



# Thinking Critically and Creatively



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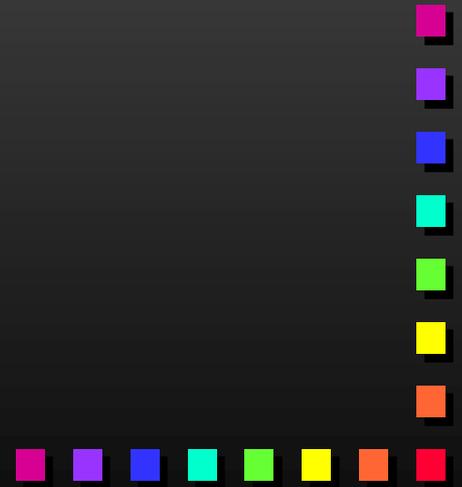


"The function of education is to teach one to think intensively and to think critically. Intelligence plus character—that is the goal of true education."

*-Martin Luther King, Jr.*

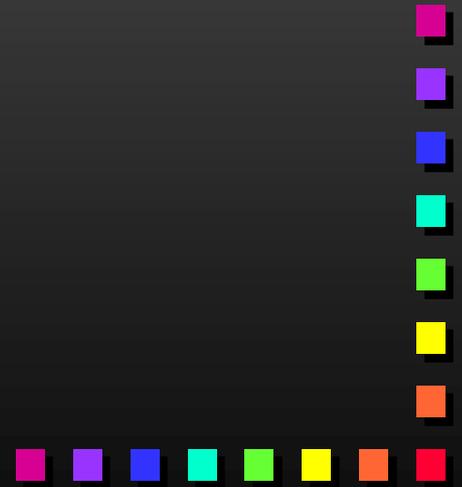


Critical thinking is needed to solve the complex problems in the world today.



# MEANING

- ❑ Critical thinking is the study of clear and unclear thinking.
- ❑ The National Council for Excellence in Critical Thinking defines critical thinking as the intellectually disciplined process of actively and skillfully
  - ✓ conceptualizing,
  - ✓ applying,
  - ✓ analyzing,
  - ✓ synthesizing, and/or
  - ✓ evaluating information,
  - ✓ experience,
  - ✓ reflection,
  - ✓ reasoning, or communication,



# Critical Thinking - Defined

- A purposeful, organized, mental process that we use to understand the world and make informed decisions.
- Critical Thinking involves asking questions to come up with potential solutions to different problems.



# Definitions

## Critical thinking is . . .

- Thinking “outside” the box
- Divergent thinking
- Forming logical inferences
- Limitless thinking
- Higher level thinking involving. . .



- Evaluating
- Analyzing
- Synthesizing
- Forming opinions
- Assessing
- Rating
- Making inferences
- Drawing conclusions
- Critiquing



**IN ACCORDANCE WITH**





**Critical thinking without a  
creative output is merely  
negative thinking.**



**Creative thinking without a critical  
component is merely novel thinking.**

**It is easy to be merely negative or  
novel in one's thought.**



# How to Become a Critical Thinker



# Universal Standards to Assure Quality Thinking

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



# The Critical Thinking Process

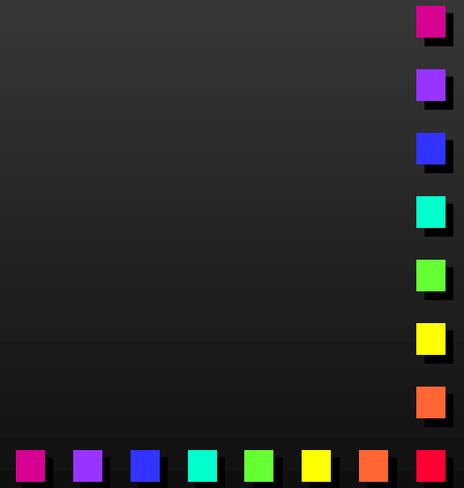
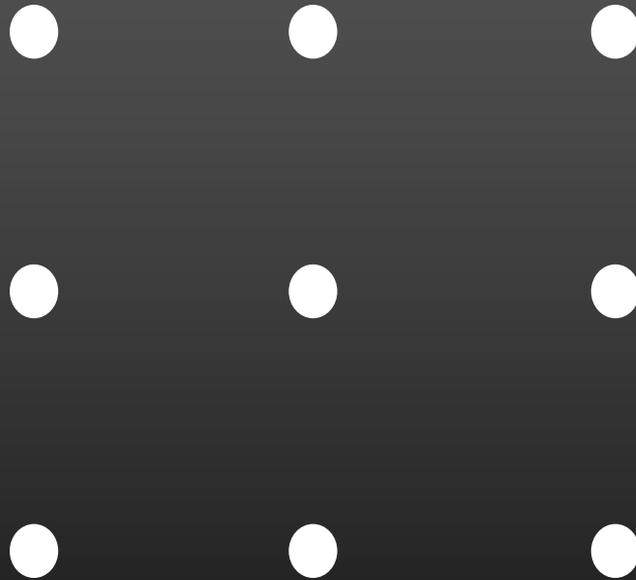
- State the problem in a clear way
- Identify the alternative views
- Watch for fallacies in reasoning
- Find at least 3 different answers
- Construct your own reasonable view



