THINKING SKILL

Critical Thinking & Creativity for IEG

Prof. Ir. Dr. Sevia Mahdaliza Idrus

UHMT1012 Sec32 Sem I Session 20202021 - Slide 3

Course Content & Plan

Week 4 (11/11/20) : Global Citizen Skills

- Social Work, Cross Cultural & Global Issues
- **3 Minutes Talk 1 : Group Assignment**

Week 5 (18/11/20) : Thinking Skills

- Critical thinking & Creativity
- **3 Minutes Talk Individual Assignment 1: My Successful Icon**

Week 6 (25/11/20) : Enterprising Skills

- Entrepreneurial mindset
- **3 Minutes Talk Individual Assignment 1: My Successful Icon**

Week 7 (02/12/20) : Independent Study

- **Group Discussion : MoM #2**
- **Submit Individual Assignment 1 Part 2 : 05/12/20**

Week 8 (09/12/20) : Mid-Semester Break

Week 9 (16/12/20) : Communication Skill

- Effective communication to understand and respect people
- **3 Minutes Talk Individual Assignment 2: My Successful Attributes**

Critical Thinking

"The important thing is not to stop questioning. Curiosity has its own reason for existing"

- Albert Einstein

Critical Thinking on Global Issues

- Group 1: Migrants and refugees
- Group 2: Saving the natural world
- Group 3: Renewable energy
- Group 4: Climate change
- Group 5: Antarctica
- Group 6: Battle for water
- Group 7: Marine pollution

Critical Thinking in Your Life

- **Personal Life**
  - What constitutes a healthy diet?
  - Which investment is better for my family? Why?
- **Professional Life**
  - In what ways can we improve our product?
  - How do the actions of our company affect others? The environment?
- **Academic Life**
  - What are the main points of this text?
  - Which major should I choose…why?
- **Spiritual Life**
  - How do these teachings apply to my life?
  - Are there contradictions in what is being said?

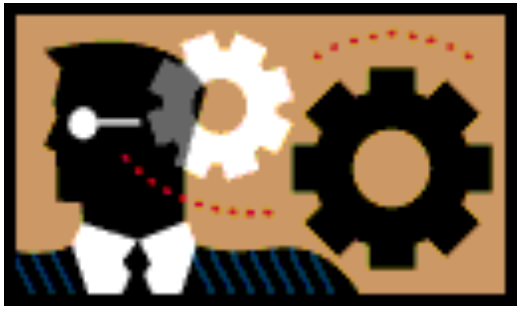
Skills You Should Cultivate

- **Become an active learner**
  - "Chase" answers.
  - Actively seek out solutions.
  - Go to the answer, don't wait for it to come to you.
- **Become open-minded**
  - Is it possible that there are multiple correct answers?
  - You might be wrong. Why?
  - Try and approach problems from a different perspective.
- **Separate Emotions from Facts**
  - "Thinking" and "feeling" are not the same.
- **Avoid Logical Fallacies**
  - 2 + 2 = 5. Incorrect.

Active Learning

- Attend class regularly
  - Take advantage of extra credit opportunities.
  - Participate in discussions.
  - Talk with your professors.
- Read textbooks
  - Take notes and outline information.
  - Review notes and try to put them in your own words.
- Attend Tutoring and Online Talk
  - UTM &FE Webinar – its free
  - Engineering.utm.my
- Take the new information you have gathered, try it out and experiment with it.
  - Why is it relevant?
  - What does it mean?
  - What is the purpose of knowing the information?

Things to Keep in Mind



- **Keep an open mind**
  - Your perspective is yours. Others have different perspectives.
  - It is possible that you are “wrong” and that others are “right”.
  - Get comfortable with being “wrong”. Learn from it.
  - Consider many different viewpoints.
  - Accept a new explanation if it explains the evidence better and has fewer contradictions.
- **Think before you act**
  - Separate your feelings from the facts.
  - Am I acting because of an emotional impulse, or because it is logical?
  - Do I believe something because of the logic behind it?

