

# Critical Thinking & Problem Solving

*Dr. Bektash Berdiev*

Obstacles Facing Critical Thinking

Question?

# Why do YOU study for a Degree?

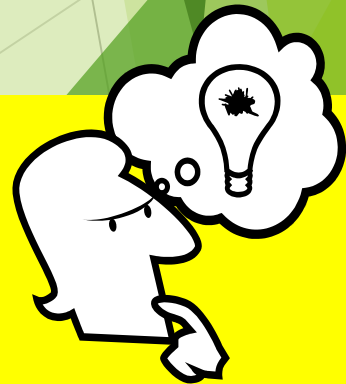


# Do You Agree With This Statement?

“Some people study all their life  
and at their death they have  
**learned everything except to  
THINK”**

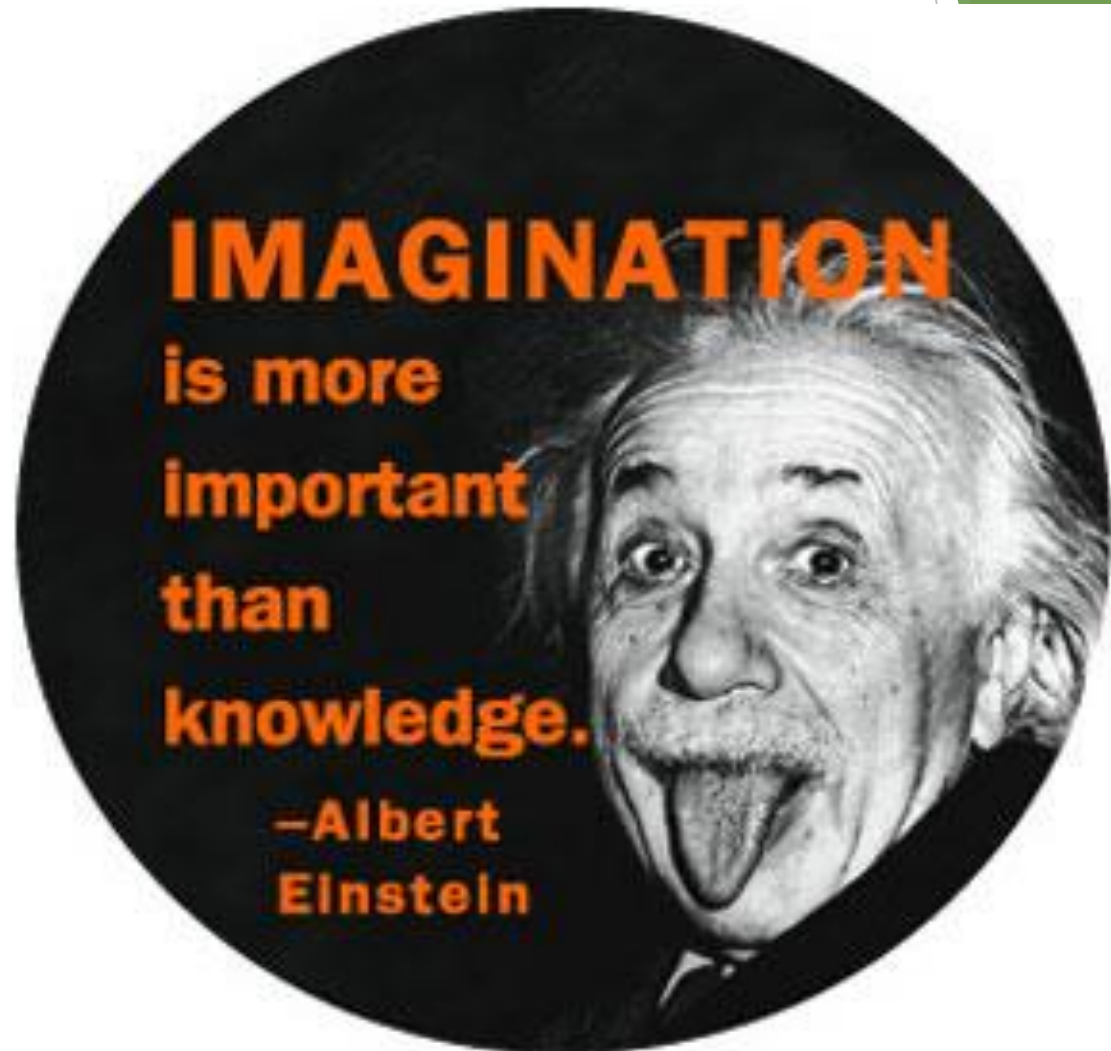
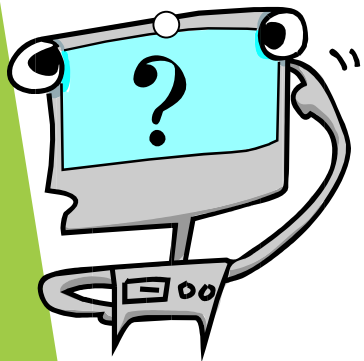
- Francois Domergue

Why?



# Do You Agree?

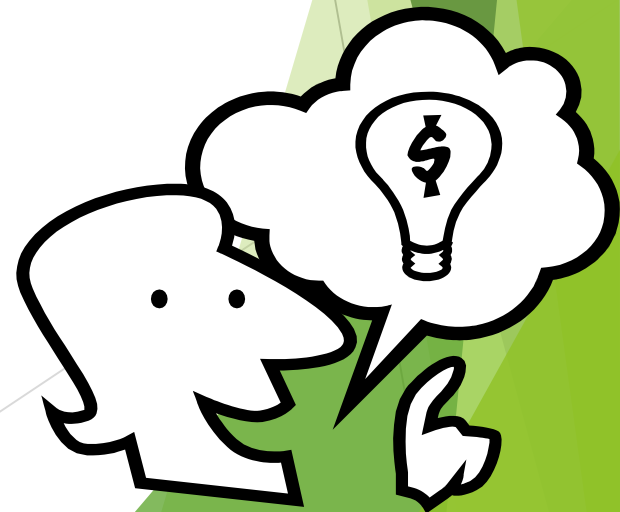
Why is  
Imagination so  
Important? I  
Need input  
from you!



