THE LEARNING EXPERTS

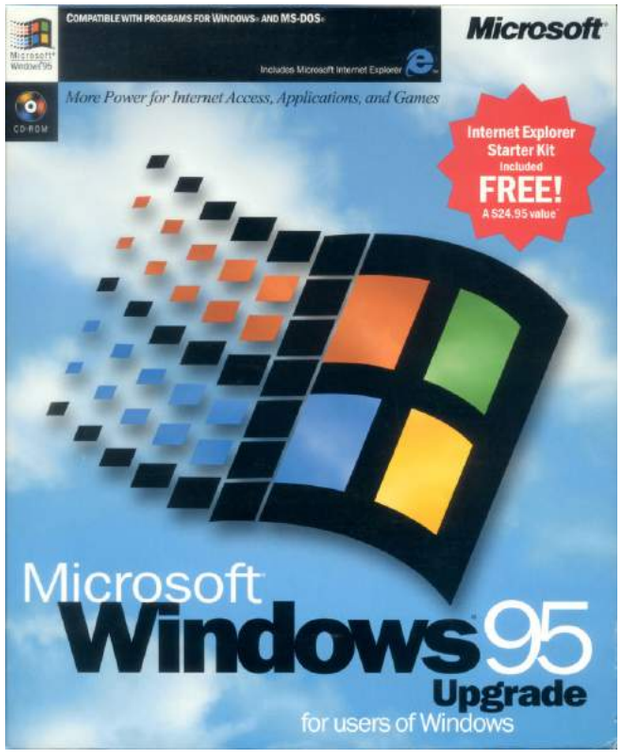
Critical Thinking Skills

What is Critical Thinking

The *Foundation of Critical Thinking* defines it as a process of conceptualization, analysis, synthesis and assessing ideas gathered by way of experience, reasoning, observation and communication as a pathway to belief and action.

What is Critical Thinking

In times of information overload that we live in,
it is particularly important to have
well-developed critical thinking skills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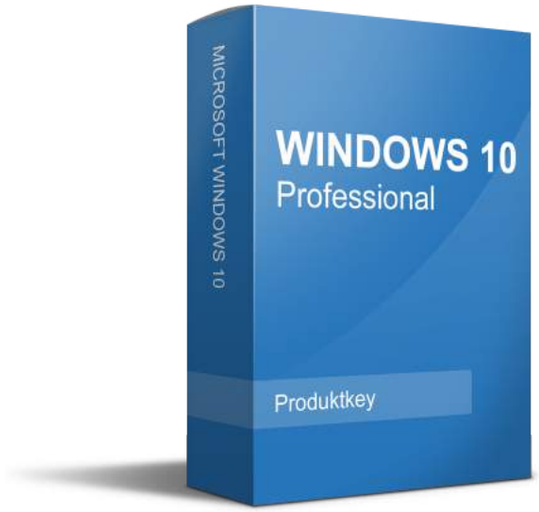
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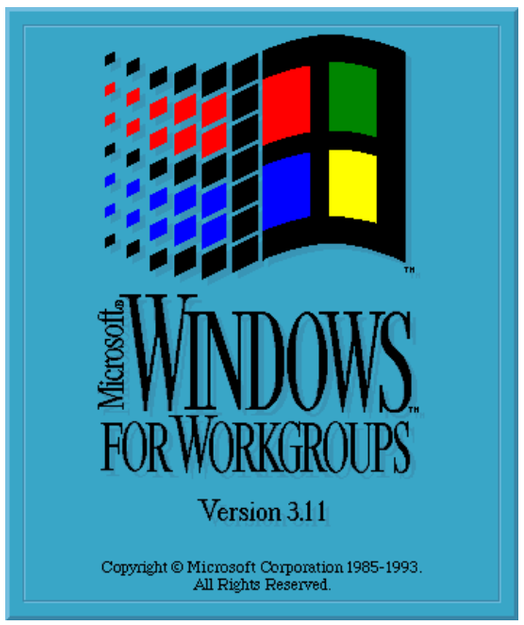
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Enhancing Your Critical Thinking Skills

There are active ways through which critical thinking skills can be enhanced and a lot of studies have proved it. In an effort to establish this, Walker (2003) in her study about "*active learning strategies to promote Critical thinking*" found out **school debates and discussions** enhanced CT amongst students.