Avoid Logical Fallacies

- A ***logical fallacy*** is a misunderstanding derived from faulty reasoning.
- Avoid contradictions between answers.
- Is your best answer a logical answer? Does it makes sense?
- Example of a Logical Fallacy:
  - Hasty Generalization
    1. Cutting people with a knife is a crime.
    2. Surgeons cut people with knives.
    3. Therefore surgeons are criminals.

Avoid Logical Fallacies

Keyboard Warrior!!!!!

Avoid Logical Fallacies

You must be willing to say, "I don't know."

And then be willing to do something to change that.

Critical Thinking is NOT driven by **answers**;
It IS driven by the **questions** that you ask.

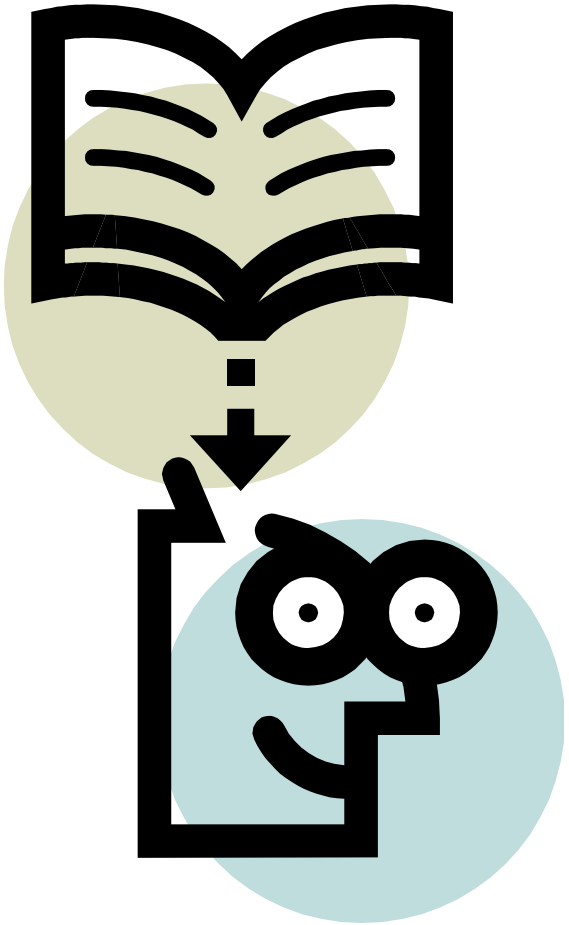
Constantly Ask Questions

For example: Suppose you have just read an article says that the number of PUI/PUS Covid-19 are many in Johor Bahru and the numbers are increasing.

- Why?
  - Why is the PUI/PUS increasing? Is there an abundance of +Ve Covid19?
- What?
  - What effect is this increase having on PUI/PUS in Skudai?
- Where?
  - Where is the PUI/PUS increasing? Is it all over the JB, or just in isolated locations?
- Who?
  - Who is affected by the increase in the PUI/PUS? Are the local business affected? UTM?
- When?
  - When did this increase begin occurring? How long will the increase continue?
- How?
  - How can we stabilize and control the infection?

Problem Solving System, Part I

- **Reorganize**
  - List the topic, issues, and main points.
  - Paraphrase.
  - Summarize.
- **Understand**
  - Put concepts into your own words.
  - Relate the information to what you already know.
  - Restate the information.
- **Hypothesize**
  - Make an interpretation of the information based on your understanding of it.
  - This interpretation will then be analyzed logically.



