
(1907-1964)

Plato: *Republic*  
(~423 –347 BCE)

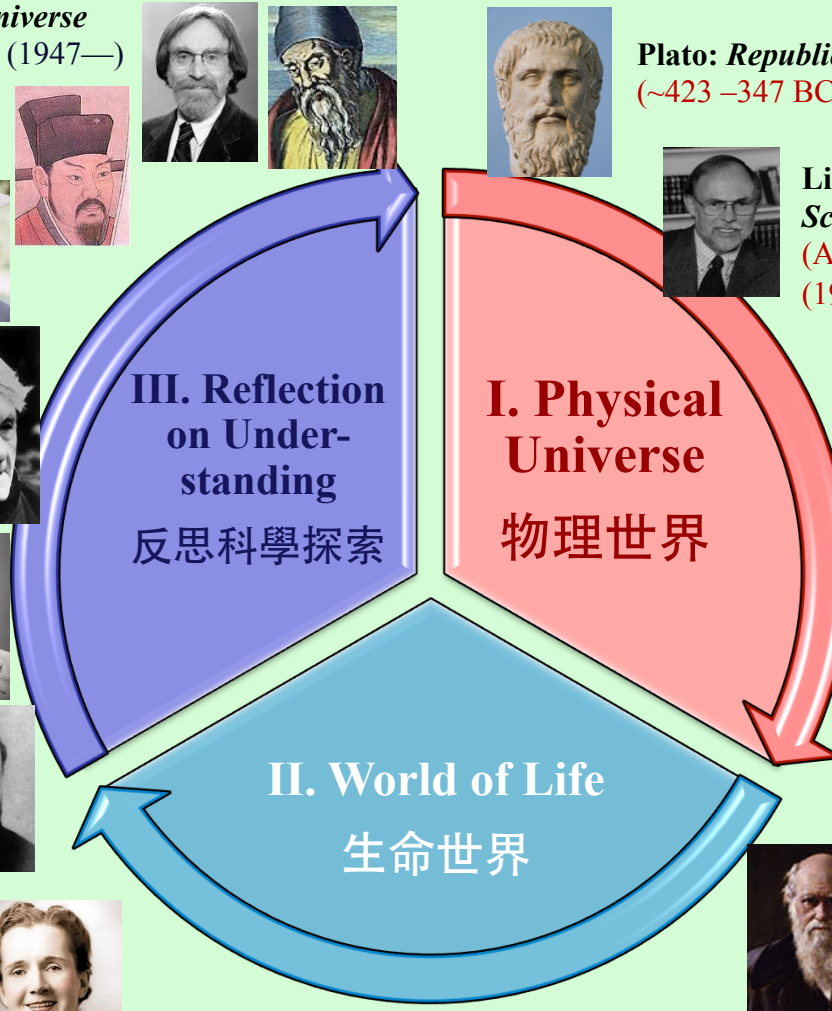
Lindberg: *The Beginnings of Western  
Science*  
(Aristotle's philosophy)  
(1935-2015)

Newton: *The Principia*  
(1642–1727)

Cohen: *The Birth of a New  
Physics* (1914–2003)

Darwin: *On the Origin of Species*  
(1809-1882)

Watson: *DNA: The Secret of Life*  
(1928—)



# General Education Foundation

- Building Community of learners

seminar-based tutorial:



## ◎ Community of active/autonomous learners

- 1-hr lecture + 2-hr tutorial
- Discussion groups  $\leq 25$
- Reading the same set of texts
- Discussion of common concerns
- Writing to deepen reflection

In Cantonese, Putonghua  
& English



# Newton's *Principia*

The quantity of centripetal force is of three kinds: absolute, accelerative, and motive.