In a different study conducted by Bernstein, students were confronted with reliable yet antagonistic arguments in what was believed to be a negotiation model for teaching critical thinking. This required students to deal with the tension existing between arguments that were taken to be a component that drives CT.

Learning styles

Activist

Reflector

Theorist

Pragmatist

Critical Thinking Linked to Emotional Intelligence

“Emotional self-awareness is the ability to recognise your feelings, differentiate between them, know why you are feeling these things, and recognise the impact your feelings have on others around you”

- Bar-On Emotional Quotient Inventory Technical Manual, 1997

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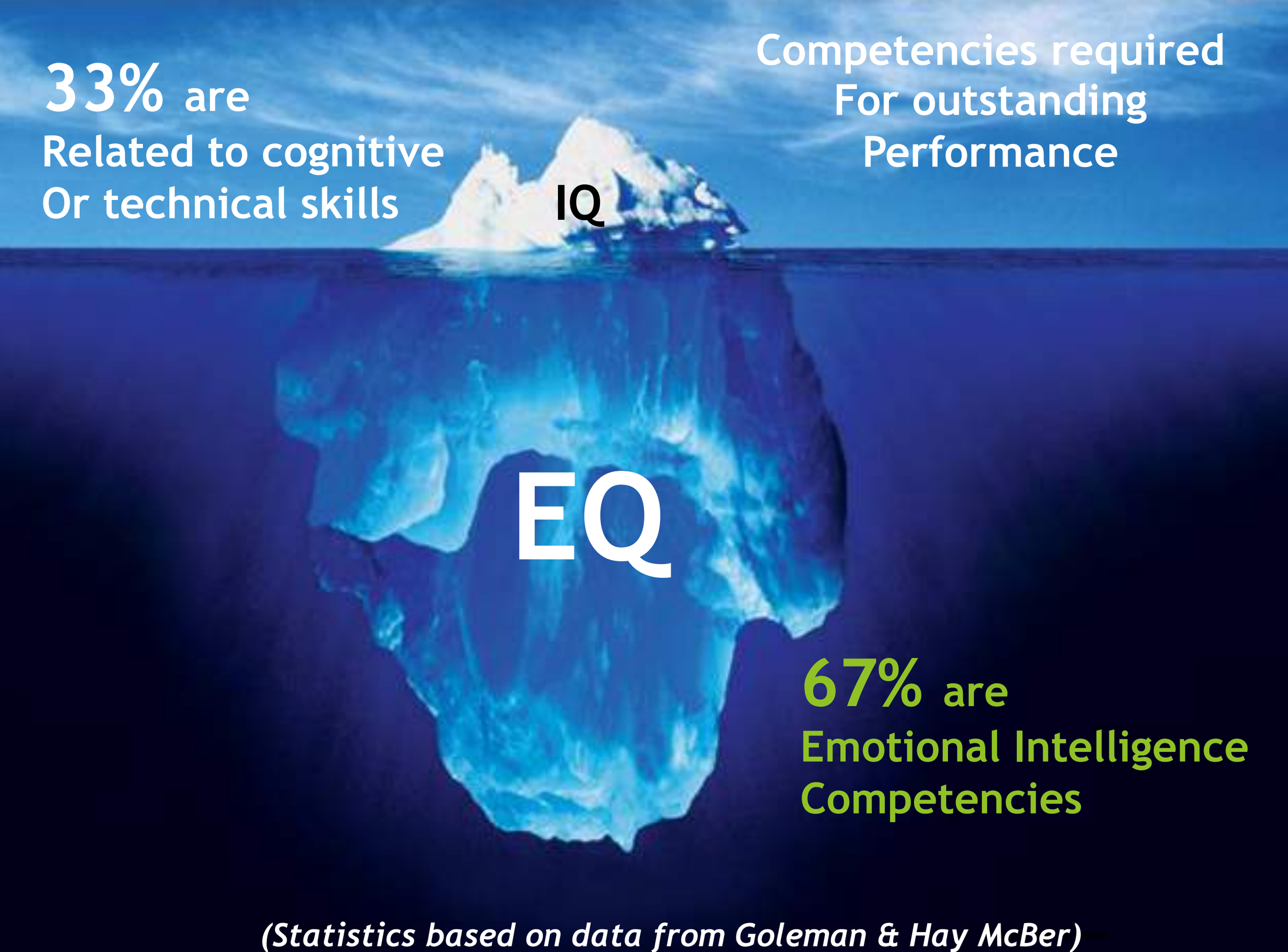
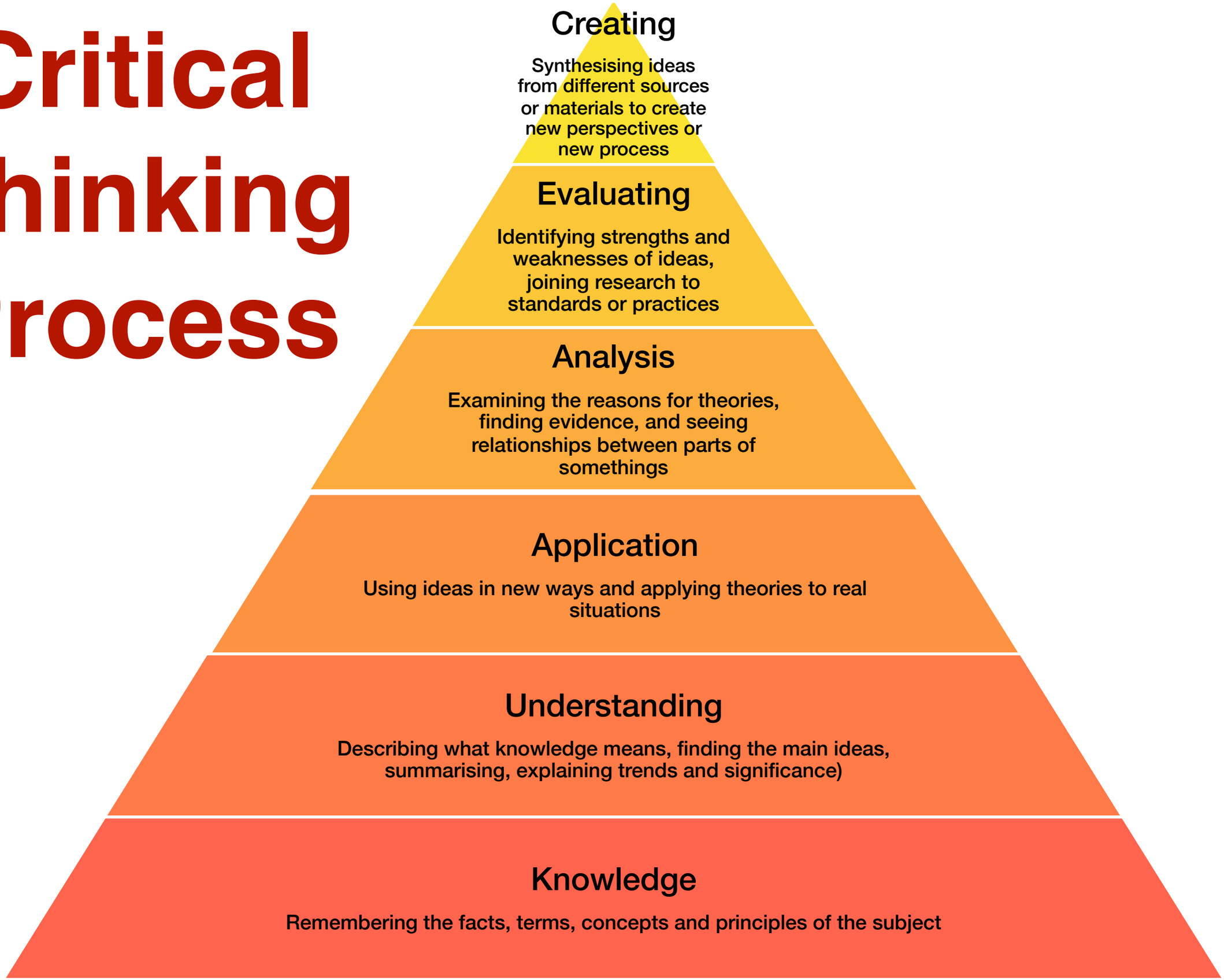