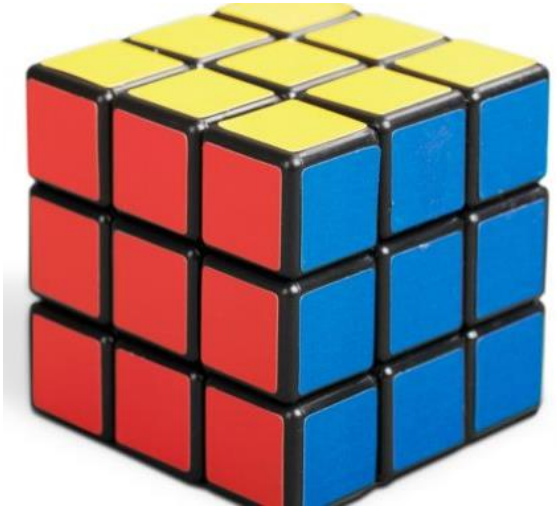
Problem Solving System, Part II

- **Analyze the information**
  - Split the information into parts.
    - Figure out how the ideas are related or connected.
  - Ask questions: Why? What? Where? Who? When? How?
  - Compare and contrast the information.

- **Recombine information**
  - Using your new understanding of the material, put the parts that you analyzed back together.
  - Think of a puzzle…can you put the pieces back together? How do the pieces fit?

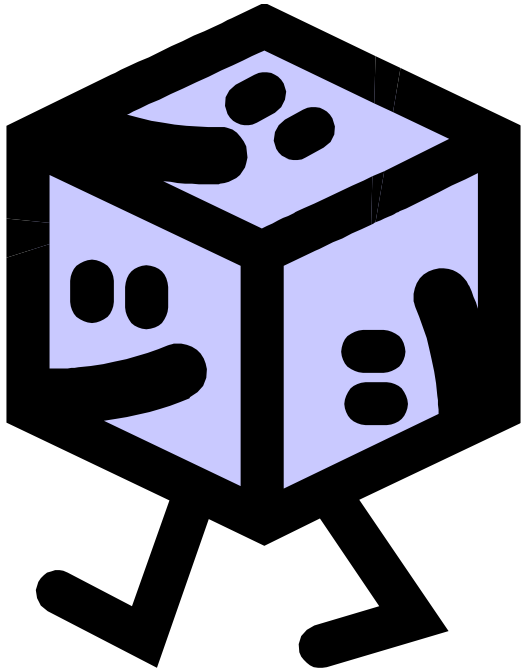
- **Check Hypothesis**
  - See if your new understanding agrees with your hypothesis.

Cubing



- Cubing allows you to look at a subject or problem from six different points of view.
- It is an excellent exercise to illustrate how critical thinking techniques can be put into practice.
- Look to the next slides.
- Do each of the six steps in order, and do them quickly.

Cubing Method



Step 1: Describe (3-5 min)

- Write in detail about the subject. What the subject looks like, feels like, etc.

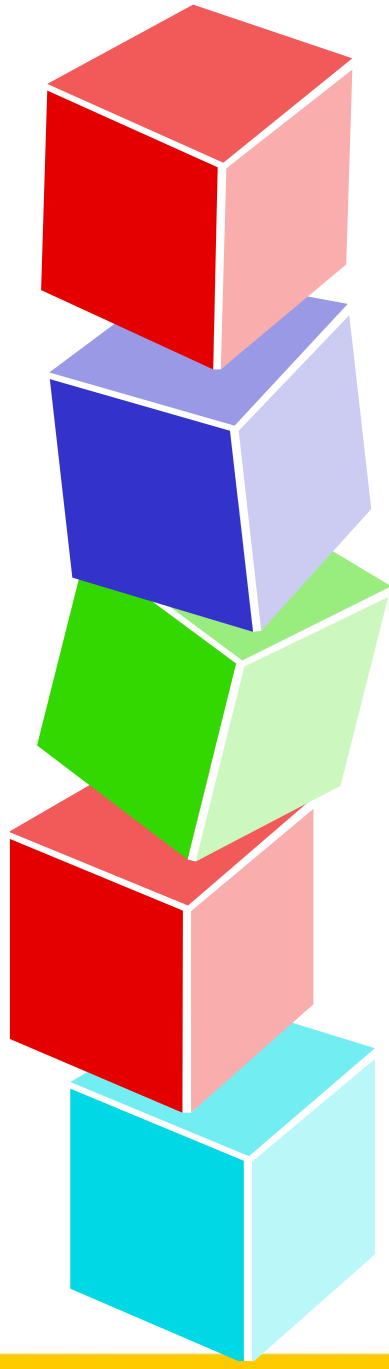
Step 2: Compare/Contrast (3-5 min)

- What is similar to your subject? How are they similar?
- How does your subject differ?

