
The Learning Trajectory

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IME GLOBAL
LEARNING MADE EASY

www.imeglobal.net

A GAME

A

2

B

3

Architecture

Form First



Louis Sullivan

Form Follows Function



Louis Sullivan

Form Follows Function



Why Does this Matter?



FORM

What do I do?

FORM FOLLOWS FUNCTION

What do I want!?



Learning Objective

VERB



Learning Objective

Orally **describe** the steps involved in the scientific method.



Learning Objective

*VERB MUST BE ACTIVE &
EXTERNALLY OBSERVABLE OR
MEASURABLE!*



FIND THE PASSIVE VERBS

MAKE

BE CONSCIOUS OF

ACCEPT

GRASP

SUMMARIZE

KNOW

MEMORIZE

ORGANIZE

PREDICT

DESCRIBE

UNDERSTAND

BE FAMILIAR WITH

DEFINE

VALUE

CALCULATE

APPRECIATE

ARGUE

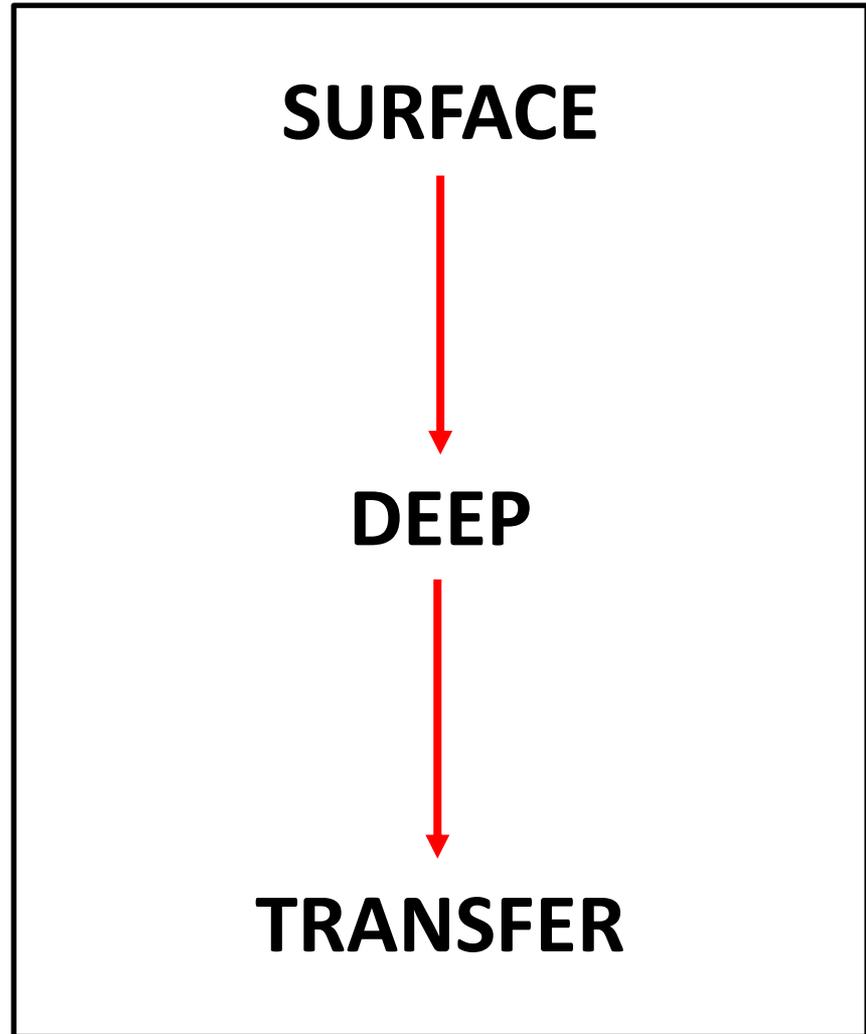
INVENT

Learning Objective

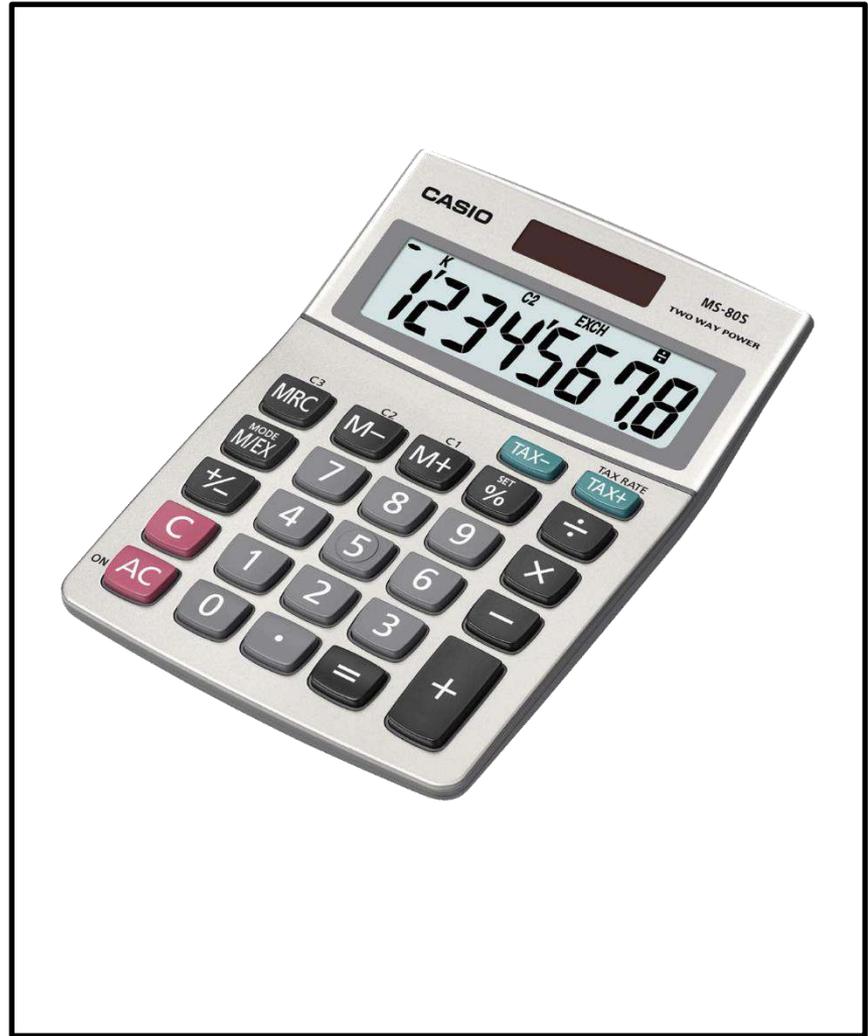
Orally **describe** the steps involved in the scientific method.