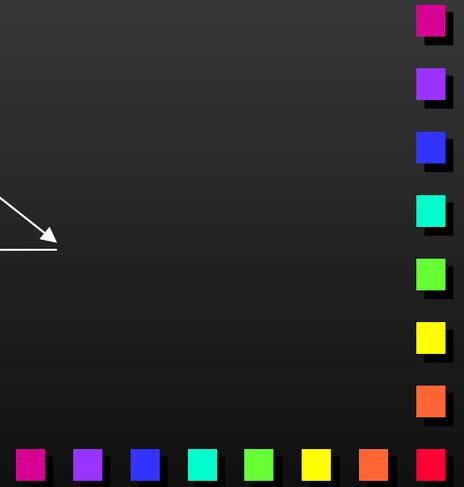
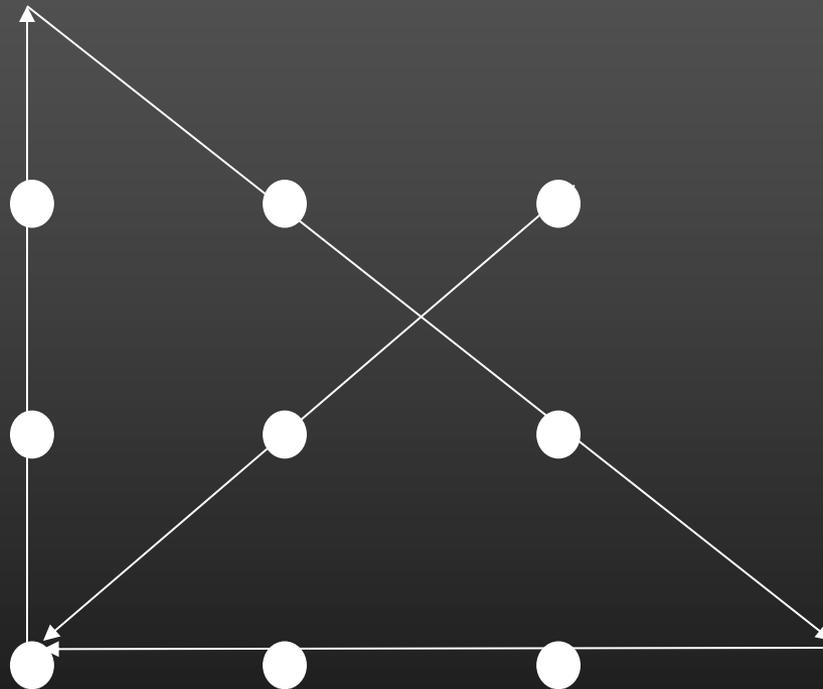
# Exercise: Critical Thinking



# EXERCISE



# A SOLUTION



# Tips for Critical Thinking

- Beware of your mind-set
- Be willing to say, “I don’t know.”
- Practice tolerance
- Understand different points of view
- Understand before criticizing
- Emotions get in the way of clear thinking
- Examine the source



# *Creative Thinking*



# What is Creativity?

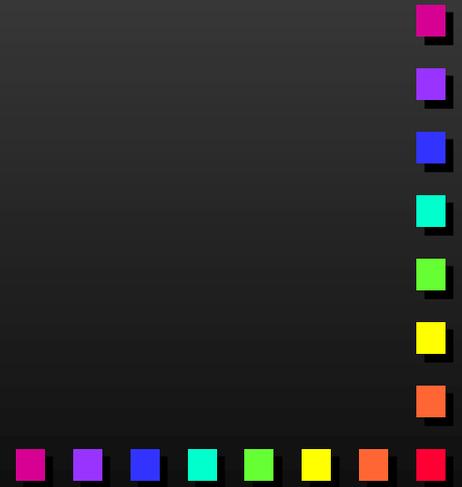
- The problem with creativity is that we know it when we see it, but it is hard to define.