(Statistics based on data from Goleman & Hay McBer)

Critical Thinking Process



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Critical Thinking Principles

1. Ask Fundamental Questions:

The world is sophisticated at times. However, its complex nature does not always need sophisticated answers. When you complicate the explanation, the original basic questions get lost. Therefore, it is important to go back to the fundamental questions that were asked in the first place.

Start with what you know and how you know it. What are you trying to establish, critique or demonstrate? Take a simple approach of asking basic questions to guide you in demystifying the complex situation on your way!

Critical Thinking Process

What would be an **example**?

Where did you get this idea?

What is your main point?

Can anyone see this from **another perspective**?

Could you **explain** it further?

What assumptions are made here?

How can we **find out**?

What are you **assuming**?

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Critical Thinking Principles

2. Interrogate Basic Assumptions:

If there are any assumptions made, question them lest you make a fool of yourself. There could be wrong assumptions and if you build your thinking on such, you will not get far with it.

The greatest innovators of all time such as **Isaac Newton, Albert Einstein**, and **Yitang Zhang** among others took time to see whether the general assumptions made could have been wrong.

For every question that needs an answer or a problem that needs a solution, question your assumptions and carefully assess your beliefs concerning what is possible, prudent or suitable.

Critical Thinking Principles

3. Watch your mental process:

Your chain of thoughts is really amazing and if you are not careful, the speed at which they occur can be a disadvantage when you are endeavouring to think critically.

The human brain usually uses mental shortcuts, commonly known as heuristics in explaining what is happening in our surrounding. This is beneficial when in a fright mode but not good when choosing the candidate to vote for.

Therefore, it is important to be alert concerning your cognitive biases and individual prejudices. Most importantly, check at how they influence your apparently “objective” solutions and decisions.

RED Platform

GREEN Platform

Red Platform	Green Platform

Critical Thinking Principles

8. Don’t settle for quick solutions:

When problems show up, don’t settle for a quick solution. Carefully analyse the issue and take time to look at all possible solutions. Come up with a checklist to trigger your thoughts on lasting possibilities and consequences of your action.

Making use of these ways can greatly enhance your critical thinking skills. Most important to note is that CT is a process and you may not apply it all the time. It is okay to not think critically in some scenarios as would require so.

Critical Thinking Principles

4. Reverse thinking:

A useful way of unblocking your mind and to help you think straight is by **reversing things**. While it could be obvious that X is the main cause of Y, try asking yourself what if Y was the cause of X?

You may have heard about the problem of the chicken and the egg. It appears obvious that the chicken came first. But still, you may want to ask where the chicken came from. This will reverse your thinking to believe that the egg came first. This will jog your mind a bit and cause it to think critically.

Critical Thinking Principles

5. Assess Evidence:

In your endeavours to solve an issue, consider other efforts that have been put in place in a similar scenario. All the same, evaluate the source well before reaching any conclusion. Should you find some evidence to the issue, look at how it was gathered, the reason and by whom?