The Learning Trajectory



The Big Secret



A GAME

BEER

31

COKE

11

BEER

A GAME

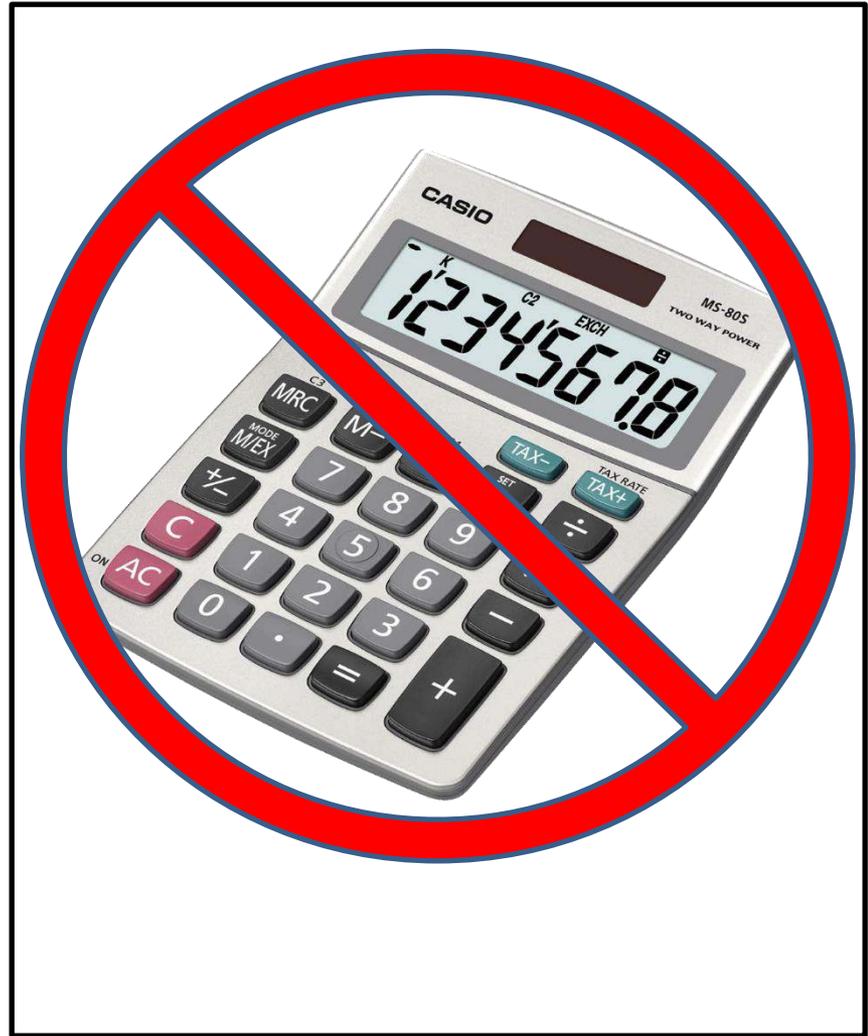
A

2

B

3

The Big Secret



FACTS
ALWAYS
PRECEDE
SKILLS

Basic Learning Process

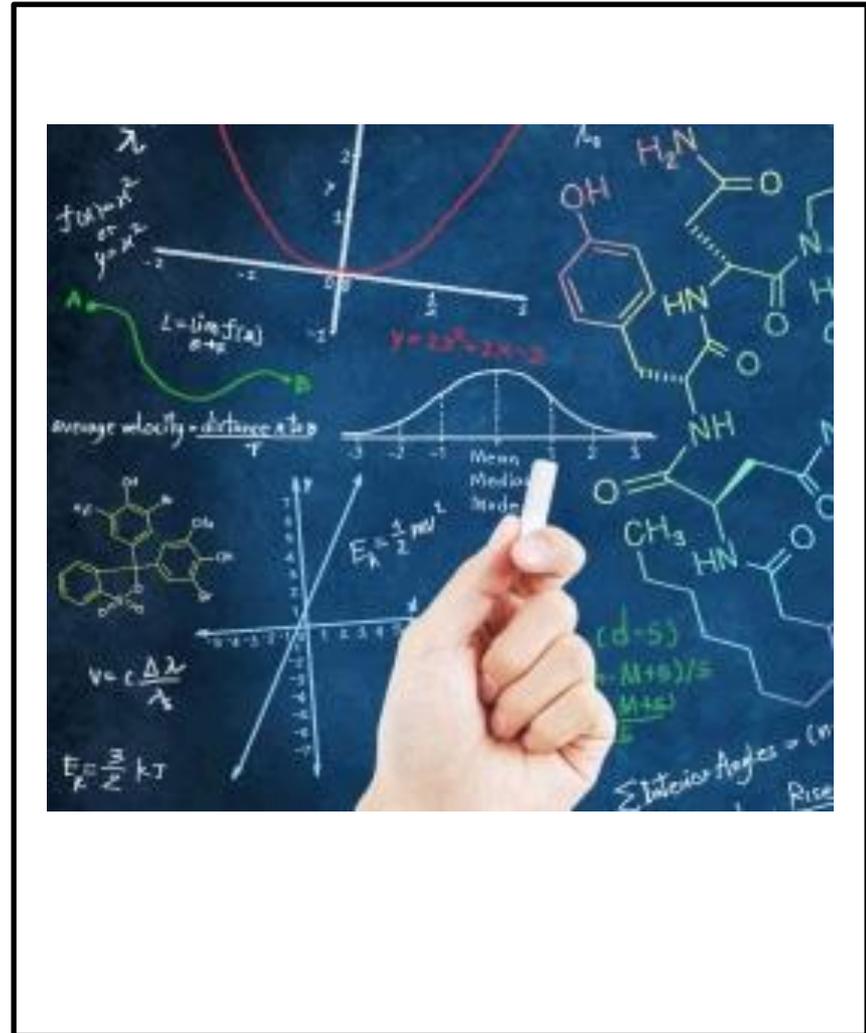
Retrieval (Surface)

Concept Formation (Deep 1)

Concept Shifting (Deep 2)

Concept Testing (Deep 3)

Transfer



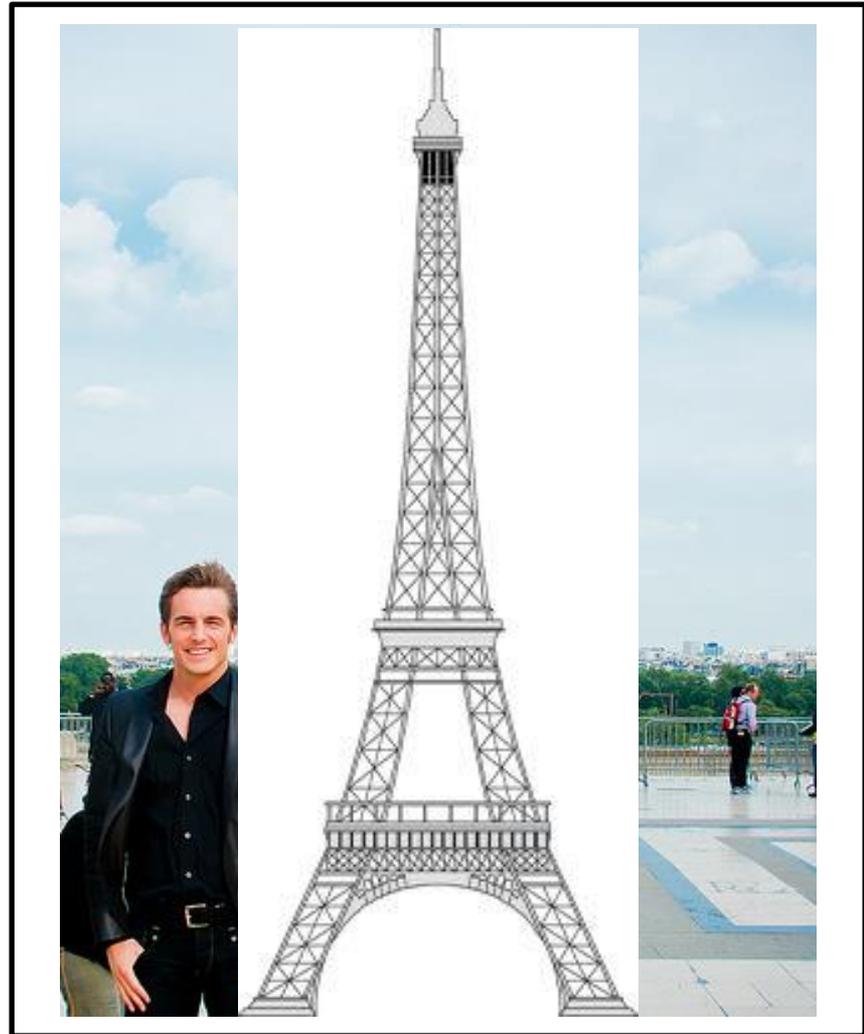
A Quick Passage...



