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**CRITICAL THINKING**  
**DAY 2**

# ACTIVITY 1

**Line up !**



2

Ice-breaking activity.

Ask the participants to arrange themselves according to:

1. Height
2. Weight
3. Age
4. Shoe size
5. Birth date
6. Etc.

Being able to compose is a critical thinking skill.

# WHAT IS CRITICAL THINKING?

- **Awareness of a set of interrelated critical questions**
- **Ability to ask and answer critical questions at appropriate times**
- **Desire to actively use the critical questions**



Listening and reading critically—that is, reacting with systematic evaluation to what you have heard and read—requires a set of skills and attitudes.

Thinking carefully is always an unfinished project, a story looking for an ending that will never arrive. Critical questions provide a stimulus and direction for critical thinking; they move us forward toward a continual, ongoing search for better opinions, decisions, or judgments.

Consequently, critical thinking, as we will use the term, refers to the following:

1. awareness of a set of interrelated critical questions;
2. ability to ask and answer critical questions at appropriate times; and the
3. desire to actively use the critical questions.

# Strategies for Critical Thinking

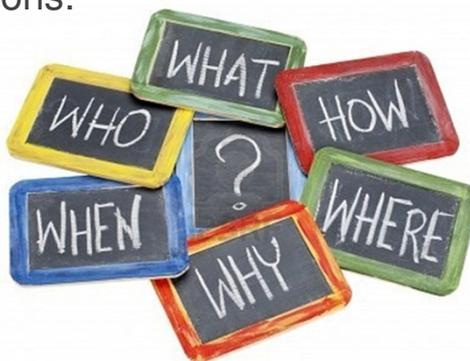
1. Ask basic questions
2. Question basic assumption
3. Avoid Heuristic
4. Reversing Things
5. Evaluate the Existing Evidence
6. Construct Own Conclusion
7. Non-Critical Thinking Sometimes



<https://collegeinfo geek.com/improve-critical-thinking-skills/>

# 1. Ask Basic Question

- Best way to gain deeper insights and develop more innovative solutions.



Sometimes an explanation becomes so complex that the original question get lost. To avoid this, continually go back to the basic questions you asked when you set out to solve the problem.

Here are a few key basic question you can ask when approaching any problem:

1. What do you already know?
2. How do you know that?
3. What are you trying to prove, disprove, demonstrated, critique, etc.?
4. What are you overlooking?

Some of the most breathtaking solutions to problems are astounding not because of their complexity, but because of their elegant simplicity.

# ACTIVITY 2

## Three of a kind



6

In each group, the participants have to come up with at least 10 sets of 'three of a kind'.  
Eg: oren, apple, mango – fruit category.

Other groups have to guess the category.

Can be played as a competition among groups.

Example:

Group A come up with a category: Beetle, bee, butterfly

Group B have to guess the category: Insect

If group B fail to guess, they will be eliminated from the competition.

Play the game until we get a winner.



## 2. Question Basic Assumption



Innovation usually begins by challenging old assumptions

8

### Question assumptions:

When we develop these skills, we will have the ability to look at things that the rest of us take for granted.

Quite often there are lots of ideas you just accepted as a child and have never thought about since.

Most of us accept things which are very wrong simply because we trust the person who told us even though they may be genuinely mistaken as well.

We can challenge our assumptions by **asking a number of questions**.

People with this skill **don't just accept ideas without thinking about them first, BUT** They question their own and others' assumptions.

FOR MORE INFO, READ:

<https://learningbyladders.wordpress.com>

**“Man will not fly for 50 years”  
Wilbur Wright - 1901**

Assumption



*The Wright Brothers had their first successful airplane flight on December 17, 1903 in Kitty Hawk, North Carolina. Their Wright Flyer was the first powered, heavier-than-air machine to achieve controlled, sustained flight with a pilot aboard*

9

In 1901 aviation pioneer, Wilbur Wright made the infamous quote, "Man will not fly for 50 years."

Wilbur Wright said this right after an aviation attempt made by the Wright Brothers failed.

Two years later in 1903, the Wright Brothers did indeed fly in their first successful flight, the first manned airplane flight ever made.