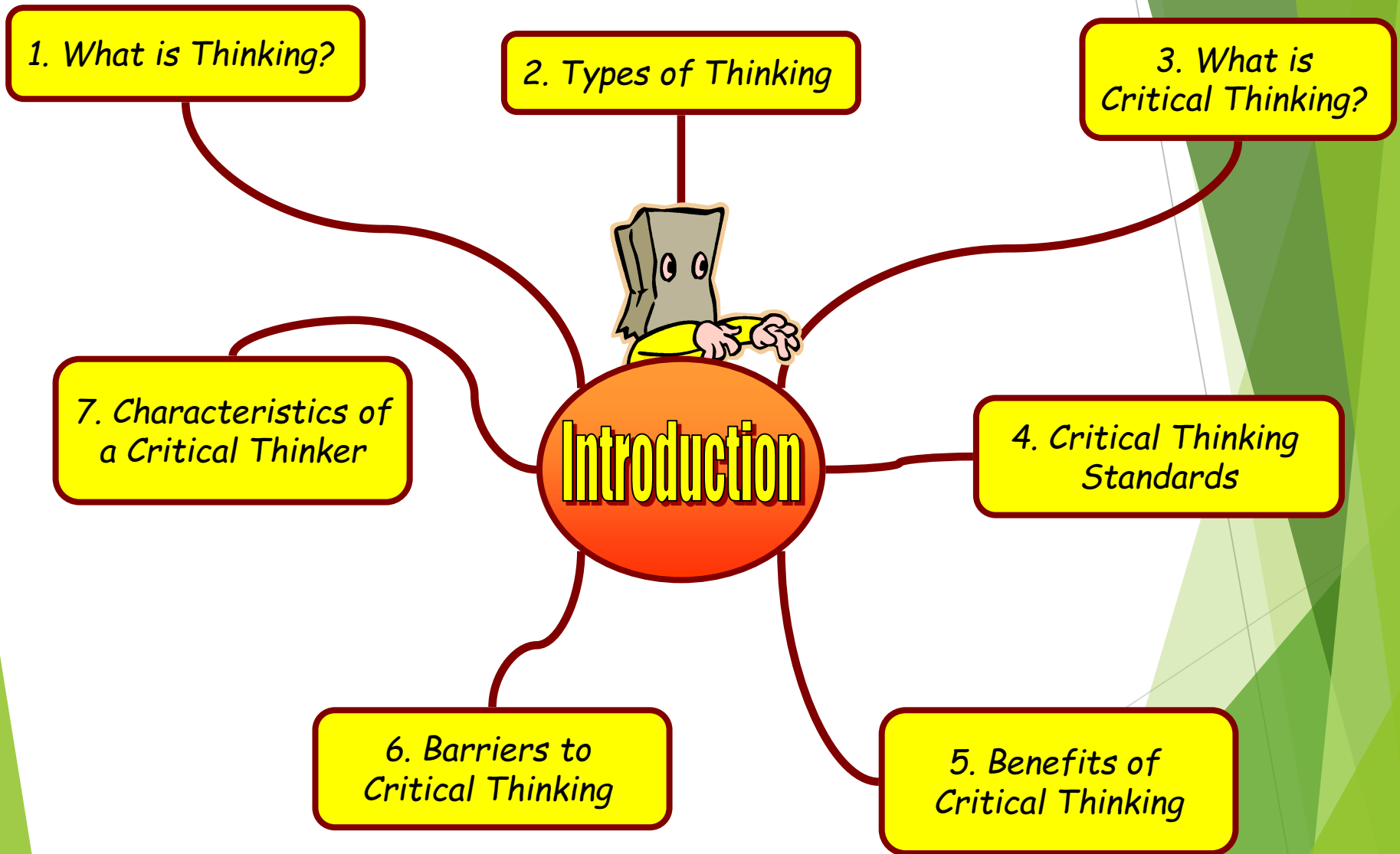
Why does UNITAR have this course?

- ▶ To help you improve your Thinking Skills 😊

**HOW TO  
THINK!**



# Module 1: Introduction to Critical



**What is Thinking?**

# 1.1 What is Thinking?

Why doesn't SHE like

me?

Why doesn't she like

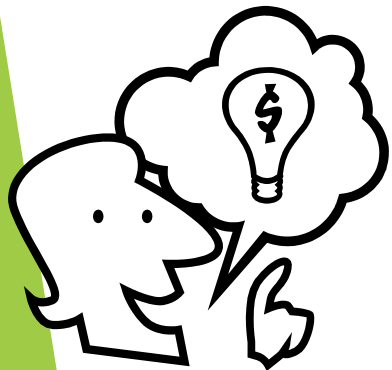
me?



As you start asking questions and seek answers, you are in fact thinking.