Declarative Memory

Episodic

Semantic



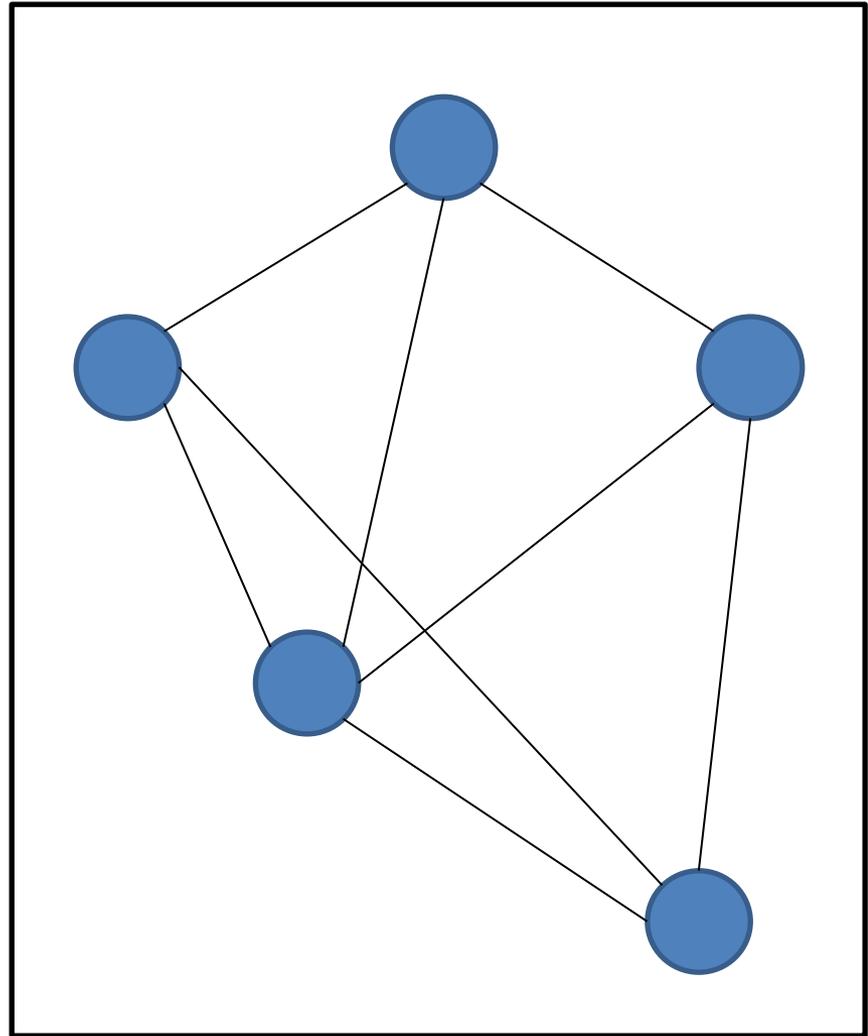
Memory

Exposure & Repetition

3

Context Matters

Active is Better



SURFACE VERBS

RECALL

SUMMARIZE

CONTRAST

DEFEND

IDENTIFY

DEFINE

RESTATE

CLASSIFY

QUESTION

CRITICIZE

TEST

EXPLAIN

ORDER

RECOGNIZE

ASSOCIATE

DECONSTRUCT

DEBATE

HYPOTHESIZE

Retrieval Surface

VERBS

Define	Point Out
Arrange	Find
List	Identify
Recall	Answer
Quote	Tell
Name	Order
Repeat	Select
Describe	Recognize

Facts (Surface)

STRATEGIES / TASKS

Multiple Choice

Free-Recall

Scavenger Hunt

Illustrations

Worked Examples

Flashcards

Fill In The Blank

Label the Diagram

Order the List

Complete the Picture

***DIRECT
INSTRUCTION***

Surface

THINKING ROUTINES

NADA

DUNLOSKY/HATTIE

Integrate Prior Knowledge

Outlining

Mnemonics

Summarisation

Underlining / Highlighting

Note Taking

Imagery

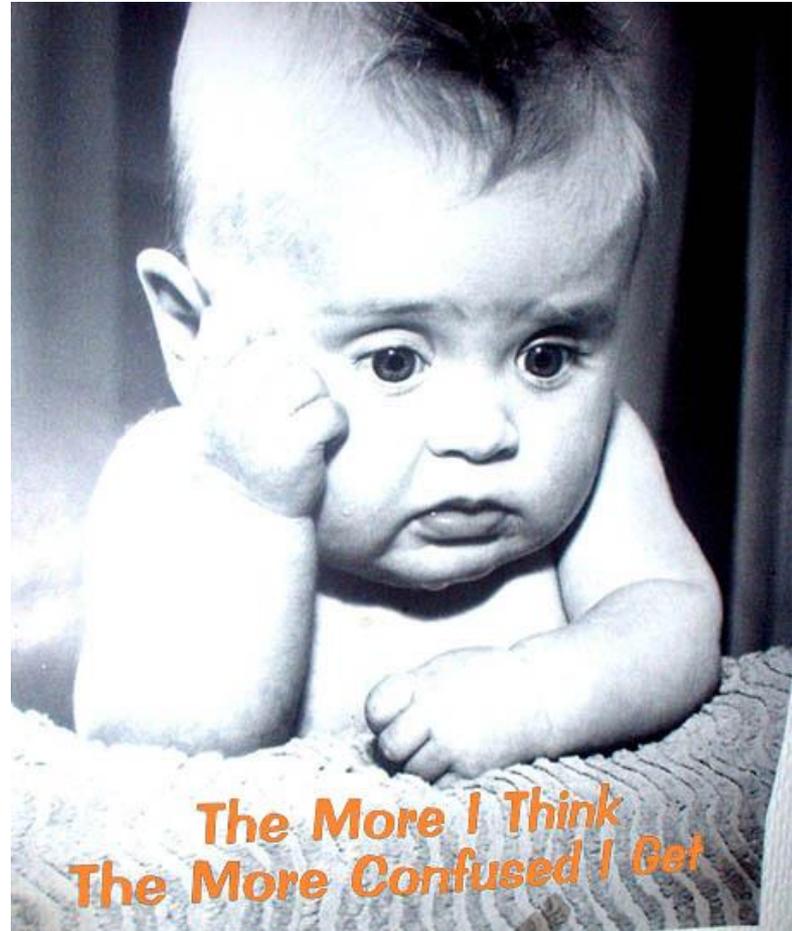
What About...

Problem Based Learning

Inquiry Learning

Immersion Learning

Exploratory Learning



Basic Learning Process

Retrieval (Surface)

Concept Formation (Deep 1)

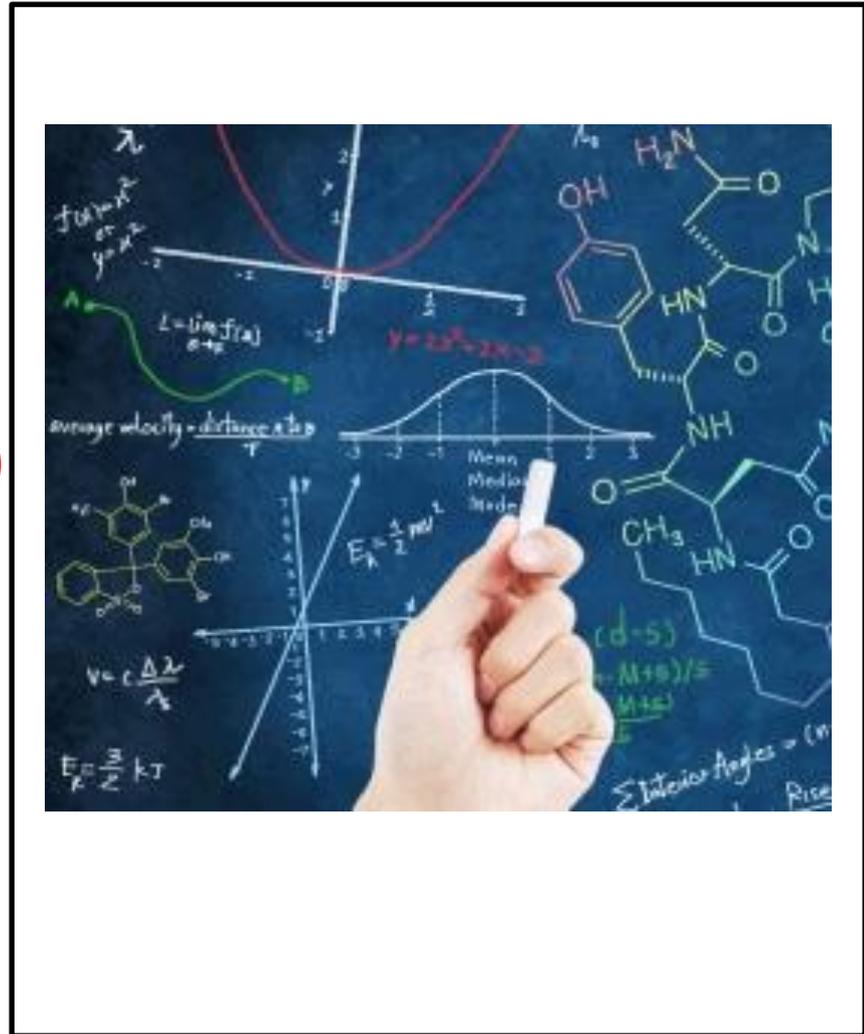
Concept Shifting (Deep 2)