# ACTIVITY 4

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What are the 10 most important jobs in the world?

Do you want to do any of these jobs when you are an adult?



Group activity – 15 minutes.

Mode of implementation depends on trainers creativity!

Ask the participants to list down and discuss in the group.

Then share the information with neighboring group, and argue.

## TOP 10 SKILLS IMPORTANT IN THE WORKFORCE

### 2015

1. Complex Problem Solving 
2. Coordinating with Others 
3. People Management 
4. Critical Thinking 
5. Negotiation 
6. Quality Control 
7. Service Orientation 
8. Judgement and Decision Making 
9. Active Listening 
10. Creativity 

### 2020

1. Complex Problem Solving 
2. Critical Thinking 
3. Creativity 
4. People Management 
5. Coordinating with Others 
6. Emotional Intelligence 
7. Judgement and Decision Making 
8. Service Orientation 
9. Negotiation 
10. Cognitive Flexibility 

Source: Future of Job Reports, World Economic Forum; <http://teacherlinkyetc.blogspot.my>

## 3. Avoid Heuristic

- ❑ Heuristic: A mental shortcut to simplify decision making.
  
- ❑ Oxford Def:
  - ❑ A method of solving a problem for which no algorithm exists.
  - ❑ It involves trial and error, and repetition.
  
- ❑ Example:
  - ❑ "Rule of thumb" applies a broad approach to problem solving. It is a simple heuristic that allows an individual to make an approximation without having to do exhaustive research.



Heuristic is an approach to problem solving that takes one's personal experience into account.

Heuristics are also known as mental shortcuts, help people make decisions based on limited information, but can result in cognitive biases.

Cognitive bias is systematic error in thinking that affects the decisions and judgments that people make.

Some of these biases are related to memory.

The way you remember an event may be biased for a number of reasons and that in turn can lead to biased thinking and decision-making.

FOR MORE INFO, READ:

<http://examples.yourdictionary.com/examples-of-heuristics.html#ukDGagOXdYG44vkE.99>

<https://lumen.instructure.com/courses/170090/pages/the-good-and-bad-of-mental-shortcuts>

# ACTIVITY 5

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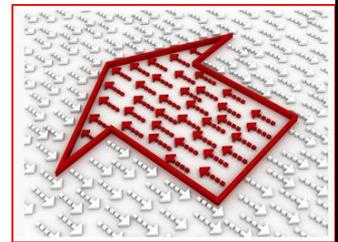
List down 5 common sense you always use and don't think about.



The participants should write down 5 common sense each and share among their friend.

## 4. Reverse Things

- Scientists have proved that a genius way to find a solution for difficult problems is to try reversing everything.
- How to reverse things?
  - Opposites
  - Turn it around
  - Turn it upside-down
- Example to solve problem:
  - think of the deadline and plan your work to meet the deadline.
  - Crime scene investigator find a clue/evidence from the crime scene.



14

Scientists have proved that a genius way to find a solution for hard problems is to try reversing everything.

It seems obvious that chicken lays eggs so they must have come first. But, on the second thought, where did the chicken come from? Did it come from eggs? So, eggs must come first!

Whenever you think about one problem, remember this chicken and eggs story. One thing seems to be the cause can actually be the result and conversely.

Looking at a different point of view can help you to think more critically and find the solution more effectively.

# ACTIVITY 6

**Backward  
Day**



15

Here are some of the suggestion for the activities that can be conducted:

1. Plan relay races in which students race backwards.
2. Read a book backwards.
3. Have a contest: Who can recite the alphabet backwards fastest?
4. When it's time to line up, let the person at the end of the line go first.
5. Sing a round song -- like "Row, Row, Row Your Boat" -- backwards.
6. Challenge older students to find as many palindrome words as they can.

A palindrome word is a word that is spelled the same frontward and backward. For example: pop, toot, deed, refer

**Play it backward!**

**Play to 'loose'.**



## 5. Evaluate the Existing Evidence

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- When trying to solve a problem, look at other work that has been done in the same area.
  
- It's important, however, to evaluate this information critically, or else you can easily reach the wrong conclusion.