Step 3: Associate (3-5 min)

- Relate the subject to some of your memories.
- What comes to mind when you think of the subject?
- This side of the cube should be very personal.

Cubing Method, cont'd.



Step 4: Analyze (3-5 min)

- Break the subject down into parts, and explain the significance of each.
- Interpret the meaning of the topic.

Step 5: Apply (3-5 min)

- How can you use the subject?
- Is there any way to apply this subject?

Step 6: Argue (5 min)

- Take both sides of the subject.
- Argue for the subject.
- Argue against the subject.
- Remember to keep an open mind.
- Why is this subject important?

Critical Thinking Key Words

Ideally you should always be thinking critically, however, the following words will identify when critical thinking is required. These types of words require **COMPREHENSION AND UNDERSTANDING**, not simple **MEMORIZATION**.

- **Discuss**
- **Explain**
- **Compare and Contrast**
- **Critique**
- **Evaluate**
- **Describe**
- **Define**
- **Enumerate**
- **Illustrate**
- **Interpret**
- **Identify**
- **Outline**
- **Prove**
- **Justify**
- **Relate**
- **Summarize**
- **Trace**

Some Final Tips…

Use the techniques found in this presentation to develop your own strategies for critical thinking.

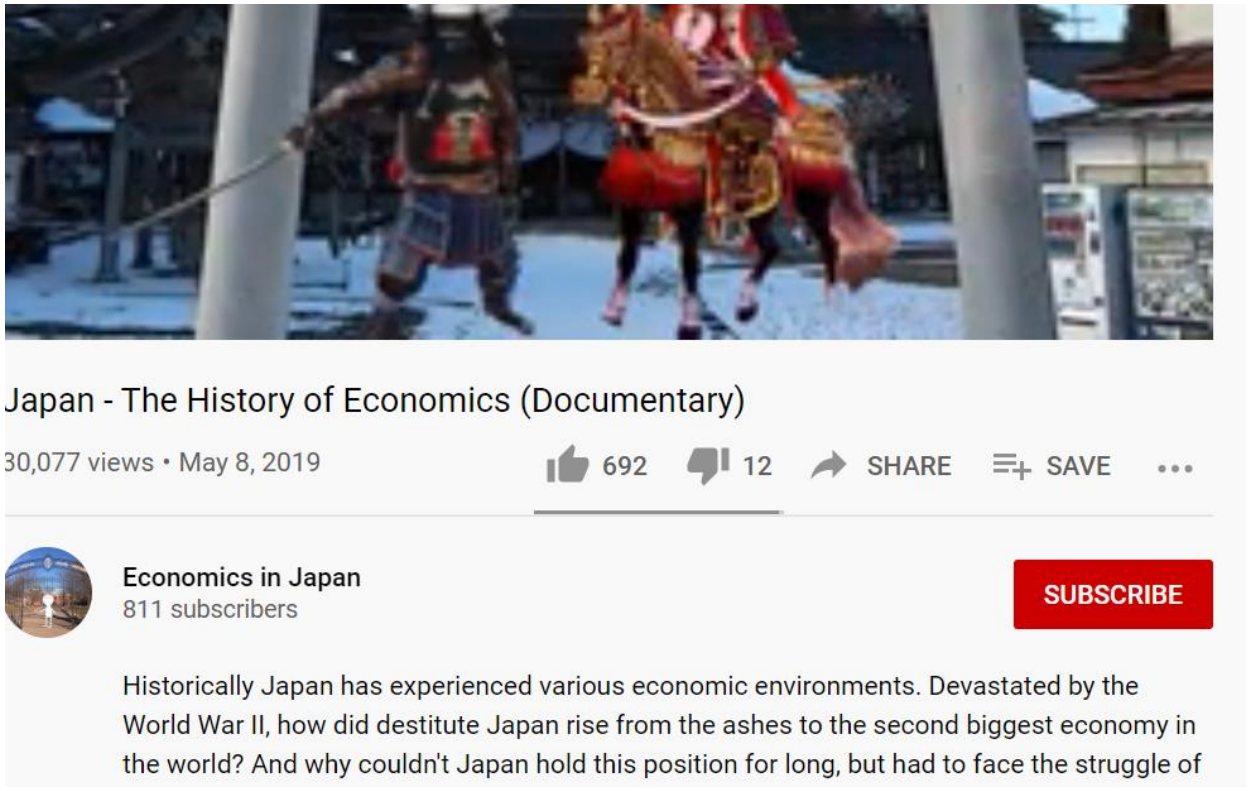
Tailor the concepts to fit your needs. There is no "one size fits all" approach, and every technique may not work for each of your courses.