Concept Testing (Deep 3)

Transfer

THINKING

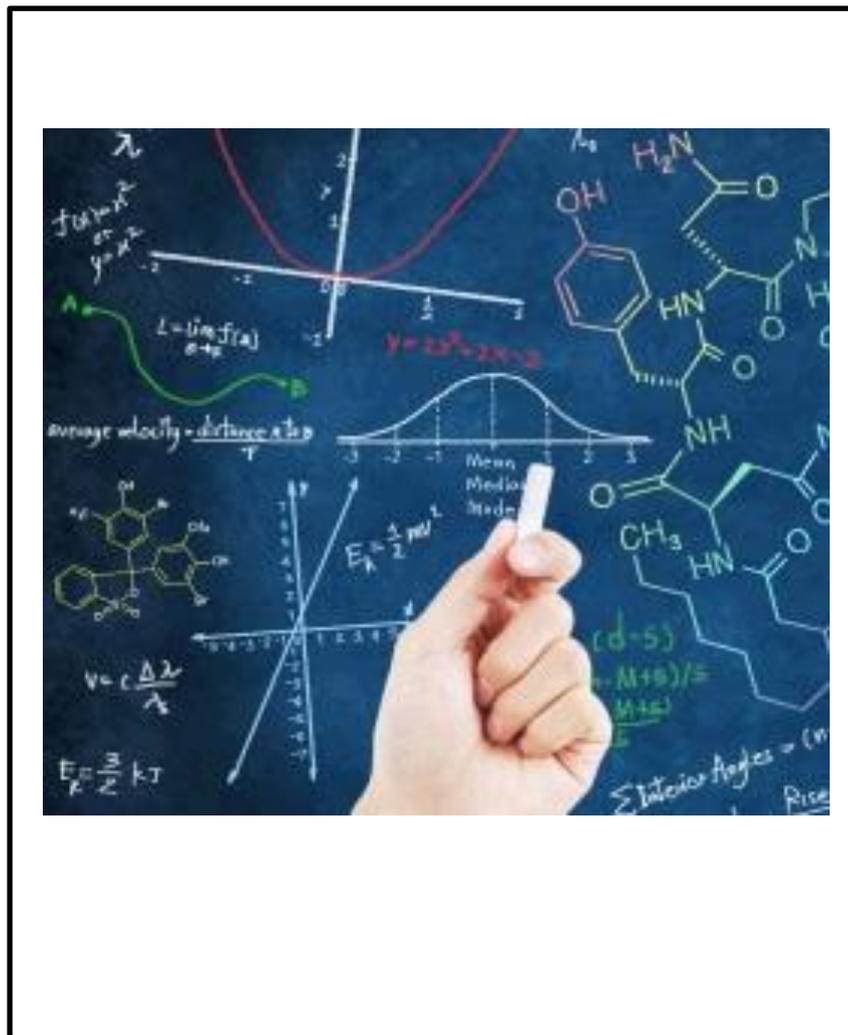
**(Hint: NO ADDITIONAL
FACTS NEEDED!)**



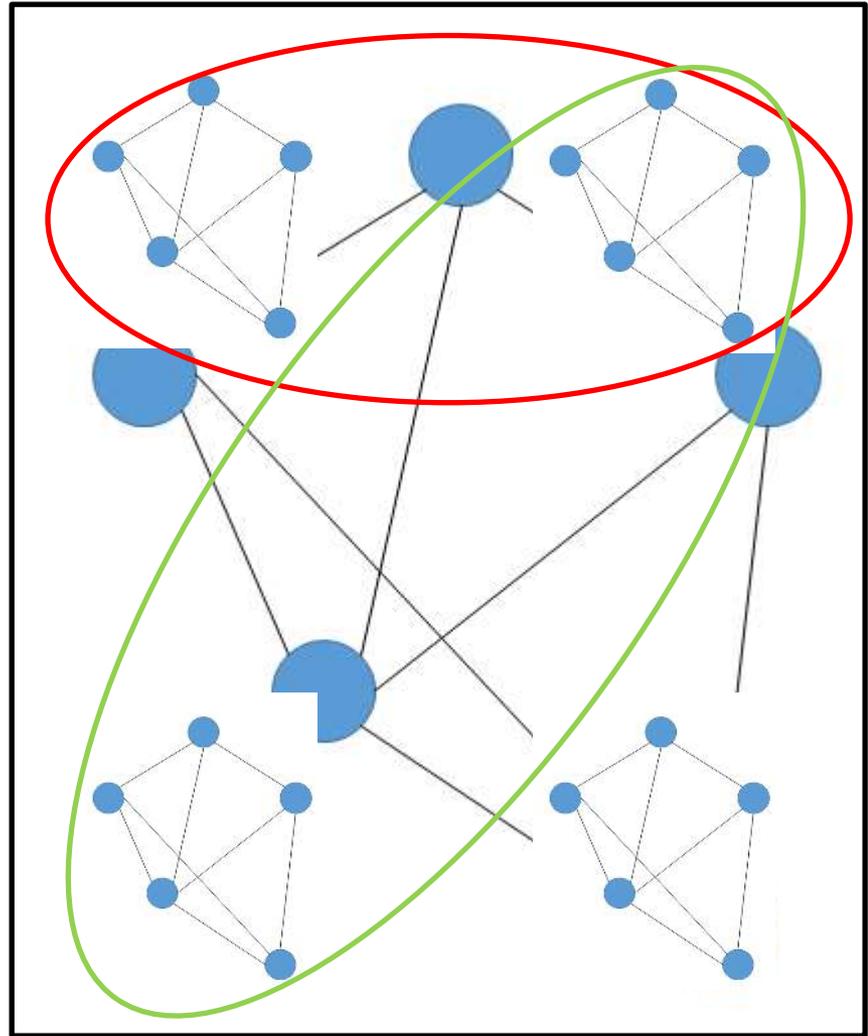
Basic Learning Process

Surface = **WHAT** you Know
(Facts)

Deep = **HOW** do you
understand it and what are
you going to **DO** with it?
(Concepts)



Concepts



Concepts

OAB CSB SNE TFL IXO

O ABC SBS NETFLIX O



Level 1

*Activate & Associate
Knowledge*



CONCEPT FORMATION VERBS

RECALL

SUMMARIZE

CONTRAST

DEFEND

IDENTIFY

DEFINE

RESTATE

CLASSIFY

QUESTION

CRITICIZE

TEST

EXPLAIN

ORDER

RECOGNIZE

ASSOCIATE

DECONSTRUCT

DEBATE

HYPOTHESIZE

Concept Formation (*Deep 1*)

VERBS

Paraphrase

Classify

Distinguish

Interpret

Examine

Express

Summarize

Associate

Restate

Identify

Estimate

Explain

Discuss

Analogize

Concept Formation (*Deep 1*)

GENERAL

Concept Map

Turn-to-Tweet

In Your Own Words

Diagram

Classify

Jigsaw

Metaphor / Analogy

Key Relationship

News Report

Build a Logo

Review B4 New

Generalize

Concept Formation (*Deep 1*)