There's no reason to start solving a problem from scratch when someone has already laid the groundwork.

Ask the following questions of any evidence you encounter:

- Who gathered this evidence?
- How did they gather it?
- Why?

For example, if you wanted to start up a new social network, look back at the following:

- Facebook, twitter, Instagram, WhatsApp etc

# ACTIVITY 7

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# NEW DESIGN

Participants are required to propose new design of any of their selected items.

Eg: Car, Clothes, Motorbike, Computer, Phones, phone apps, games etc.

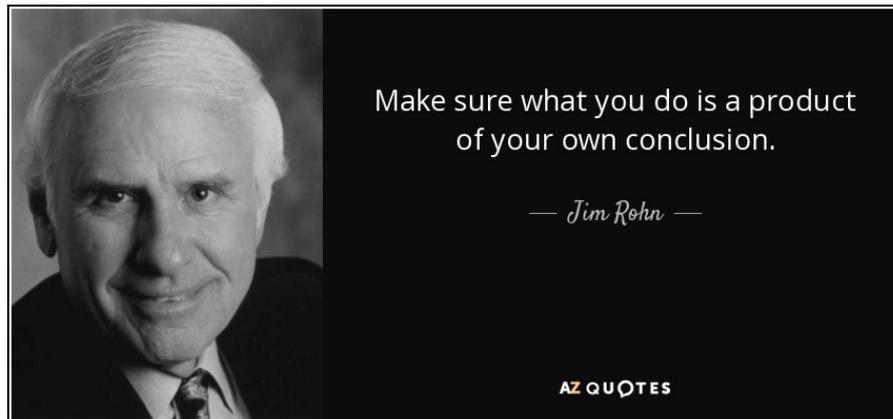
If they choose computer, ask them to look at the design at the market.

Ask them: why that design was chosen by that company.

Based on this info, design their own computer.

## 6. Construct Own Conclusion

Draw your own conclusion.



Critically thinking about something means formulating your own opinions and drawing your own conclusions.

This happens regardless of outside influence. It's about the discipline of analysis, and seeing the connections between ideas.

**For More Info, READ:**

<https://globaldigitalcitizen.org/12-strategies-teaching-critical-thinking-skills>

# ACTIVITY 8

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How to solve the problem  
of smelly toilet in school?

Give your own solution.



Throw an issue to be solved in your school to the participants.

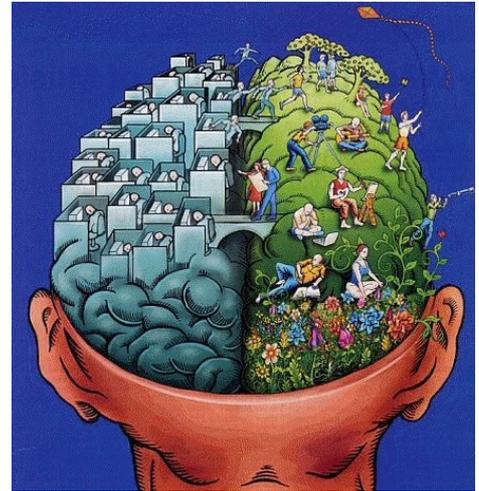
Ask them to generate as much as possible ideas, as the solution.

For Example: Smelly Toilet in school.

It could be any other issue in your school.

## 7. Non-Critical Thinking Sometimes

- ❑ Critical thinking is a tool that you should deploy when you need to make important decisions or solve difficult problems, but you don't need to think critically about everything!



21

Our critical thinking ability varies according to our current mindset, most of the time we can learn to improve our critical thinking ability by developing certain routine activities and applying them to all problems that present themselves.

Read more at: <https://www.skillsyouneed.com/learn/critical-thinking.html>

# ACTIVITY 9

Give example of 5 actions which you solved without thinking much?

What was the outcome?