Create the "this size fits you" approach to developing your critical thinking.

How you apply the concepts to your coursework is your decision.

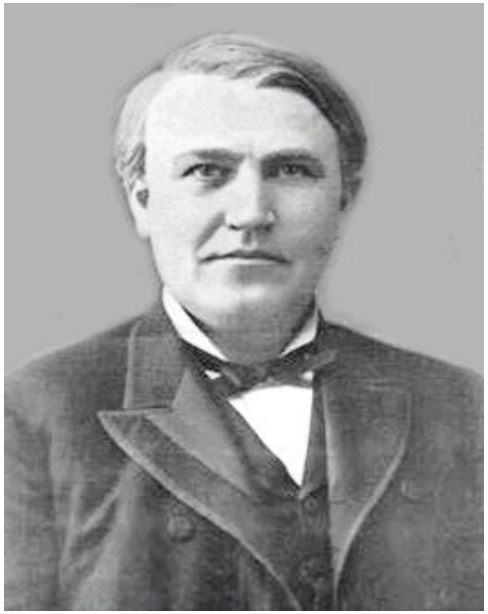
Video of the Week

https://www.youtube.com/watch?v=oFDZOnUb2A4



Kemahiran Berfikir dan Kesedaran Minda

Thinking Skills and Enlightment



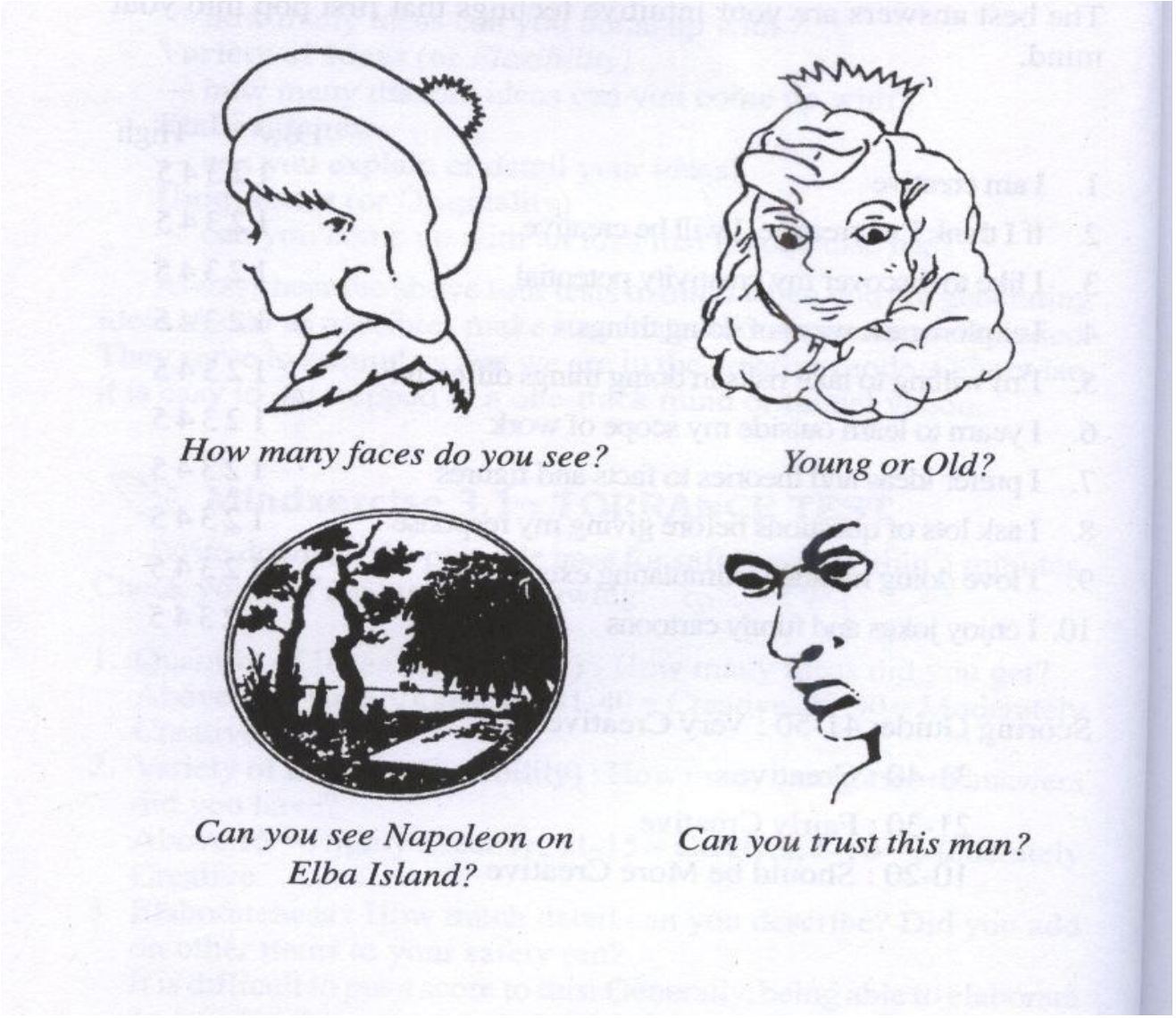
GROUP CREATIVITY – EDISON'S SCIENTIFIC GROUP

Thomas Edison patents total 2,332 during his lifetime.

“Sebatang besi buruk bernilai RM5, jika anda mengambil besi buruk tersebut dan hasilkan ladam kuda nilainya akan bertambah RM50.50, dan jika ia digunakan untuk membuat jarum nilainya akan meningkat kepada RM3,285. Jika anda menghasilkan spring jam ia akan bernilai RM250,000. Perbezaan antara RM5 dan RM250,000 adalah KREATIVITI, REKA CIPTA dan INOVASI”

“Ripley’s Believe It or Not”

Aktifkan minda anda



How many faces do you see?

Young or Old?