THINKING ROUTINES

See – Think – Wonder

Zoom In

Chalk Talk

321 Bridge

Explanation Game

Headlines

Word – Phrase - Sentence

DUNLOSKY/HATTIE

Deliberate Practice

Spaced Practice

Rehearsal

Practice Testing

Reviewing Records

Feedback

Time-on-Task

Basic Learning Process

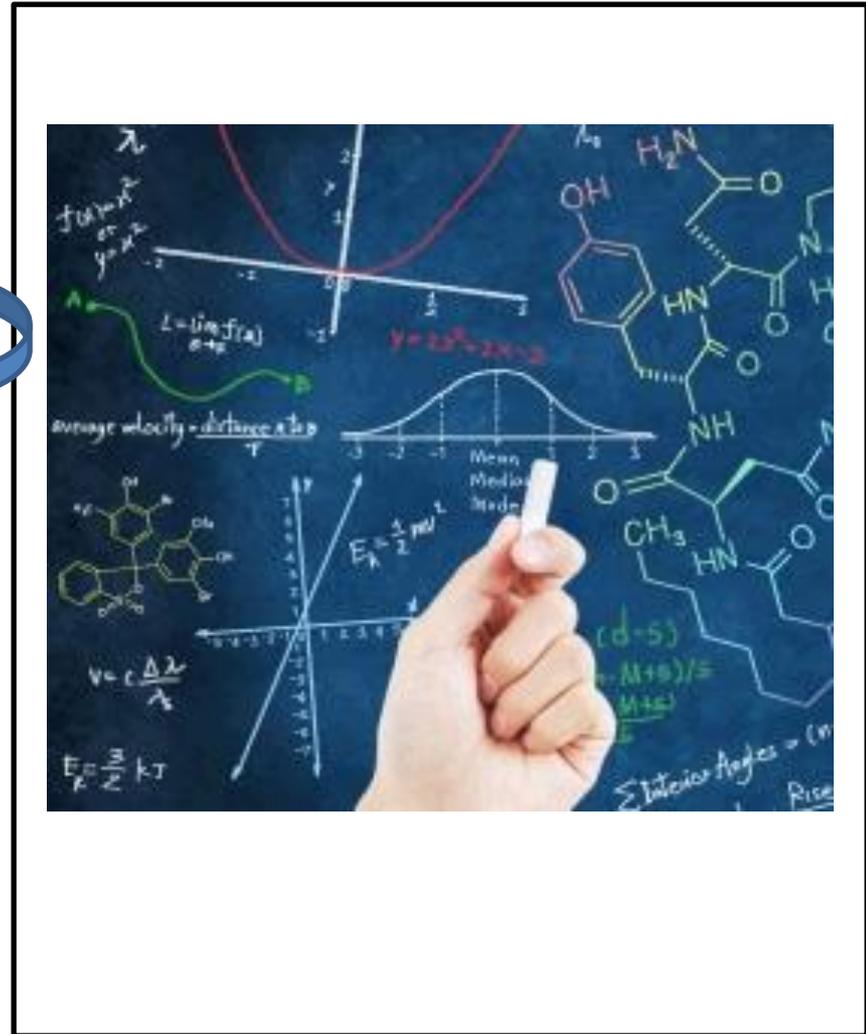
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Concept Formation (Deep 1)

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Concept Testing (Deep 3)

Transfer



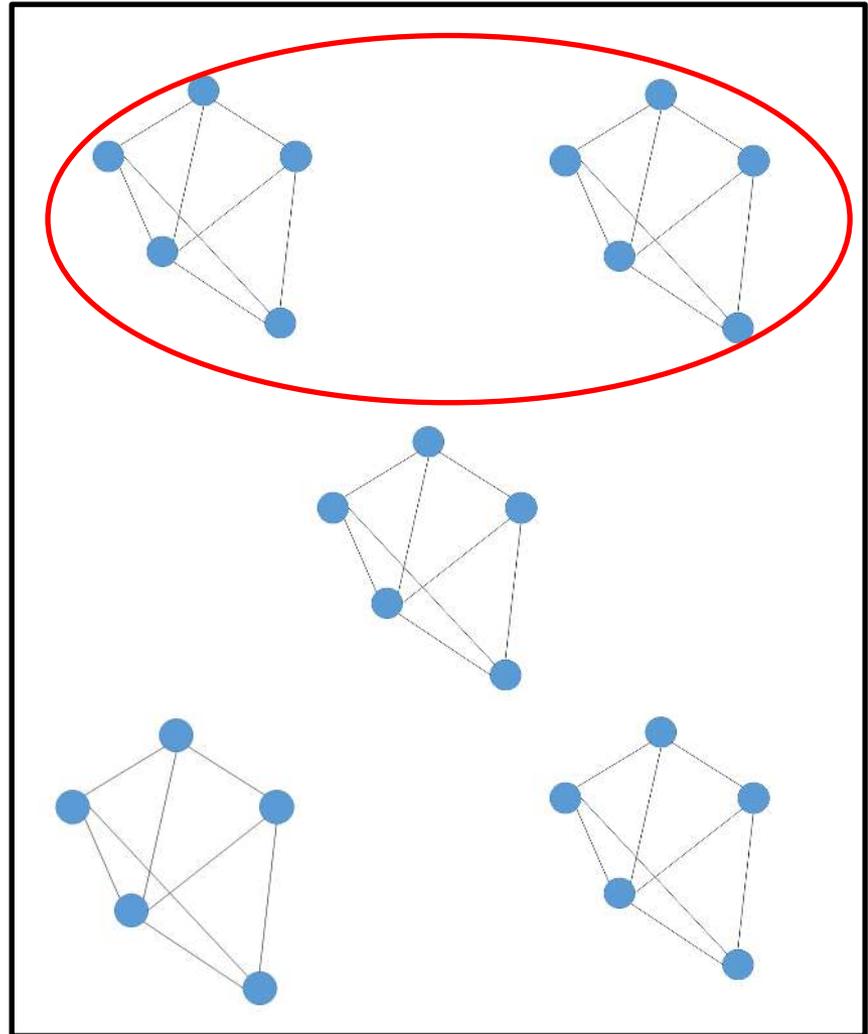
Level 2

*Elaborate & Expand
Concepts*



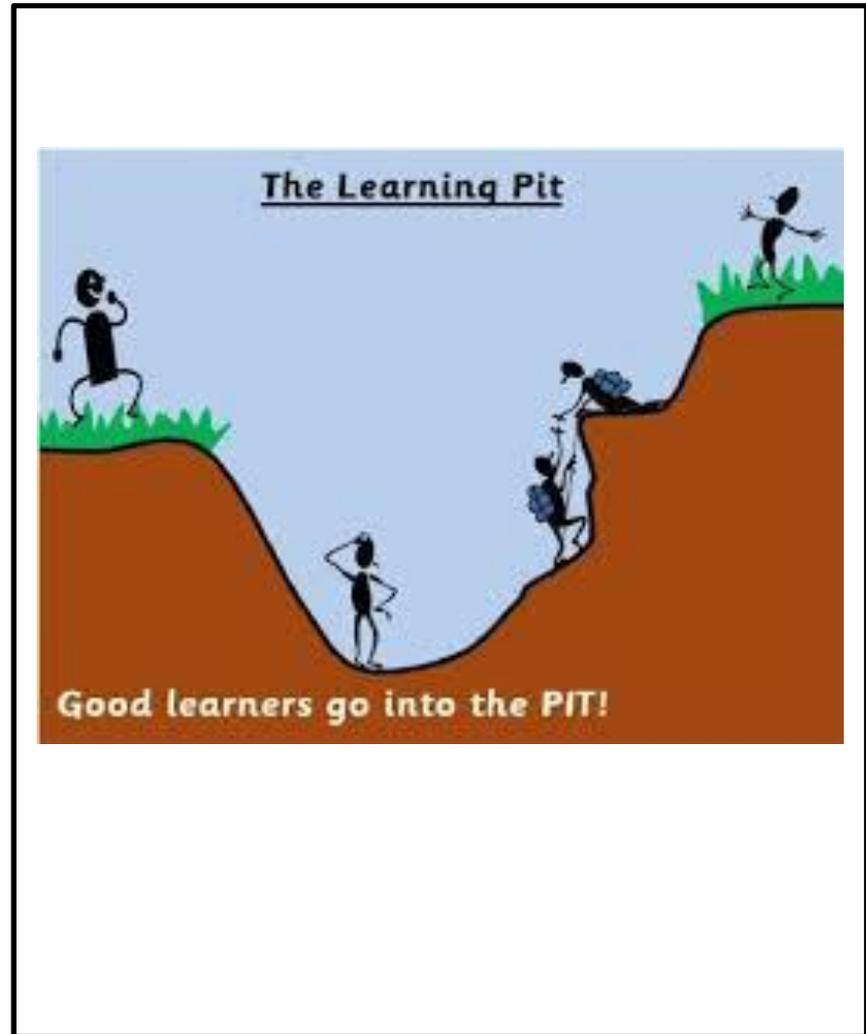
Concepts

Elaboration & Expansion



The Learning Pit

Concepts – Not Facts!