# The Three S's of Creativity

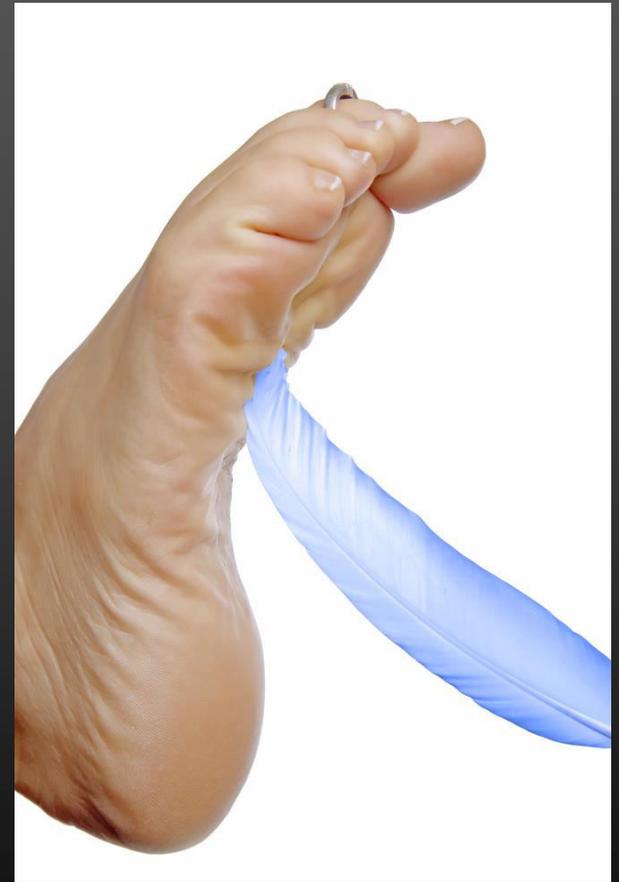
S'S

- Sensitivity
- Synergy
- Serendipity



# Sensitivity

- Uses the senses to discover the world
- Asks, “Why does this happen?”
- “How can I do this?”
- Problem finders as well as problem solvers



# Synergy

- Two or more elements are associated in a new way and the result is greater than the sum of the parts
- Example: “Two heads are better than one.”

SYNERGY

$$1+1=3$$



# Serendipity

- Unexpected discoveries
- Lucky accidents
- Some examples . . .

serendipity

(n.) finding something good without looking for it

OTHER-WORDLY



# Creative Thinking Techniques

## Left brain expression (Academic)

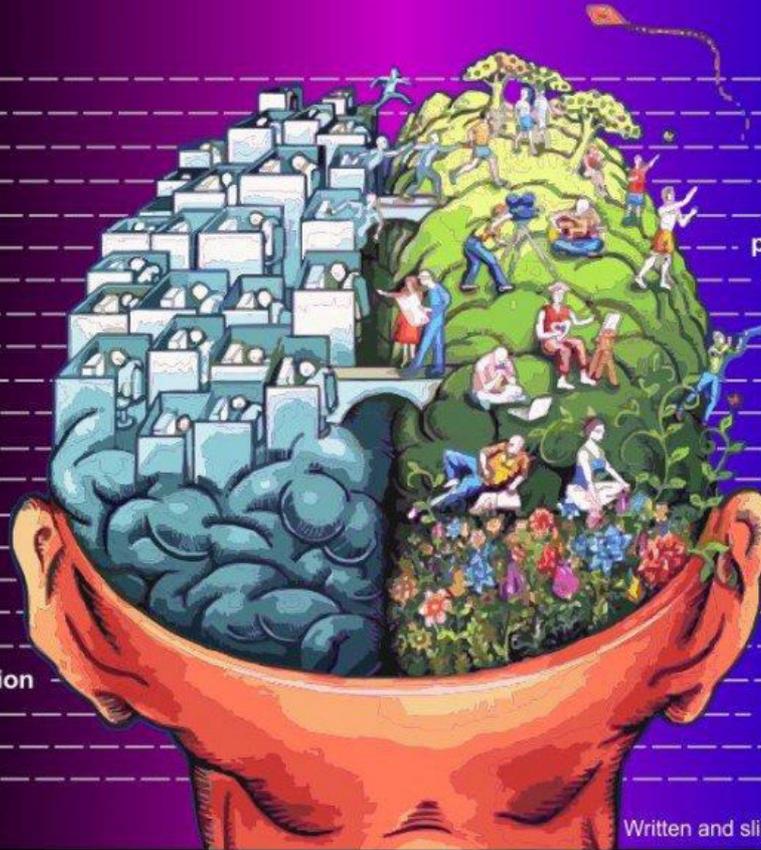
detail oriented  
(Looks at parts)  
Logical  
Sequential  
Rational  
math and science  
can comprehend  
Analytical  
Objective  
uses logic  
facts rule  
words and language  
present and past  
knowing  
acknowledges  
knows object name  
reality based  
forms strategies  
order/pattern perception  
practical/planned  
safe  
cautious