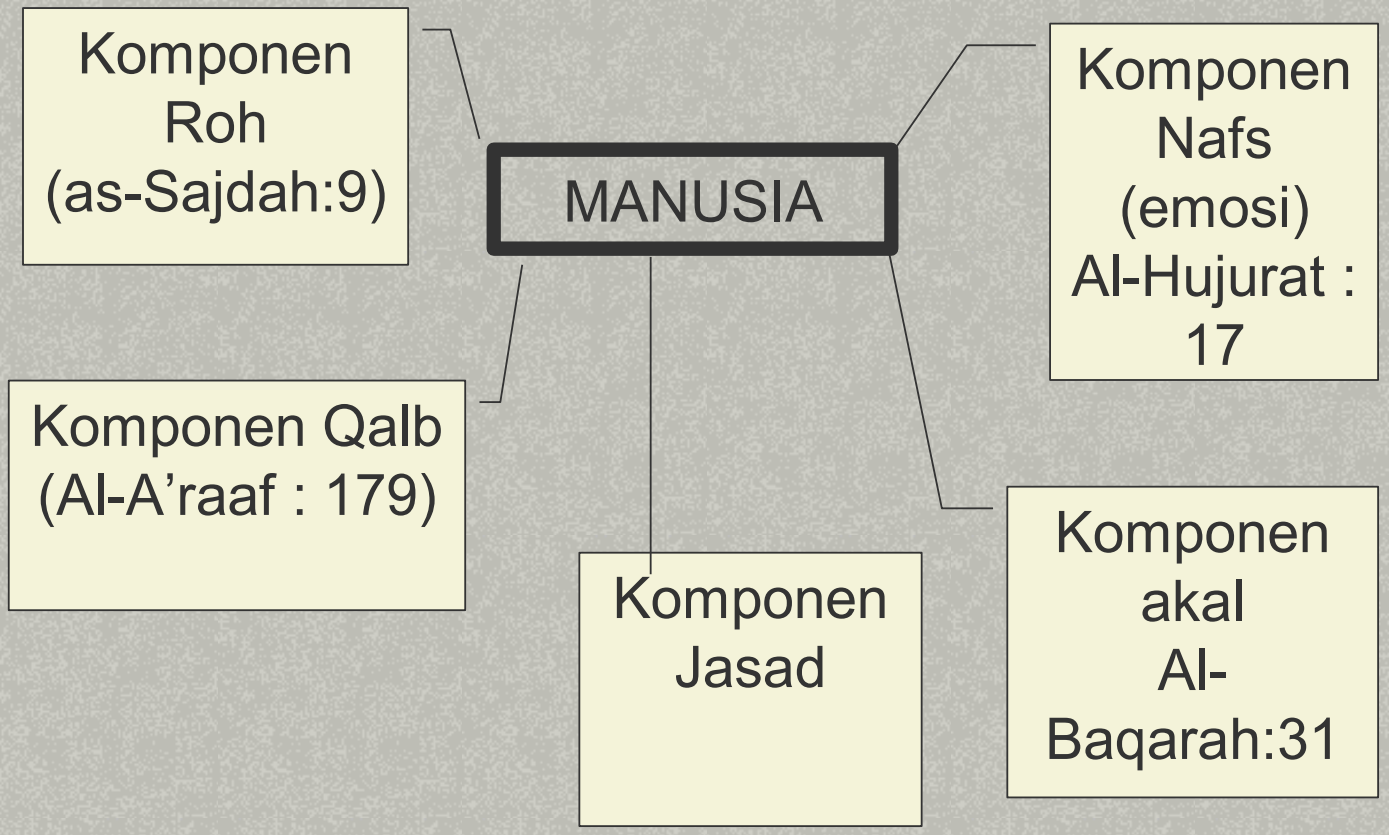
Can you see Napoleon on Elba Island?

Can you trust this man?

Halangan Minda

- Blok persepsi (perceptual blocks)
- Blok emosi (emotional blocks)
- Blok budaya (cultural blocks)
- Blok persekitaran (environmental blocks)
- Blok intelektual (Intellectual blocks)

- Asas komponen pembangunan manusia: (Mohd. Yusuf Othman, 2001)



Spirit, emotion, heart, body, mind

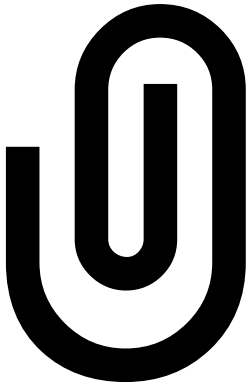
Seorang Perdana Menteri China meraikan kedatangan seorang Presiden dan isterinya dalam satu majlis makan malam beradat. Hanya pinggan mangkuk yang terbaik sahaja yang digunakan. Malah ada antara pinggan mangkuk yang digunakan itu sebenarnya khazanah negara yang tidak ternilai harganya sejak zaman dinasti Ming.