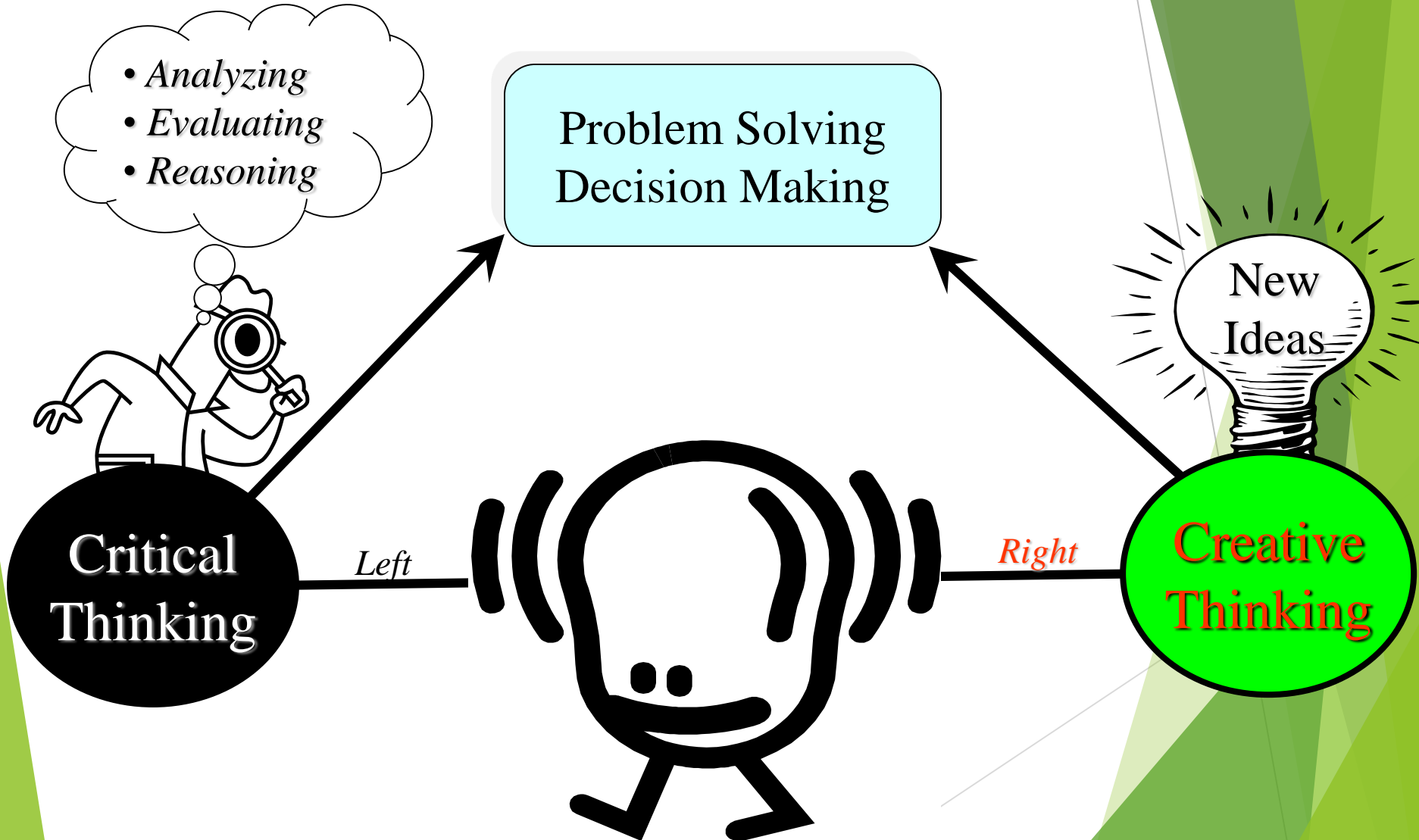
# 1.1 What is Thinking?

**Thinking is a purposeful, organized cognitive process that we use to make sense of our world.**



# Types of Thinking

# 1.2 Types of Thinking



# What is Critical Thinking?

# 1.3 What is Critical Thinking?

WARNING: TH

LY!!



Source: <http://profmulder.home.att.net/introwhatis.htm>

# 1.3 What is Critical Thinking?

(2)

“Critical thinking consists of a mental process of analyzing or evaluating information, particularly statements or propositions that people have offered as true. It forms a process of reflecting upon the meaning of statements, examining the offered evidence and reasoning, and forming judgments about the facts.”

- [Wikipedia](#)

“Critical thinking is the intellectually disciplined process of actively and skillfully conceptualizing, applying, analyzing, synthesizing, and/or evaluating information gathered from, or generated by, observation, experience, reflection, reasoning, or communication, as a guide to belief and action. “

- [Michael Scriven & Richard Paul](#)

[More Definitions...](#)