For instance, don't just take a study showing the health benefits of a sugary cereal as the truth. Don't fall for its appealing nature.

You may be surprised to find out that the research was financed by the company that produces the product in question! If you assess evidence, you will at times find a conflict of interest to question.

Critical Thinking Principles

6. What do you think yourself:

It is not wise to entirely rely on research done by others. You need to also **think on your own**. This turns out to be a powerful tool at times.

The famous equation $E=mc^2$ was practically a conclusion made from Einstein's pure thought. C.P. Snow realised that Einstein's argument did not overly rely on other people's opinions.

Well, don't be overconfident, but it is sometimes good to take time to think through by yourself.

Critical Thinking Principles

7. Understand thinking critically is a process:

No one is a critical thinker in every situation. In their 1987 presentation at the National Council for Excellence in Critical Thinking, **Michael Scriven** and **Richard Paul** stated that CT is never universal in any person and that all people are subject to episodes of irrational thought.

It is unlikely that you will be able to think critically all the time. Therefore, you must understand that it will only be needed when making vital decisions or solving complex situations.

Critical Thinking

Who said it?

What did they say?

Where did they say it?

When did they say it?

Why did they say it?

How did they say it?

Critical Thinking

What is more important?

Listening or Hearing

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Critical Thinking

L = Look interested, get interested

I = Involve yourself by responding

S = Stay on target

T = Test your understanding

E = Evaluate the message

N = Neutralise your feelings

5 Why's

"If you don't ask the right questions, you don't get the right answers. A question asked in the right way often points to its own answer. Asking questions is the ABC of diagnosis. Only the inquiring mind solves problems."