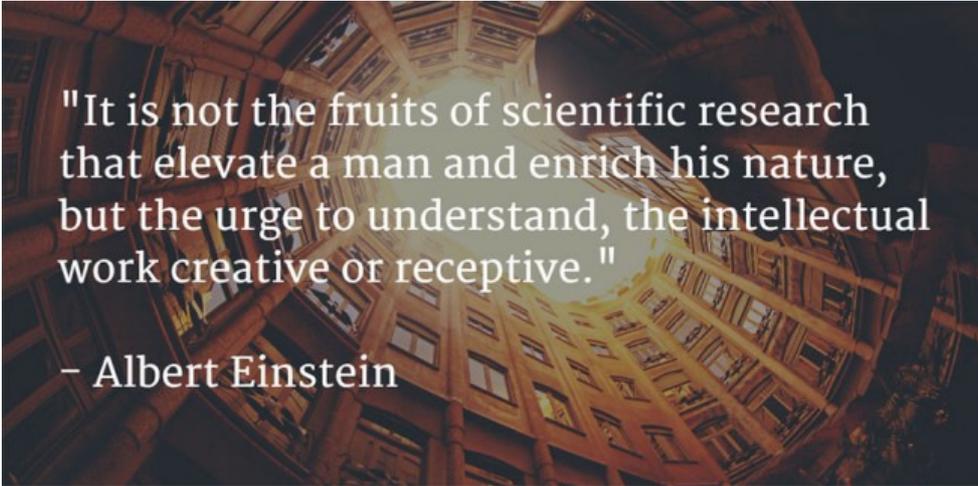
Example	Outcome	Reason
Hungry – ate Nasi Lemak	Not hungry anymore, but got stomach ache.	Shop not clean.

Give more examples:

1. Started to rain while walking to school.

## Conclusion

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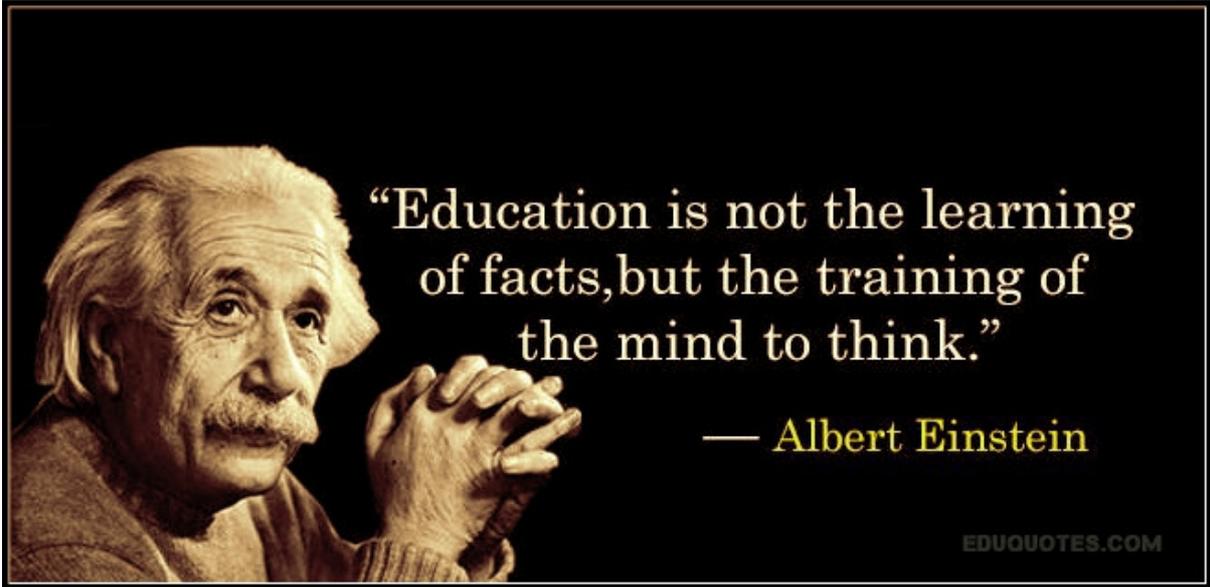


"It is not the fruits of scientific research that elevate a man and enrich his nature, but the urge to understand, the intellectual work creative or receptive."

– Albert Einstein

As I hope you now see, learning to think critically will benefit you both in the classroom and beyond.

Remember: learning to think critically is a lifelong journey, and there's always more to learn.