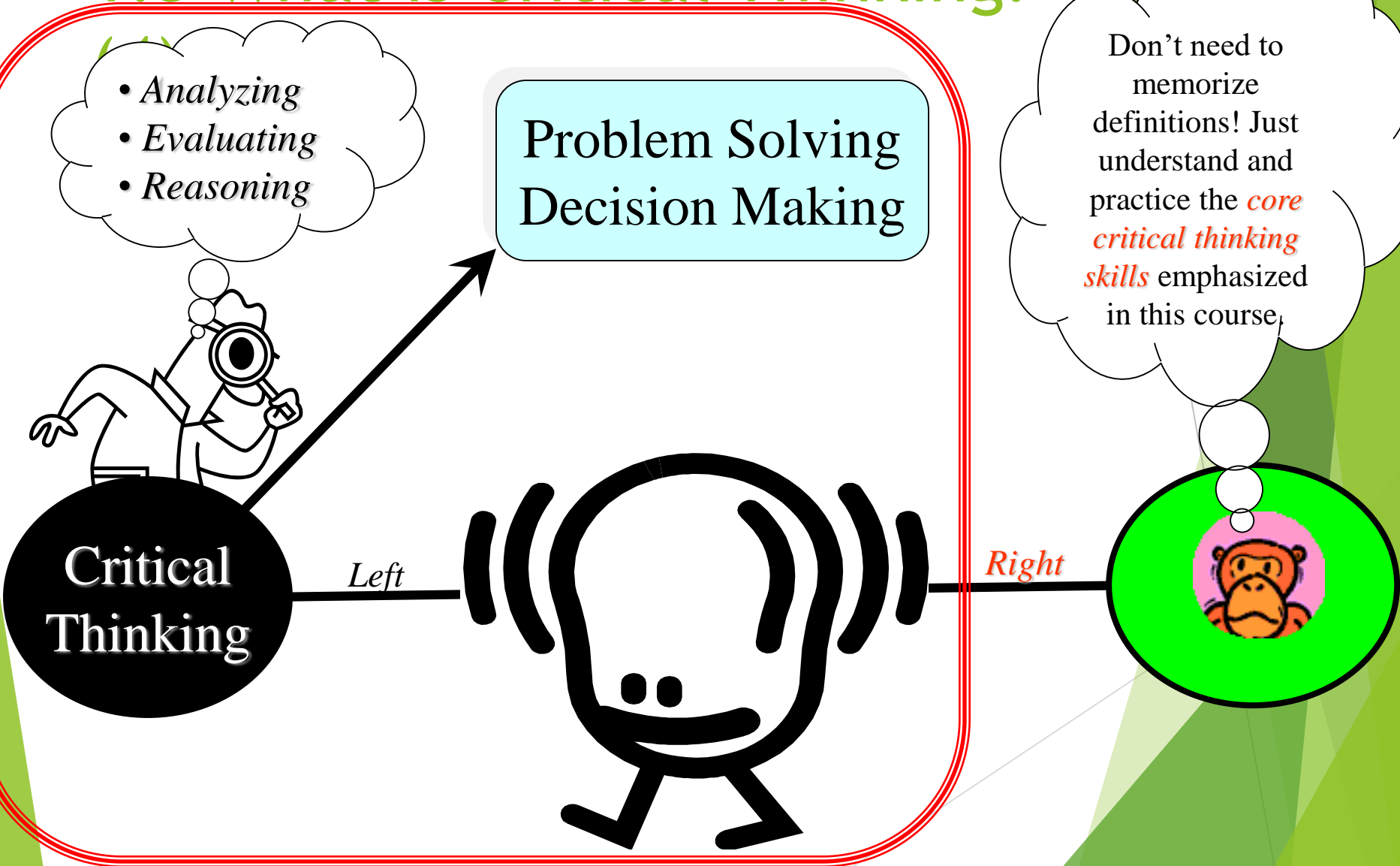


# 1.3 What is Critical Thinking? (3)

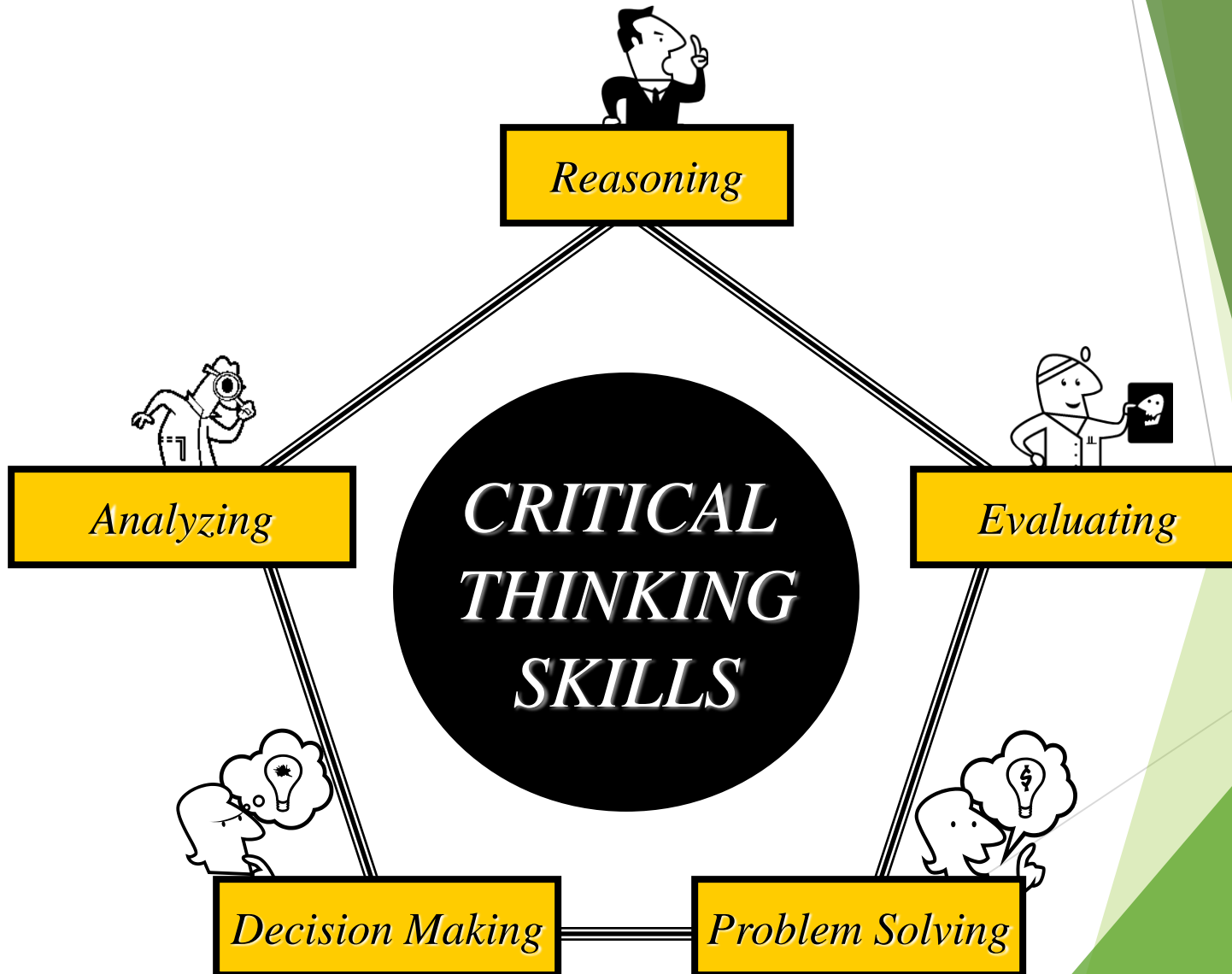
**Critical Thinking** is the general term given to a wide range of cognitive and intellectual skills needed to:

- ▶ Effectively identify, analyze, and evaluate arguments.
- ▶ Discover and overcome personal prejudices and biases.
- ▶ Formulate and present convincing reasons in support of conclusions.
- ▶ Make reasonable, intelligent decisions about what to believe and what to do.