Illustration by: VaXzine

## Right brain expression (Creative)

'big picture' oriented  
(Looks at wholes)  
Random  
Intuitive  
Holistic  
philosophy & spiritualism  
can 'get it' (the meaning)  
Synthesizing  
Subjective  
uses feeling  
imagination rules  
symbols and images  
present and future  
believes  
appreciates  
knows object function  
fantasy based  
presents possibilities  
spatial perception  
impetuous/spontaneous  
adventurous  
carefree/risk taking

Written and slide design by Dr C Daniels 2008

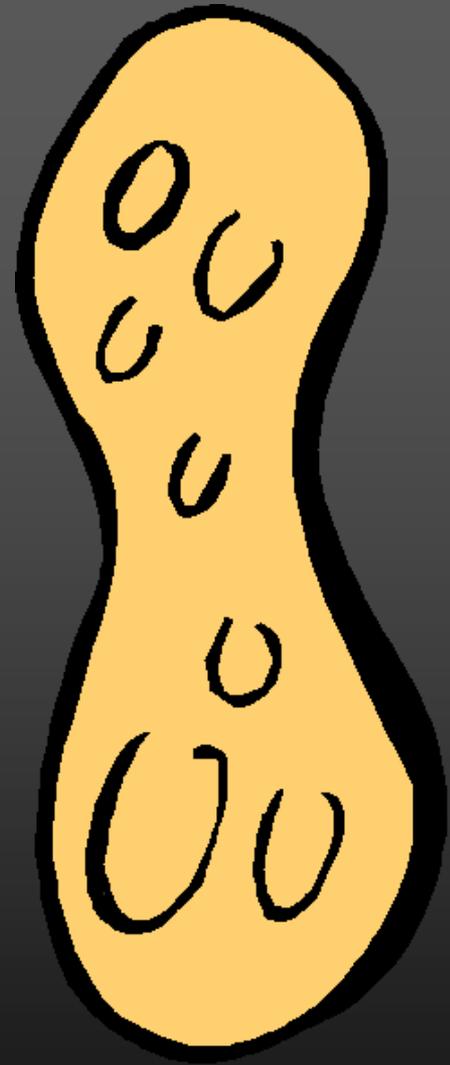


# Brainstorming Exercise: The Peanut



Look at your peanut.

How is this peanut  
like you?



Can you come up with 10 answers in 3 minutes?



# How is this peanut like you?

- It's wrinkled, like me.
- It's brown, like me.
- It cracks under pressure.
- What you see is not always what you get.
- Everyone is different.
- It just sits in class.



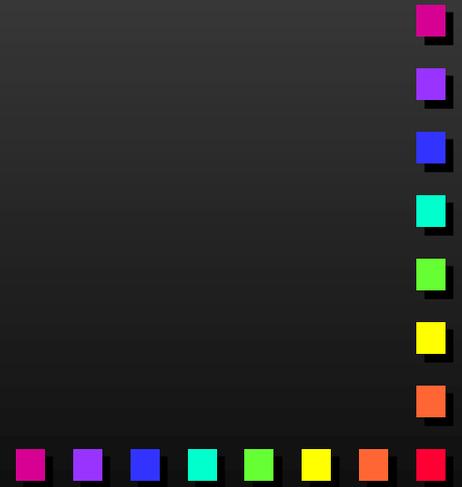
How is this peanut like going to college?

Let's use some synergy and work together on this one.



How many answers can we  
come up with in 5 minutes?

You can steal other people's  
ideas.



# How is this peanut like going to college?

- There are 2 nuts inside. One is the teacher and one is the student.
- We're all nuts to a degree!
- College drives me nuts!
- It's rough.
- We both went to class today.