[ . . . ]

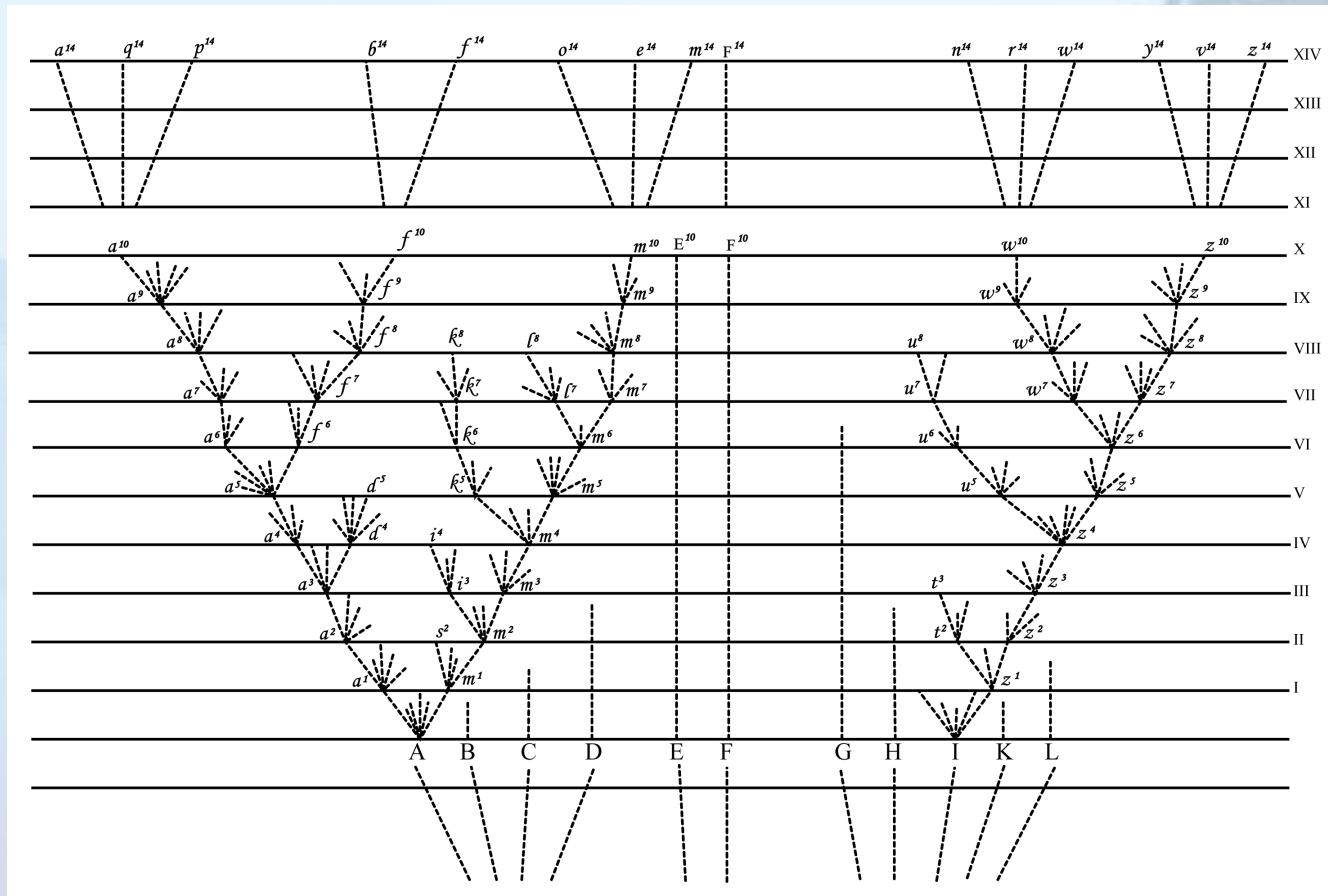
Further, it is in this same sense that I call attractions and impulses accelerative and motive. Moreover, I use interchangeably and indiscriminately words signifying attraction, impulse, or any sort of propensity toward a center, considering these forces not from a physical but only from a mathematical point of view. Therefore, let the reader beware of thinking that by words of this kind I am anywhere defining a species or mode of action or a physical cause or reason, or that I am attributing forces in a true and physical sense to centers (which are mathematical points) if I happen to say that centers attract or that centers have forces.

(The last paragraph before Axioms)

- What did Newton understand?
- Mathematical understanding.



# Darwin's dream



- What do scientists assume? Universality.



Are we doing popular science?

**No!**



# Are we doing 1000-level technical science?

# No!

# Diascopic science and others

	Popular science	Diascopic science	Technical science
Scientific concepts	Explained	Explained	Explained
Technical details	Avoided	Avoided	Important
Methodology	Described	Described and reflected on	Assumed
Discussion of relations between science and other fields	To arouse the reader's interest in science	To acquire an understanding of what science implies	Rare
Target	Common readers	All people	Researchers/ major students

Diascopic science: welcomed by **both** science majors and non-majors.