Level 2

*Elaborate & Expand
Concepts*



CONCEPT SHIFTING VERBS

RECALL

SUMMARIZE

CONTRAST

DEFEND

IDENTIFY

DEFINE

RESTATE

CLASSIFY

QUESTION

CRITICIZE

TEST

EXPLAIN

ORDER

RECOGNIZE

ASSOCIATE

DECONSTRUCT

DEBATE

HYPOTHESIZE

Concept Shifting (*Deep 2*)

VERBS

Combine

Contrast

Adapt

Modify

Separate

Question

Criticize

Interrogate

Deconstruct

Discriminate

Appraise

Arrange

Categorize

Re-Build

Concept Shifting (*Deep 2*)

GENERAL

Anti-Examples	Interview
Counter-Debate	Survey
Self-Question	Devil's Advocate
Critical Incident	Propaganda
Discussion	Peer Teaching
Break Yourself	Discussion

Concept Shifting (*Deep 2*)

THINKING ROUTINES

G – S – C – E

Connect – Extend –
Challenge

The 4Cs

I used to think...Now I
think

Circle of Viewpoints

DUNLOSKY/HATTIE

Elaboration

Organization

Strategy Monitoring

Elaborative

Interrogation

Self-Regulation

Metacognition

Basic Learning Process

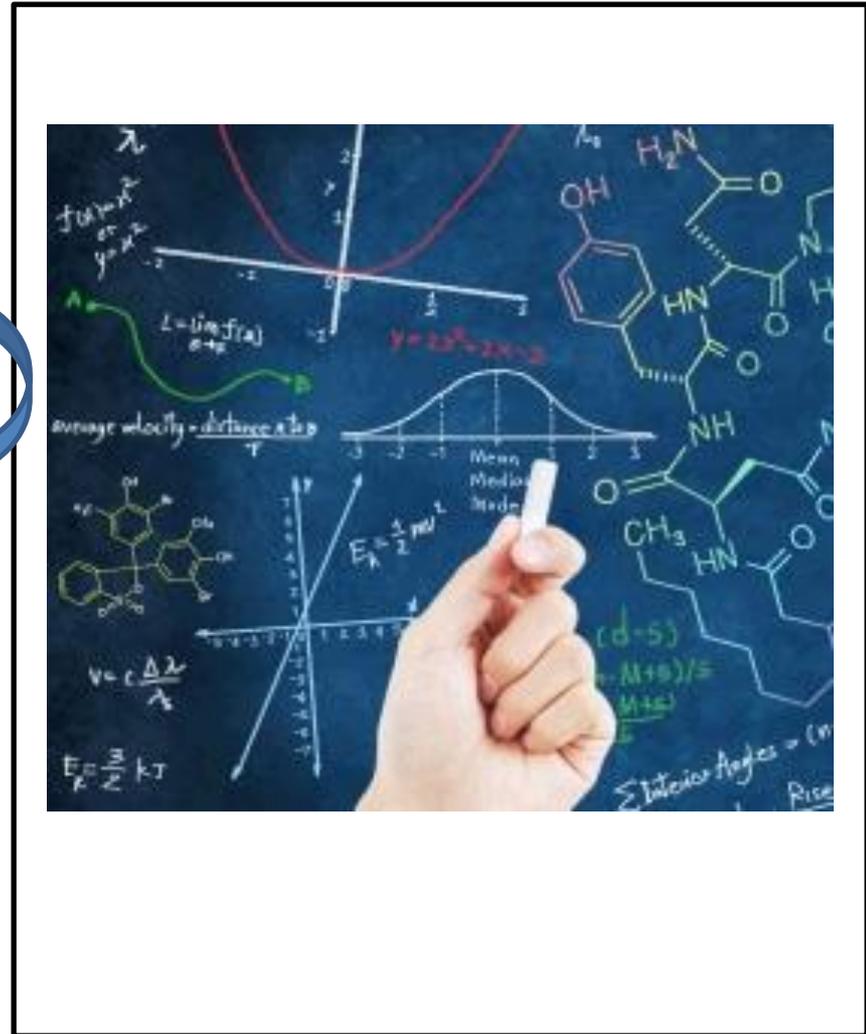
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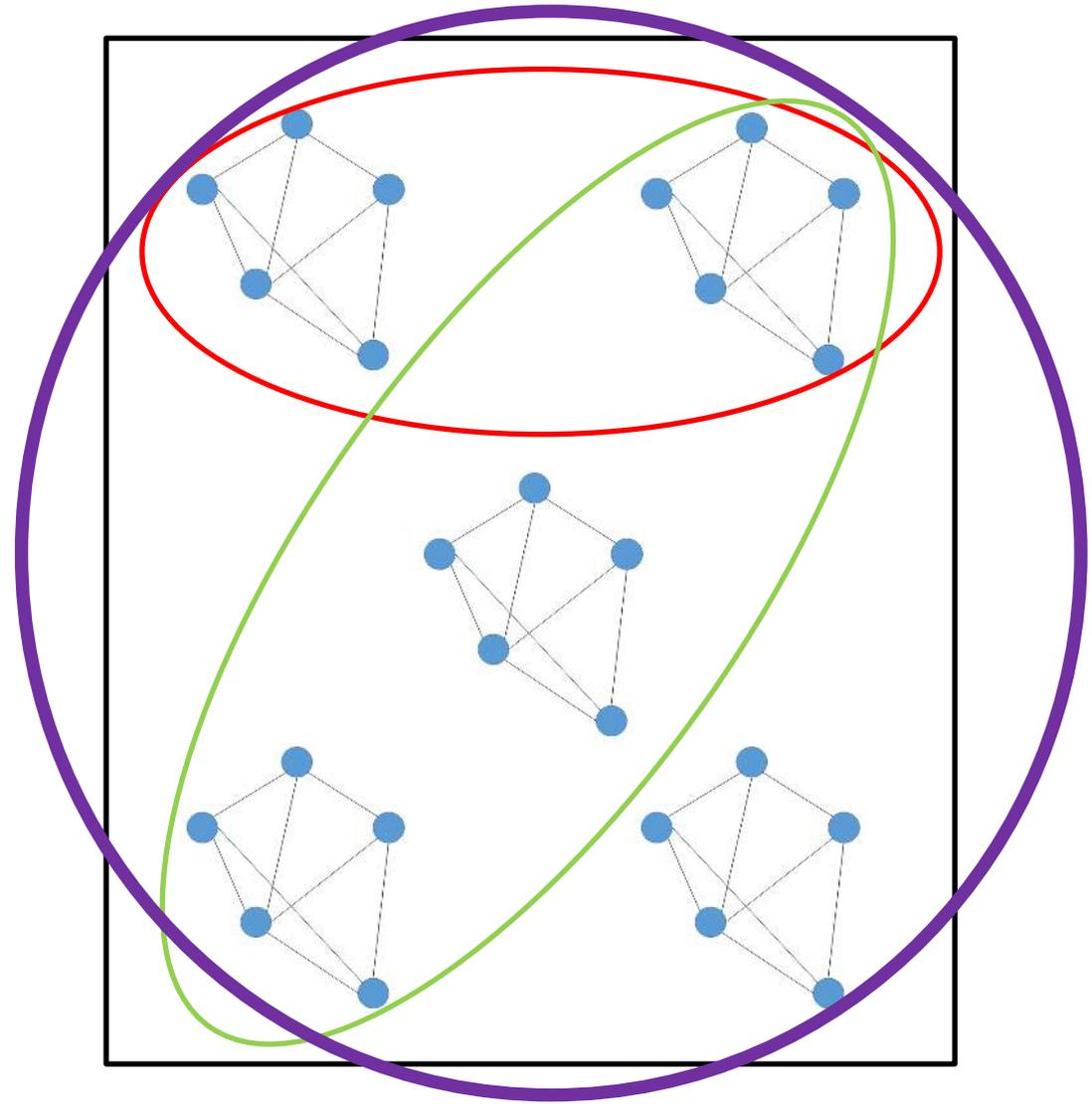


Level 3

Apply & Personalize



Concepts



CONCEPT TESTING VERBS

RECALL

SUMMARIZE

CONTRAST

DEFEND

IDENTIFY

DEFINE

RESTATE

CLASSIFY

QUESTION

CRITICIZE

TEST

EXPLAIN

ORDER

RECOGNIZE

ASSOCIATE

DECONSTRUCT

DEBATE

HYPOTHESIZE

Concept Testing (*Deep 3*)

GENERAL

What would happen if...