# Elements of Creativity

- Use the pressure of a time limit.
- Use a goal or quota.
- Be relaxed.
- Suspend judgment.
- Focus your attention.
- Have fun with it.
- Use a different perspective.



# More Techniques



If you're a critical thinker, you think.

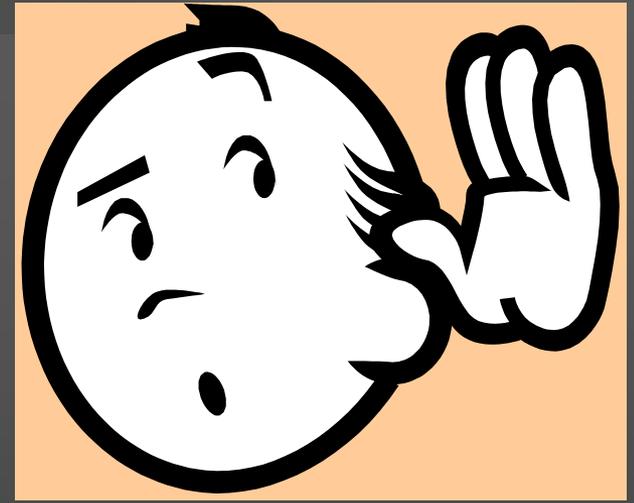
...No surprise....



You are willing to examine your beliefs, assumptions, and opinions and weigh them against facts. You are willing to evaluate the generalizations and stereotypes you have created and are open to change, if necessary.



Critical thinkers listen carefully.



If you're a critical thinker, you listen carefully to what others are saying and are able to give feedback. You are able to suspend judgment until all the facts have been gathered and considered.



# Critical thinkers look for evidence....



If you're a critical thinker, you look for evidence to support your assumptions and beliefs. You examine problems closely and are able to reject information that is incorrect or irrelevant.

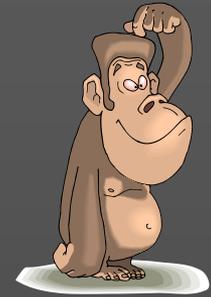


# Therefore...through experience, as a critical thinker, you will:

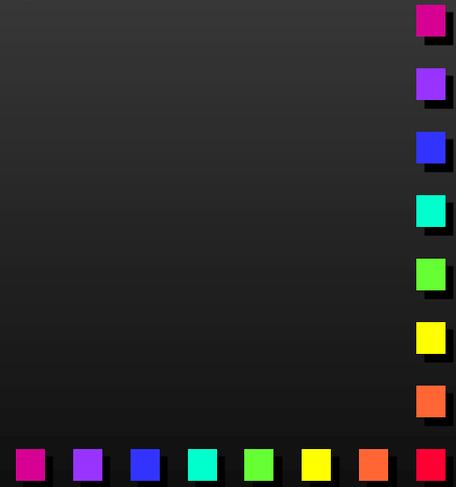
- identify information that is being put forth as an argument and break it down to its basic components for evaluation.
- construct alternative interpretations
- be willing to explore diverse perspectives
- be willing to change personal assumptions when presented with valid information
- be willing to ask difficult questions and the ability to be receptive to opposing viewpoints.



Critical thinkers are curious.



They are interested in knowing all there is about a topic. They look for new and better ways to do everything. They are not the person who will settle for “...because that is the way we have always done it.”



# Exploring Creative Thinking Techniques

## Visual Thinking Activities:

Perceptual, imagery, daydreaming, metaphoric, synectics, patterns

## Idea Listing Activities:

Attribute listing, morphological synthesis, second best answer, checklist, just suppose

## Writing Activities:

Webbing, mapping, wet inking, reflection writing, story starters

## Group Interaction Activities:

Simulation, role play, creative dramatics, six hats, fish bowl, brainstorming, reverse brainstorming

## Process-Product Activities:

Problem finding, problem defining, problem-based learning



# How Can One Become a Critical Thinker?

- By asking pertinent questions (of self as well as others);
- By assessing statements and arguments;
- By developing a sense of observation and curiosity;
- By becoming interested in finding new solutions;
- By examining beliefs, assumptions, and opinions and weighing them against truth.
- By developing a “thinker’s vocabulary”.
- By listening carefully to others, thinking about what they say, and giving feedback;
- By observing with an open mind;
- By making assertions based on sound logic and solid evidence;
- By sharing ideas with others;
- By becoming an open-minded listener and reader;
- By engaging in active reading and active listening!



Thank you!