# 1.3 What is Critical Thinking?



# 1.3 What is Critical Thinking? (5)



# Critical Thinking Standards

# 1.4 Critical Thinking Standards (CTS)

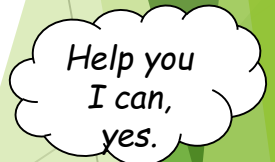
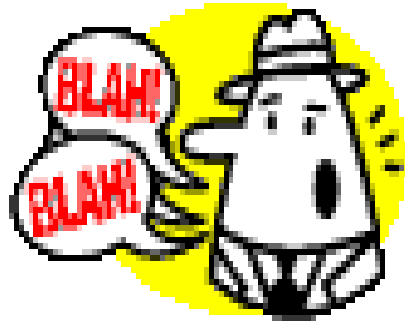
The most significant critical (intellectual) thinking standards:

- ▶ Clarity
- ▶ Accuracy
- ▶ Precision
- ▶ Relevance
- ▶ Depth
- ▶ Breadth
- ▶ Logic
- ▶ Fairness



# 1.4 CTS - Clarity

- ▶ Could you elaborate further on that point?
- ▶ Could you express that point in another way?
- ▶ Could you give me an illustration?
- ▶ Could you give me an example?

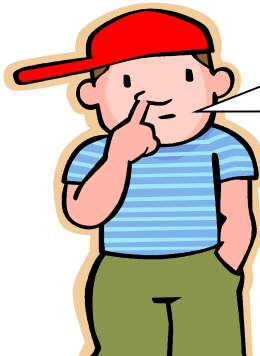


**Clarity is the gateway standard**

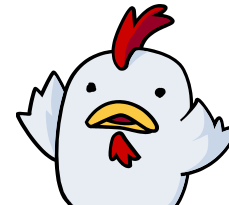


# 1.4 CTS - Accuracy

- ▶ Is that really true?
- ▶ How could we check that?
- ▶ How could we find out if that is true?



This chicken weighs over 300 pounds.



*Powerful you have become, the dark side I sense in you.*

**A statement can be clear but not accurate**



# 1.4 CTS - Precision

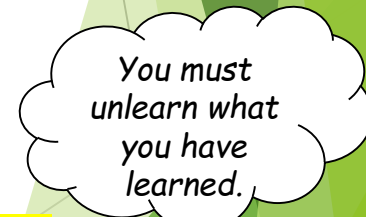
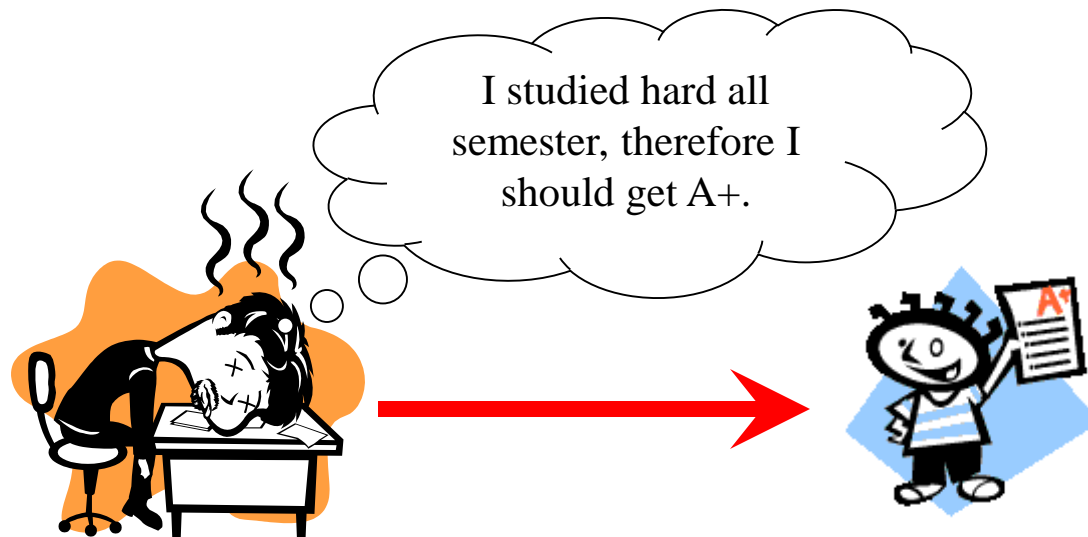
- ▶ Could you give more details?
- ▶ Could you be more specific?



**A statement can be both clear and accurate,  
but not precise**

# 1.4 CTS - Relevance

- ▶ How is that connected to the question?
- ▶ How does that bear on the issue?



**A statement can be clear, accurate, and precise,  
but not relevant to the question at issue.**



# 1.4 CTS - Depth

- ▶ How does your answer address the complexities in the question?
- ▶ How are you taking into account the problems in the question?
- ▶ Is that dealing with the most significant factors?



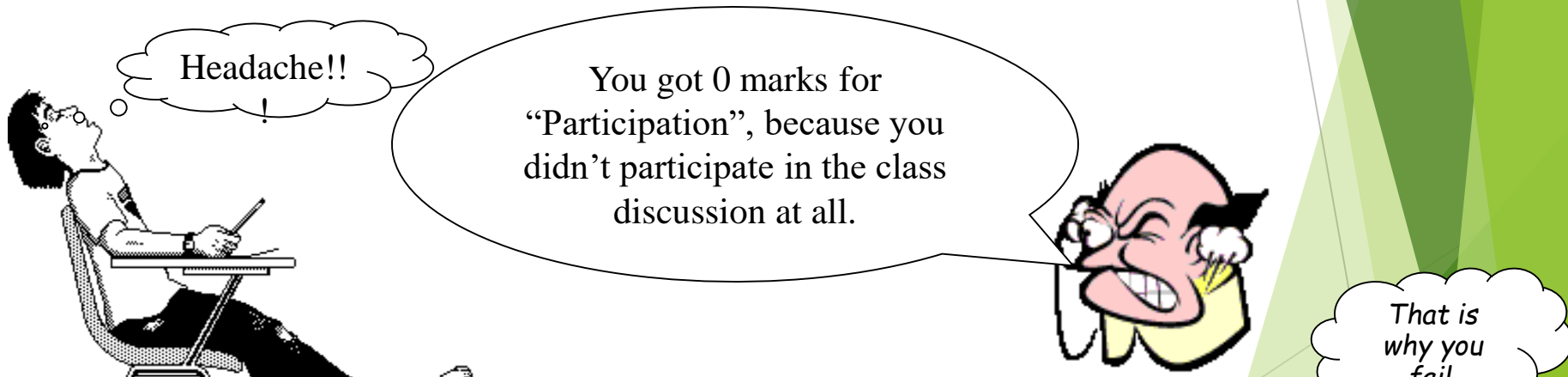
**A statement can be clear, accurate, precise, and relevant, but superficial.**