– Edward Hodnett

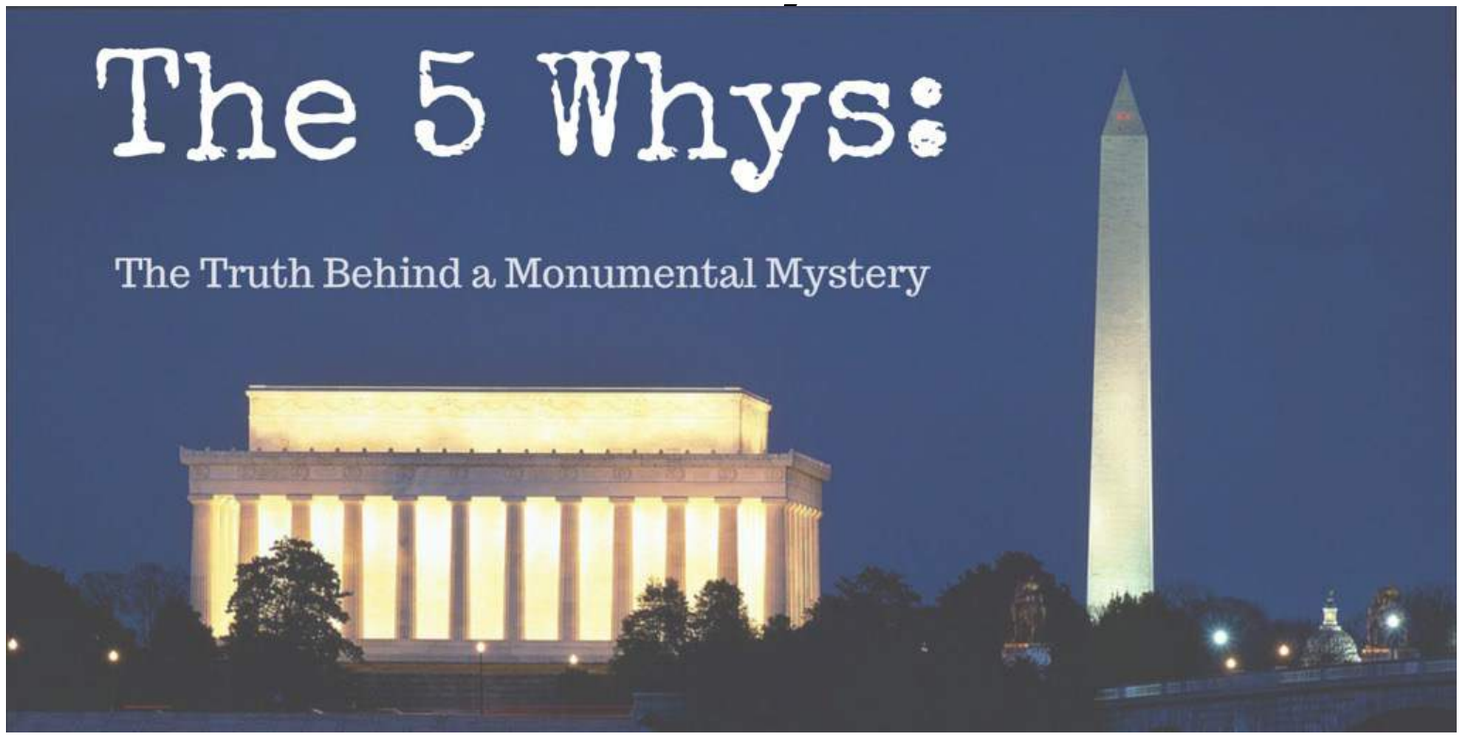
5 Why's

1 Write down the specific problem. Writing the issue helps you formalise the problem and describe it completely. It also helps a team focus on the same problem.

2 Ask Why the problem happens and write the answer down below the problem.

3 If the answer you just provided doesn't identify the root cause of the problem that you wrote down in Step 1, ask Why again and write that answer down.

4 Loop back to step 3 until the team is in agreement that the problem's root cause is identified. Again, this may take fewer or more times than five Whys



Why was the stone deteriorating? (Maintenance crews were using high-powered sprayers to frequently clean the monument.)

Why clean the monument so often? (Bird droppings.)

Why are there so many birds? (They come to eat the spiders.)

Why are there so many spiders? (They come to eat the bugs.)

Why are there so many bugs? (They're attracted by the lights.)

5 Why's

Problem :

You are on your way home from work and your car stops in the middle of the road.

5 Whys

1. Why did your car stop?

Because it ran out of petrol.

2. Why did it run out of petrol?

Because I didn't buy any petrol on my way to work.

3. Why didn't you buy any petrol this morning?

Because I didn't have any money.

4. Why didn't you have any money?

Because I lost it all last night in a poker game.

5. Why did you lose your money in last night's poker game?

Because I'm not very good at "bluffing" when I don't have a good hand.

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Problem Statement

Problem Statement

A GOOD Problem Statement should

- State the current undesired situation
- Quantify the problem

A GOOD Problem Statement should NOT

- Assume the cause
- Assume the solution

Problem Statement

A BAD Problem Statement (examples)

- “Everyone needs to be retrained on……”
- More resources are needed to improve leadtime….
- Machine always broken…..Process always takes too long.

Problem Statement

A GOOD Problem Statement (example)

"During the period 1st Jan 2018 until June 30th 2018, >15% of customer queries were not resolved first time leading to 250hours of overtime to handle the escalations costing €12,500

- Provides the facts
- Provides timescales and impact to the business
- Clear and concise – non objectionable

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Critical Thinking

What is the issue?

Who does it involve?

Where does it impact?

When does it occur?

Why is it an issue?

How does it effect us?

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Critical Thinking

A GOOD Problem Statement - structure

(Item) is a problem because it affects (Case / impact) and we have established the (evidence).