Design

Experiment

Creative Expression

Build

Convince Me

Invent

Self-Reflection

How would you overcome

Simulation

Outreach

Forecast

Concept Testing (*Deep 3*)

THINKING ROUTINES

Micro-Lab

Red Light – Yellow Light

Claim – Support –
Question

Does it Fit?

Creative Questions

Why Say That?

DUNLOSKY/HATTIE

Seek Help form Peers

Evaluation

Self-Monitoring

Collaborative Inquiry

Reflection

Peer Tutoring

Peer Discussion

Basic Learning Process

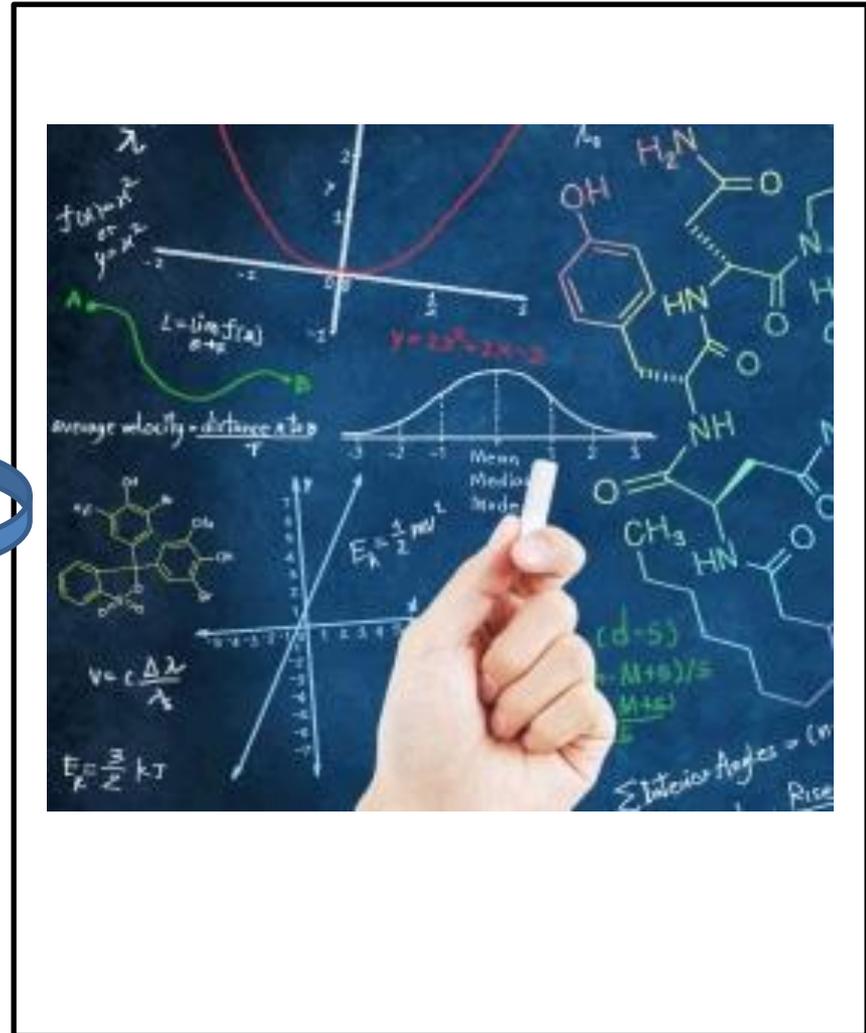
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Concept Testing (Deep 3)