*Grave danger  
you are in.  
Impatient  
you are.*



# 1.4 CTS - Breadth

- ▶ Do we need to consider another point of view?
- ▶ Is there another way to look at this question?
- ▶ What would this look like from a conservative standpoint?
- ▶ What would this look like from the point of view of...?

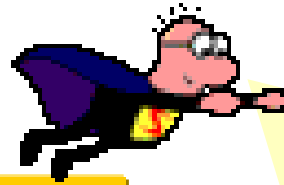


**A line of reasoning may be clear, accurate, precise, relevant, and deep, but lack breadth.**



# 1.4 CTS - Logic

- ▶ Does this really make sense?
- ▶ Does that follow from what you said?
- ▶ How does that follow?
- ▶ But before you implied this and now you are saying that; how can both be true?



Superman sees through anything.  
Superman sees through walls.  
Superman sees through You.



**When the combination of thoughts are mutually supporting and make sense in combination, the thinking is "logical."**

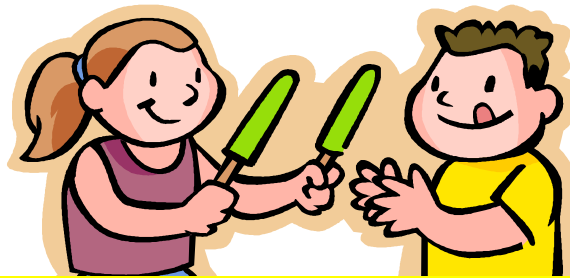
May the force be with you.



# 1.4 CTS - Fairness

*Critical thinking demands that our thinking be fair.*

- ▶ Open-minded
- ▶ Impartial
- ▶ Free of distorting biases and preconceptions



**Fair-mindedness is an essential attribute of a Critical Thinker.**

Difficult to achieve, but you must try!



# 1.4 CTS - Good Thinking is...

**CLEAR**.....rather than.....UNCLEAR

**ACCURATE**.....rather than.....INACCURATE

**PRECISE**.....rather than.....VAGUE

**RELEVANT**.....rather than.....IRELEVANT

**CONSISTENT**...rather than.....INCONSISTENT

**LOGICAL**.....rather than.....ILLOGICAL

**COMPLETE**.....rather than.....INCOMPLETE

**FAIR**.....rather than.....BIASED

# Benefits of Critical Thinking

# 1.5 Benefits of Critical Thinking

## *Examples:*

### ▶ **Academic Performance**

- ▶ understand the arguments and beliefs of others
- ▶ Critically evaluating those arguments and beliefs
- ▶ Develop and defend one's own well-supported arguments and beliefs.

### ▶ **Workplace**

- ▶ Helps us to reflect and get a deeper understanding of our own and others' decisions
- ▶ Encourage open-mindedness to change
- ▶ Aid us in being more analytical in solving problems

### ▶ **Daily life**

- ▶ Helps us to avoid making foolish personal decisions.
- ▶ Promotes an informed and concerned citizenry capable of making good decisions on important social, political and economic issues.
- ▶ Aids in the development of autonomous thinkers capable of examining their assumptions, dogmas, and prejudices.

# Barriers to Critical Thinking

# 1.6 Barriers to Critical Thinking

If Critical Thinking is so important, why is it that *uncritical thinking is so common?*

Why is that so many people including many highly educated and intelligent people *find critical thinking so difficult?*



# 1.6 Barriers to Critical

Thinking

## Common Barriers

- |   |   |
|---|---|
| ▶ Lack of relevant background information | ▶ Distrust of reason                      |
| ▶ Poor reading skills                     | ▶ Stereotyping                            |
| ▶ Poor listening skills                   | ▶ Unwarranted assumptions and stereotypes |
| ▶ Bias                                    | ▶ Relativistic thinking                   |
| ▶ Prejudice                               | ▶ Scapegoating                            |
| ▶ Superstition                            | ▶ Rationalization                         |
| ▶ Egocentrism                             | ▶ Wishful thinking                        |
| ▶ Socio-centrism                          | ▶ Short-term thinking                     |
| ▶ Peer pressure                           | ▶ Selective perception / attention        |
| ▶ Mindless Conformism                     | ▶ Selective memory                        |
| ▶ Mindless non-conformism                 | ▶ Overpowering emotions                   |
| ▶ Provincialism                           | ▶ Self-deception                          |
| ▶ Narrow-mindedness                       | ▶ Face-saving                             |
| ▶ Closed-mindedness                       | ▶ Fear of change                          |

# 1.6 Barriers to Critical Thinking

Five **Powerful Barriers** to Critical Thinking:

**Egocentrism**

**Sociocentrism**

**Unwarranted Assumptions**

**Wishful Thinking**

**Relativistic Thinking**

## Self-centered thinking

- *self-interested thinking*
- *self-serving bias*

## Group-centered thinking

- *Group bias*
- *Conformism*

## Beliefs that are presumed to be true without adequate evidence or justification

- *Assumption*
- *Stereotyping*

## Believing that something is true because one wishes it were true.

## The truth is “just a matter of opinion”

- *Relativism*
  - Subjectivism*
  - Cultural relativism*

I am probably the greatest thinker since Socrates!