THANK  
YOU

# APPENDIX



# 6 KEYS TO CRITICAL THINKING

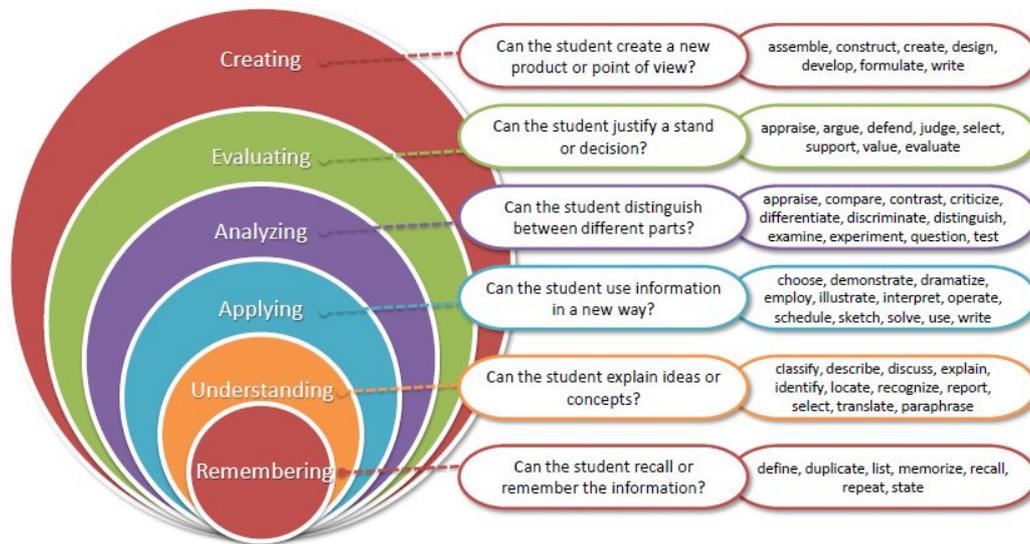


27

FOR MORE INFO, READ:

<http://learningcommons.ubc.ca/student-toolkits/thinking-critically/>

# Bloom's Taxonomy (Revised)



28

FOR MORE INFO, READ:

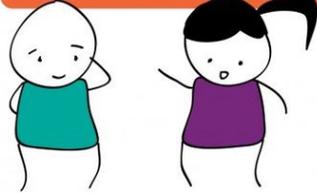
<http://getchildrenoutdoors.com/tag/blooms-taxonomy-of-learning/>

## Questions a Critical Thinker Asks

Remembering

**What's Happening?**

Gather the basic information and begin to think of questions



**Why Is It Important?**

Ask yourself why it's significant and whether or not you agree

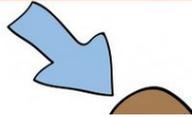


Understanding

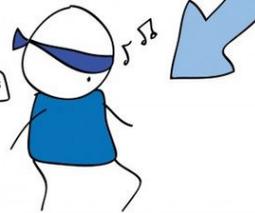
Applying

**What Don't I See?**

Is there anything important missing?

