



# Critical thinking for all subjects and life

Lisabon, Portugal

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There are two teams and each team has 8 pens.

■ How can you build a car with them?

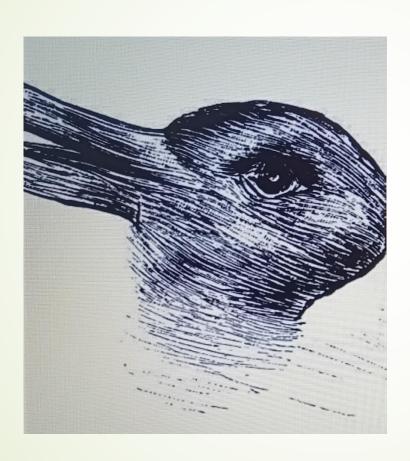
# Important critical thinking skills?

- Asking questions
- Problem solving
- Analyzing
- Evaluating
- Inferring
- Active listening
- Decision-making
- Prioritizing

# why - why - why - chain

- Why is critical thinking important?
- Write two or three answers.

# Write down the first thing you see.



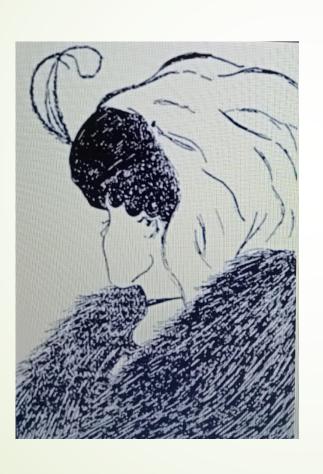
#### Critical thinking prompt

Which animal do you notice first, and what visual clues make you sure?

#### Metacognitive prompt

Did I switch interpretations?

What triggered the change?



#### Critical thinking prompt

Identify the features that create each face. How reliable is your first reading?

#### Metacognitive prompt

How did your prior experiece (age, mood...) steer your perception?

### Critical thinking check:

What made one interpretation more convincing than the other?

#### Metacognitive check:

How did noticing your thought process change your confidence or openness?

Concept	Main focus	Typical actions
Critical thinking	Evaluating information and arguments to reach a justified condition	Analyzing evidence, spotting fallacies, comparing alternatives, making reasoned decisions
Metacognition	Monitoring and regulating one's own cognitive processes	Planning a strategy, checking comprehension, noticing a bias, adjusting effort or approach

- Example: a student evaluating a news article
- Critical thinking?

Checking the author's credentials, analyze statistics, weigh counterarguments

Metacognitive thinking?

Noticing one is favoring data that confirms prior view

## THIS OR THAT?

- Group work
- Silent classroom
- Project-based learning
- Designing a lesson: prioritizing student choice
- Is it better to let students struggle if they have a problem
- 5 school days shorter days

- Individual work
- Buzzing with discussion
- Structured lessons
- Designing a lesson: curriculum coverage
- Guide them to the answer quickly
- 4 school days longer days

# Fast and slow thinking (Kahneman)

		System 1 – fast	System 2 – slow
	Speed and effort	Automatic, intuitive, effortless	Deliberate, analytical, effortful
/	How it works	Uses associations, emotional cues; jumps to the first plausible answer	Uses logic, evidence, step- by-step reasoning; checks, compares, calculates
	Strengths	Quick reactions, pattern recognition, everyday decisions	Solving new problems, handling numbers, spotting inconsistencies, overriding biases
	Weaknesses	Prone to systematic errors (biases)	Limited "mental energy"; tires quickly, can be lazy unless prompted

# How many of each kind of animal did Moses take on the Ark?

#### System 1 reaction

Recognises ark – animals – two each; auto-fills the answer

#### System 2 reaction

Notices the mistake and overrides the intuition

Is it legal for a man to marry his widowed wife's sister? Which is better: to have the power to read minds or to speak every language in the world?

List at least 4 "I wonder" questions about this question, for example

I wonder if... I would be able to speak all the languages fluently?