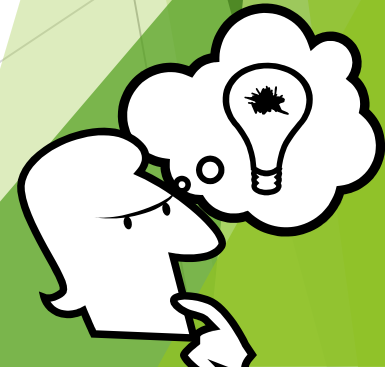


## 1.6 Mini Quiz - Question 1

In a 1989 international study of 13-year-olds, Koreans finished first in mathematics and Americans finished last. Yet when asked whether they thought they were "good at mathematics," only 23 percent of Koreans said "yes," compared to 68 percent of Americans.

Which critical thinking barrier do the American students exhibit:

- A) Self-interested thinking
- B) Group bias
- C) Self-serving bias
- D) Conformism



# 1.6 Mini Quiz - Question 2

Muhammad Ali [speaking in Zaire, Africa]: "There's no country as great as the smallest city in America. I mean [here in Zaire] you can't watch television. The water won't even run right. The toilets won't flush. The roads, the cars- there's nothing as great as America."

Which critical thinking barrier does Ali display in this passage?

- A) Self-interested thinking
- B) Group bias
- C) Self-serving bias
- D) Conformism



# 1.6 Mini Quiz - Question 3

*Adam:* My friend Andy is a 1<sup>st</sup> year student at UNITAR. He is cool, loves hanging out, and has a very laid-back personality.

*Lee:* I bet he's from KL.

Which critical thinking barrier does Lee exhibit?

- A) Self-interested thinking
- B) Stereotyping
- C) Group bias
- D) Conformism



# 1.6 Mini Quiz - Question 4

*Suzie*: I can't believe I got a B- on this marketing paper. My friend *Sarah* turned in this same paper in a different marketing class last semester, and she got an A.

*Ali* : Don't you realize it's wrong to plagiarize someone else's work?

*Suzie*: That's your opinion. What's wrong for one person isn't necessarily wrong for another, and *I* say there's nothing wrong with plagiarism- as long as you don't get caught.

Which critical thinking barrier does Suzie exhibit?

- A) Stereotyping
- B) Self-interested thinking
- C) Wishful thinking
- D) Relativistic thinking



# Characteristics of a Critical Thinker

# 1.7 Characteristics of a Critical Thinker

Are you OPEN MINDED about other people's view?

Are you HONEST to yourself (or others) when you are wrong?

Do you have the COURAGE and PASSION to take initiative and confront problems and meet challenges?

Are you AWARE of your own biases and preconceptions?

Do you WELCOME CRITICISM from other people?

Do you have INDEPENDENT opinions and are not afraid to disagree?

The Force,  
I sense is  
with you.



## Critical Thinkers

## Uncritical Thinkers

Have a **passionate** drive for clarity, precision, accuracy, relevance, consistency, logicalness, completeness, and fairness.

Often think in ways that are unclear, imprecise, inaccurate, etc.

Are **sensitive** to ways in which critical thinking can be skewed by egocentrism, sociocentrism, wishful thinking, etc.

Often fall prey to egocentrism, sociocentrism, wishful thinking, etc.

Are intellectually **honest** with themselves, acknowledging what they don't know and recognizing their limitations.

Pretend they know more than they do and ignore their limitations.

Listen **open-mindedly** to opposing points of view and **welcome criticisms** of beliefs and assumptions.

Are close-minded and resist criticisms of beliefs and assumptions.

Base their **beliefs on facts and evidence** rather than on personal preference or self-interest.

Often base their beliefs on mere personal preference or self interest.

Are **aware of the biases and preconceptions** that shape the way they perceive the world.

Lack awareness of their own biases and preconceptions.

**Think independently** and are not afraid to disagree with group opinion.

Tend to engage in 'group think', uncritically following the beliefs and values of the crowd.

Are able to **get to the heart of an issue or problem**, without being distracted by details.

Are easily distracted and lack the ability to zero in on the essence of a problem or issue.

Have the **intellectual courage** to face and assess fairly ideas that challenge even their most basic beliefs.

Fear and resist ideas that challenge their basic beliefs.

**Love truth** and **curious** about a wide range of issues.

Are often relatively indifferent to truth and lack of curiosity.

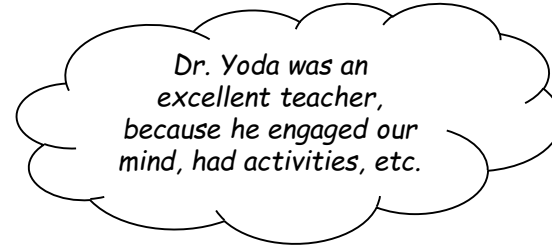
Have the **intellectual perseverance** to pursue insights or truths, despite obstacles or difficulties.

Tend to preserve when they encounter intellectual obstacles or difficulties.

# Group Activity

Break into groups of 4-5, and then discuss, identify and rank the Top 10 characteristics/traits/behaviours of an **EXCELLENT:**