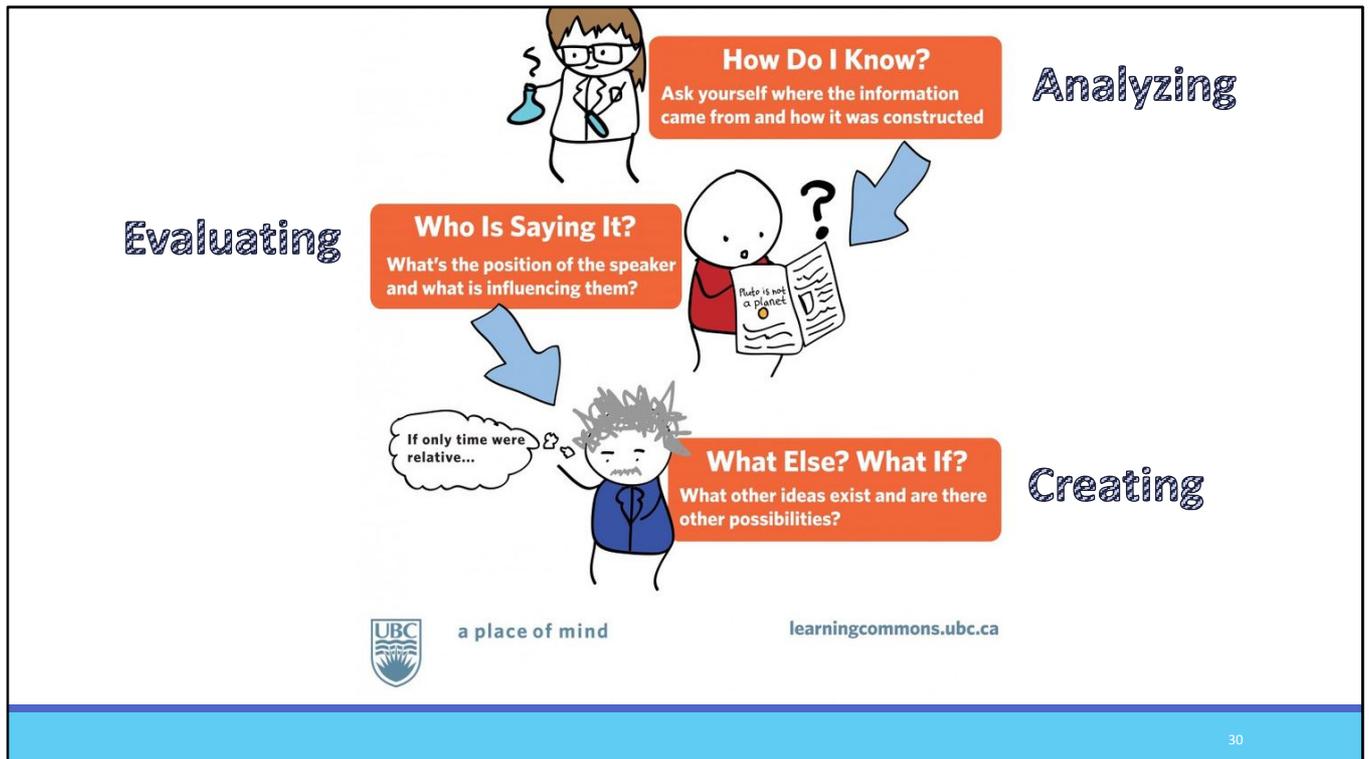


Answers



FOR MORE INFO, READ:

<https://www.educatorstechnology.com/2014/11/6-questions-every-critical-thinker.html>



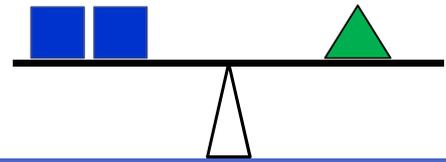
FOR MORE INFO, READ:

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## ACTIVITY: SCALES

Two stars weigh the same as five triangles. One triangle weighs the same as two squares, whilst one square weighs the same as four circles.

1. How many squares balance with one star? **5**
2. How many circles balance with five triangles? **40**
3. Ten squares and forty circles are placed on the left side of the scales. How many triangles must be placed on the right side for the scales to balance? **10**



# ACTIVITY 1: GEGENHEIM

	Animals	Sports	Movie Stars	Elements	Fruits
B	Baboon	Baseball	Humphrey Bogart	Boron	Blueberry
A	Anteater		Jennifer Anniston	Arsenic	Apple
K	Kangaroo			Krypton	
E		Equestrian			
D	Dog	Diving	Johnny Depp	Deuterium	Date

32

The objective of this game is to think of things that begin with a particular letter and fall into a particular category.

Each round of Guggenheim involves five letters and five categories.

Each player should have an identical play sheet that has five categories across the top, and five letters down the side.

It is traditional to use a five-letter word in the left-column, but the letters might also be randomly selected.

All players have ten minutes to try to fill in the twenty-five boxes with an example of each category that starts with the designated letter.

For example, a partially filled out sheet might look like this.

For example, an animal that begins with G might be a giraffe; a sport that begins with G might be golf; a movie star beginning with G might be Cary Grant, etc.