# Term Paper

Topic 1

## From Science to Individual

### 3. Self-understanding on an Individual Level

Growing in a typical Chinese family, I seldom realized the importance of science except on the technological side. Learning from the history of scientific development throughout the intellectual journey via in dialogue with nature, it revolutionizes my understanding of science, and eventually my understanding towards myself.

Year-1 student from Global Economics  
and Finance (Dr. Cherry Lam's class)



Influenced by the traditional Chinese mindset, I was educated to acquire knowledge for gaining practical advantages, which are primarily future wealth and fame. During the intellectual journey, I was exposed to a brand-new way of thinking. Science itself is a search for “intellectual beauty” while “intellectual beauty is self-sufficing” (Poincare 164). In other words, scientific knowledge is a “disinterested pursuit of truth” (Poincare 165), rather than a quest for the instrumental values. Yet, in consideration of the materialistic and competitive society characteristic in Hong Kong, individuals are seldom allowed a room for pursuing knowledge simply and ideally for its intellectual value, regardless of the “immediate utility”. For this reason, I found tertiary education extremely meaningful and valuable. Some may doubt that

education received in university is not practical when it comes to workplace. Nevertheless, receiving holistic education through acquiring knowledge, processing knowledge via independent thinking, and sharing knowledge with our companions in college would undoubtedly enrich our mind. Similar to the case of science, that is to search for truth without



#### 4. Self-understanding on a Wider Scope

beings mistake themselves as the masters of nature. Revealed by advanced science and technology, humankind is in fact one of the members in the “intricate web of life” (Carson 146), who is interdependent and shares mutual benefits with nature and various living things. Therefore, any enlightened individual should realize that human beings are merely inhabitants, instead of the lord in nature.

Science and technology has been abused by some arrogant human beings. Subject to “a narrow standpoint of direct self-interest” (Carson 153), whenever human interests contradict the welfare of nature, mankind inclines to act in their best own interests, regardless of the well-being



# Open Discussion...



# Think **Particular** in the Humanities: *Odyssey*

- Classics/Literature:
  - From: Dactylic hexameter
  - Composition: Unitarian vs. Analytic
  - Legacy: journey & transformation (Homer, Ovid, Dante)
- Archaeology:
  - Iron Age & Bronze Age
- Anthropology:
  - Traveling storyteller



# Think **Big** in the Humanities: *Odyssey*

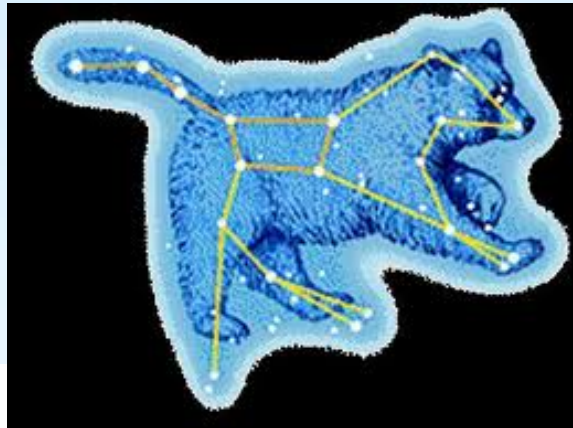
- Selection focus: identity crisis
- Odysseus's choice (erotic landscape) to Penelope's choice (gender issue) to Telemachus's choice (if you see a father, kill a father)
- Craft and cunning in identity formation
- Connection with real life (pain of growth)
- Connection with “unrelated” texts (e.g., Marx)



- To what extent is growing up a process of becoming “the true son/daughter” of one’s parents? Comment with reference to Telemachus’s relation with his father in the *Odyssey*.







Standard Size  
3" long,  
7/8" wide head

Small Size  
2-1/4" long,  
3/4" wide head

Miniature  
1-1/2" long,  
1/2" wide head





# *Wealth of Nations: Case Study*

- Would you say Dafen Village has an ideal mode of production for: (1) the artist, (2) the businessman, (3) a buyer, (4) Da Vinci himself, and (5) a lover of art?
- Which is more important: productivity, creativity, realization of potentials, livelihood, profit, development of taste and culture?



# Open Discussion...