1. **LECTURER**
2. **STUDENT**



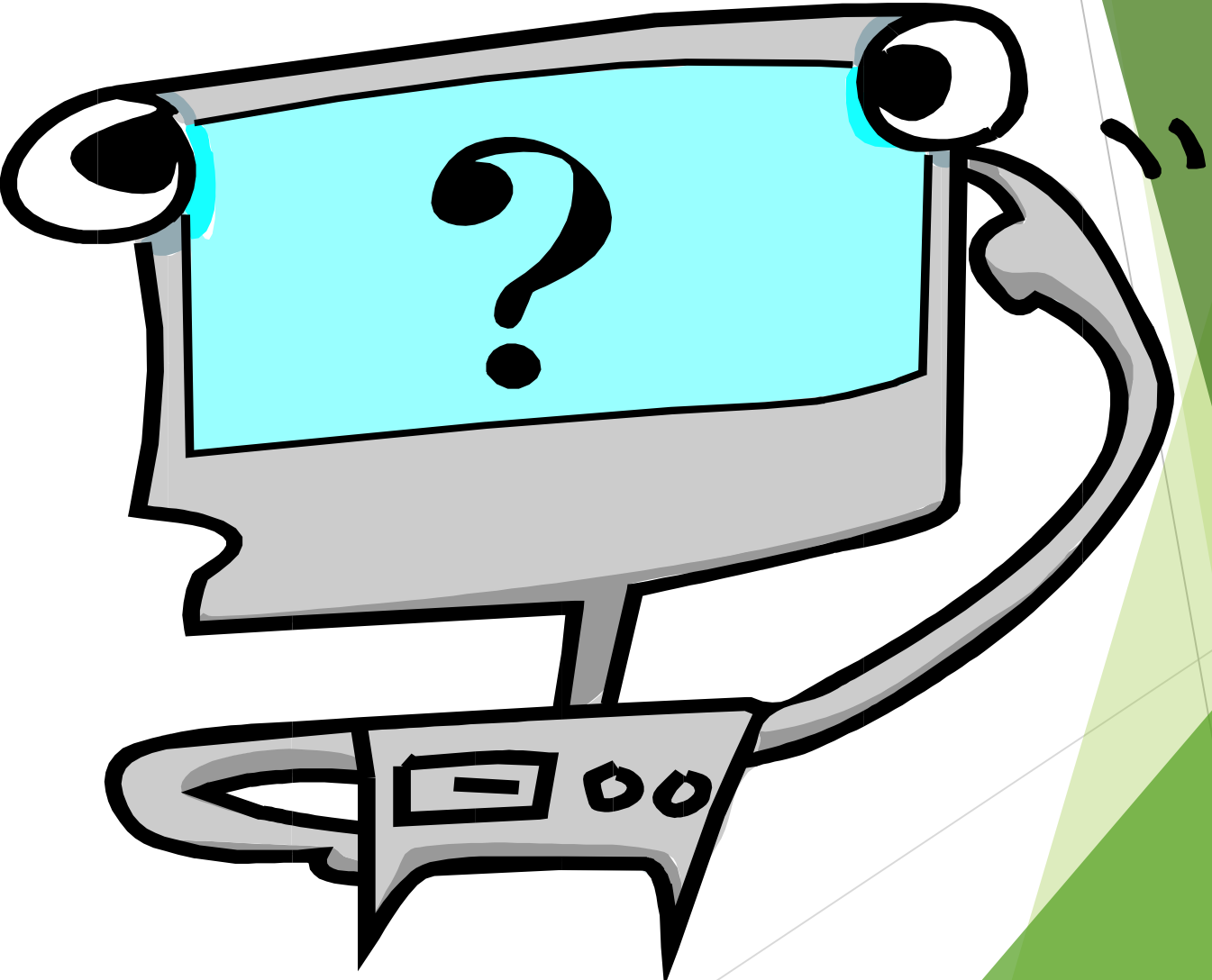
Choose one member of your group to take notes and be the group reporter

<b>10 min</b>	Brainstorm together and identify <b>10</b> characteristics for each item above. (e.g. try to remember the best lecturer(s) you have ever had and then identify their characteristics...).
<b>5 min</b>	Prioritize and rank the chosen characteristics of each item above according to importance (e.g. Top 10).
<b>15 min</b>	Group presentation & discussion
-	The Group reporter must submit their findings in hard copy format after the class (use template) or soft-copy format to the lecturer before next class.

# Summary

<b>1. What is Thinking?</b>	Thinking is a purposeful, organized cognitive process that we use to make sense of our world.
<b>2. Types of Thinking</b>	<i>Creative &amp; Critical Thinking</i>
<b>3. What is Critical Thinking?</b>	Critical Thinking is the general term given to a wide range of cognitive and intellectual skills needed to: Effectively identify, analyze, and evaluate arguments; Discover and overcome personal prejudices and biases; Formulate and present convincing reasons in support of conclusions; and Make reasonable, intelligent decisions about what to believe and what to do. Critical thinking skills emphasized in this course, include: <i>Reasoning, Analyzing, Evaluating, Decision Making and Problem solving.</i>
<b>4. Critical Thinking Standards</b>	<i>Clarity, Accuracy, Precision, Relevance, Depth, Breadth, Logic and Fairness</i>
<b>5. Benefits of Critical Thinking</b>	<i>Academic performance, workplace and daily life.</i>
<b>6. Barriers to Critical Thinking</b>	Examples include <i>Egocentrism, Sociocentrism, Unwarranted Assumptions, Wishful Thinking, and Relativistic Thinking</i>
<b>7. Characteristics of a Critical Thinker</b>	<i>Open-mindedness, independent thinking, self-aware, passionate, insightful, honest and intellectual humility, intellectual courage, and welcome criticism, etc.</i>

Any Questions?



# Reference and sources

1. Critical Thinking and Problem Solving: Advanced Strategies and Reasoning Skills to Increase Your Decision Making. A System... by Carl Patterson, Chris del Camino
2. Critical Thinking and Problem Solving: Advanced Strategies and Reasoning Skills to Increase Your Decision Making. A Systematic Approach to Master Logic, Avoid Mistakes and Be a Creative Problem Solver by Carl Patterson, Chris del Camino
3. Thinking Skills: Critical Thinking and Problem Solving by John Butterworth and Geoff Thwaites | Apr 18, 2013
4. Critical Thinking: How to Improve Your Critical Thinking Skills, Problem Solving Skills, and Avoid the 25 Cognitive Biases in Decision-Making by Scott Lovell and Timothy Burke
5. Beginners Guide to Critical Thinking and Problem Solving: Become a Better Critical Thinker & Problem Solver, by Using Secret Tools & Techniques that Will .! by Pamela Hughes, Samantha Novak, et al.
6. Understanding A3 Thinking: A Critical Component of Toyota's PDCA Management System by Durward K. Sobek II and Art Smalley | Mar 7, 2008

The End