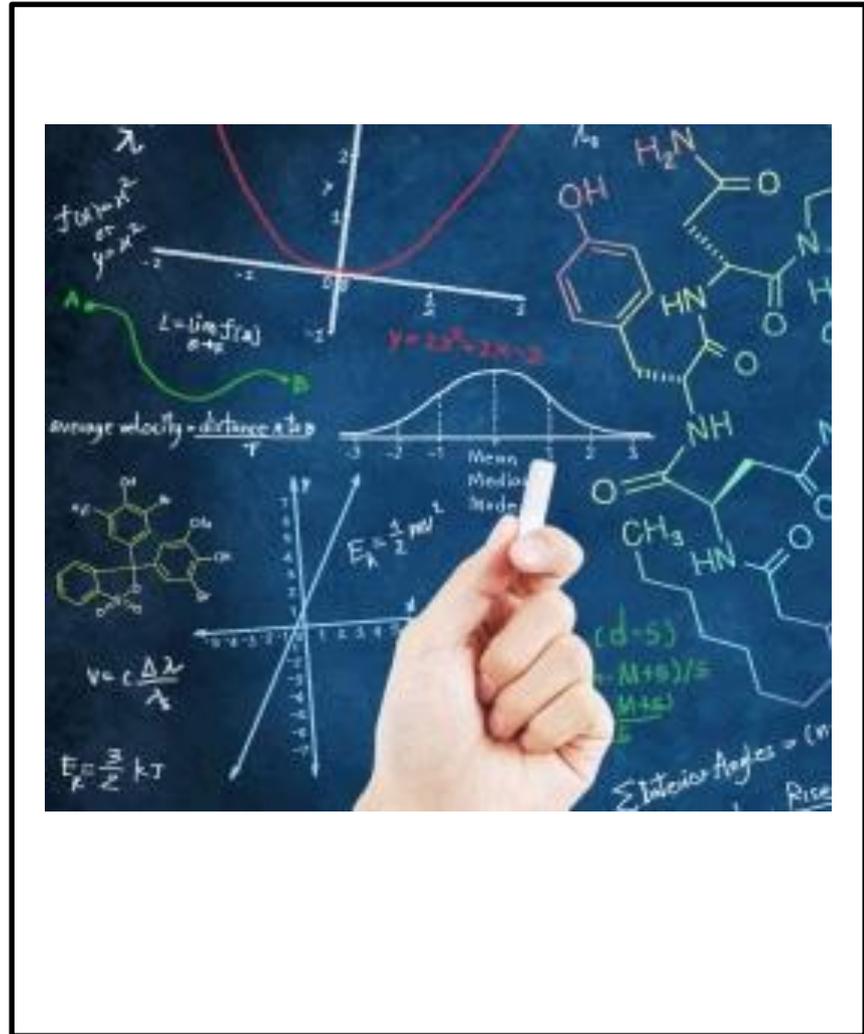
Transfer



Basic Learning Process

Surface = Facts

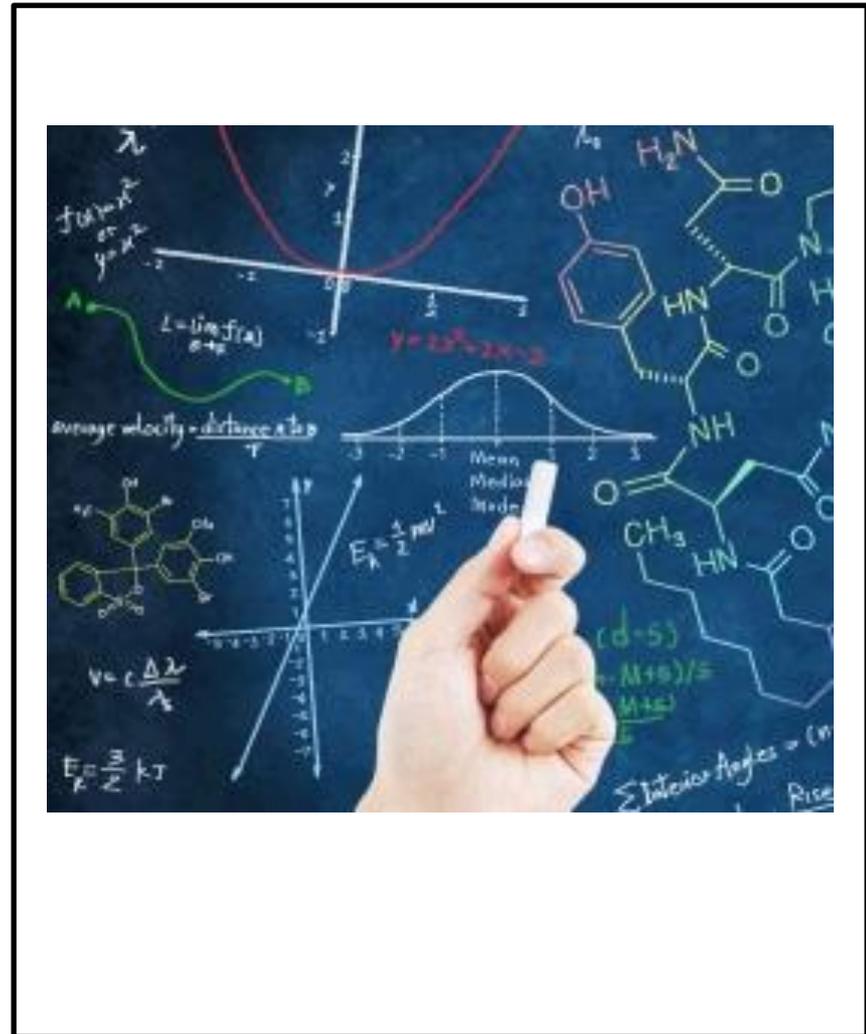
*(Answers – Clear Y/N -
Unchanging)*



Basic Learning Process

Deep = Concepts

*(Answer-less – Unclear Y/N –
Always Changing)*



Basic Learning Process

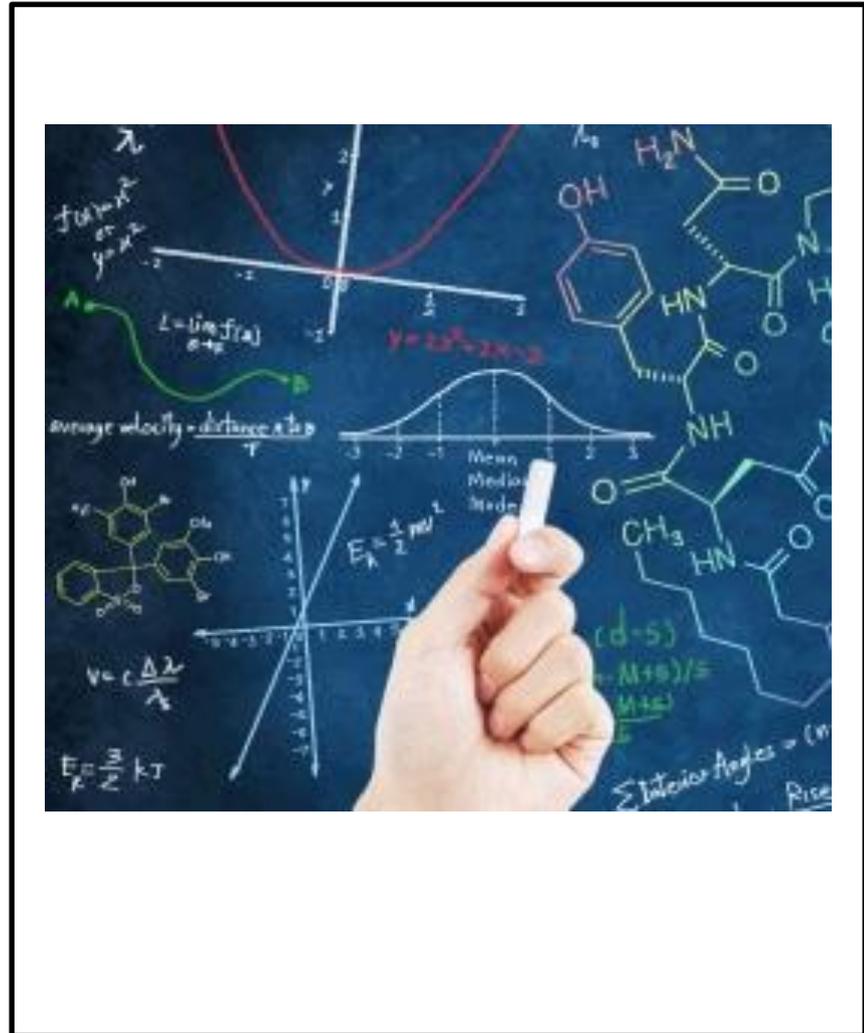
Retrieval (Surface)

Concept Formation (Deep 1)

Concept Shifting (Deep 2)

Concept Testing (Deep 3)

Transfer



So Now Then

Shameless Plug!

From **THEORY** to **PRACTICE**



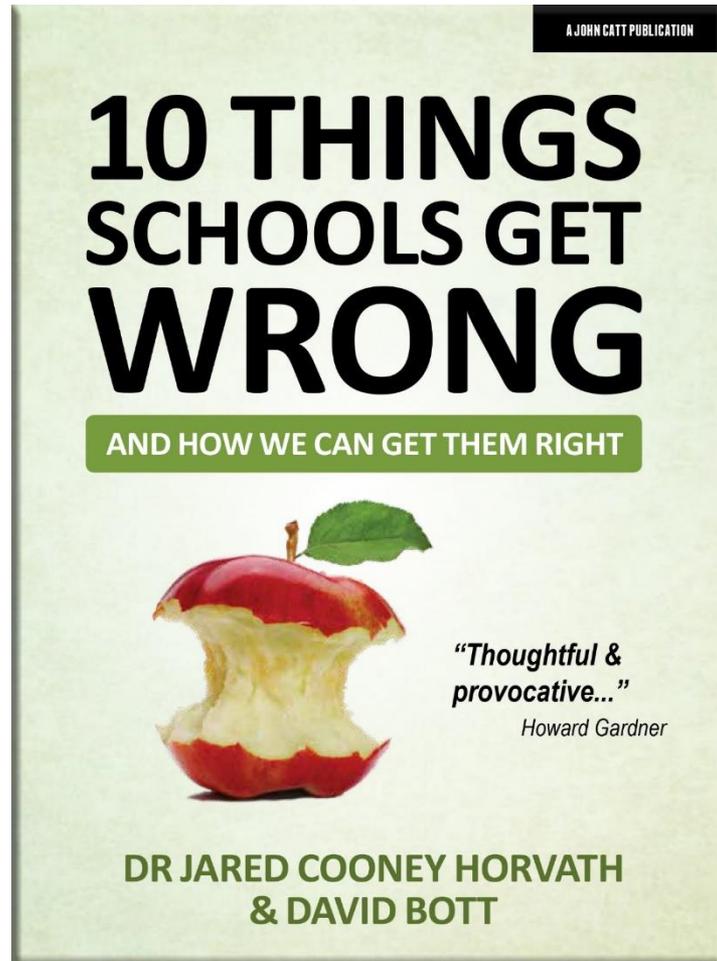
BRIDGING THE GAP BETWEEN THE LAB AND THE CLASSROOM

Dr. Jared Cooney Horvath



YouTube: **Jared Cooney Horvath**

Shameless Plug!



**10 THINGS
SCHOOLS GET WRONG**
(AND HOW WE CAN GET THEM RIGHT)



@JCHorvath



Jared Cooney Horvath

www.lmeglobal.net

(weekly newsletter)