Seorang pembantu Perdana Menteri telah ternampak isteri Presiden tersebut mengambil salah satu daripada mangkuk di situ dan memasukkannya ke dalam tas tangannya. Pembantu itu melaporkan kejadian itu kepada Perdana Menteri. Perdana Menteri serba salah dengan masalah yang dihadapi. Negaranya sama sekali tidak boleh kehilangan khazanah yang sangat berharga itu. Namun, jika ia mendedahkannya, pasti ia akan memalukan Presiden dan isterinya dan menyebabkan perselisihan diplomatik berlaku. Fikirkan penyelesaiannya?


抱き枕
Ⓐピンク
Ⓑブルー
Ⓒグリーン

Stop dreaming and get back to work !

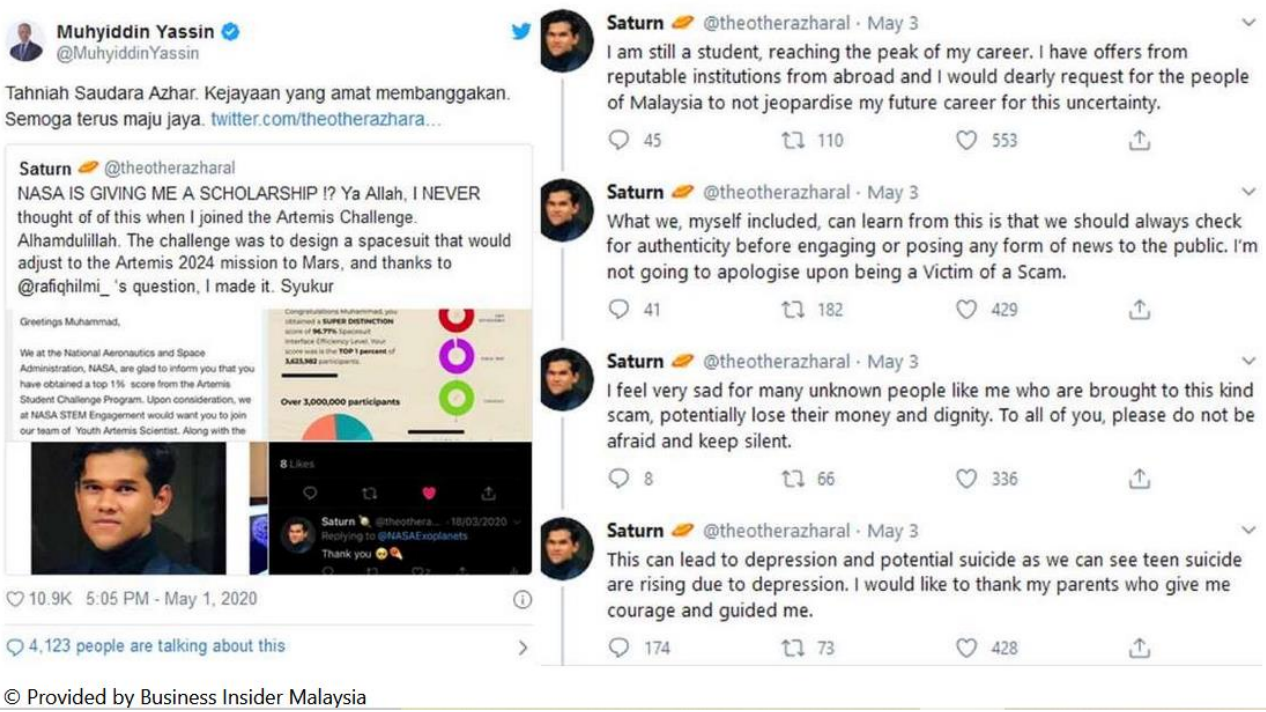
(and be happy with what you´ve got)



Nyatakan 10 kegunaan klip kertas di atas.

Malaysian student who said he scored Nasa scholarship now says he was scammed, after the PM and 2 ministers congratulated him

Jessica Lin 4/5/2020



Source from: https://www.msn.com/en-my/news/national/malaysian-student-who-said-he-scored-nasa-scholarship-now-says-he-was-scammed-after-the-pm-and-2-ministers-congratulated-him/ar-BB13yUix