- Item : is a condition, procedure, hardware, equipment or process
- Case / impact : is quality, cost, service and or frequency
- Evidence : is a symptom(s) or data collected

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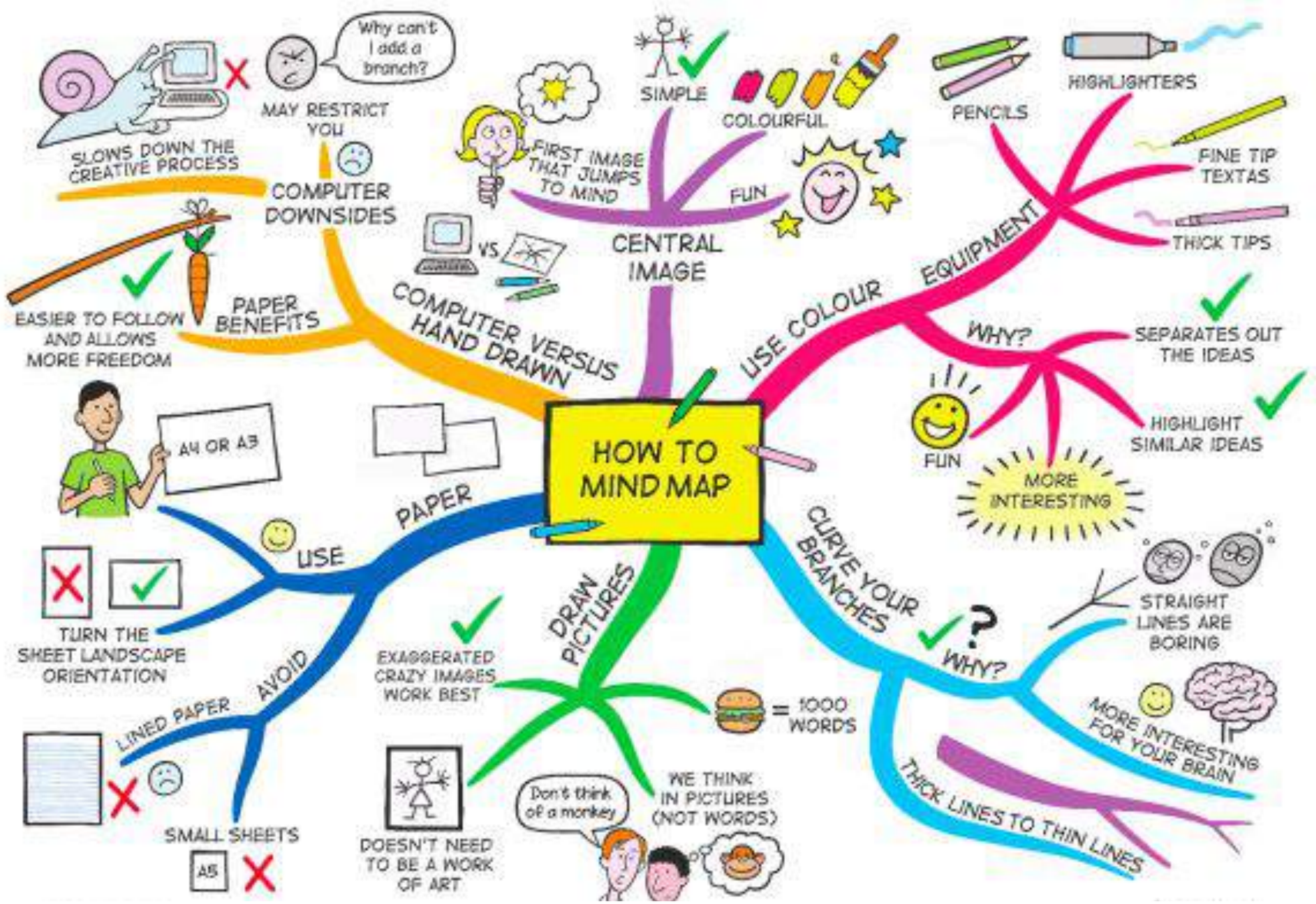
Critical Thinking



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Critical Thinking

T-GROW

Topic

Goal

Reality

Options

Way Forward

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