

## Session 3

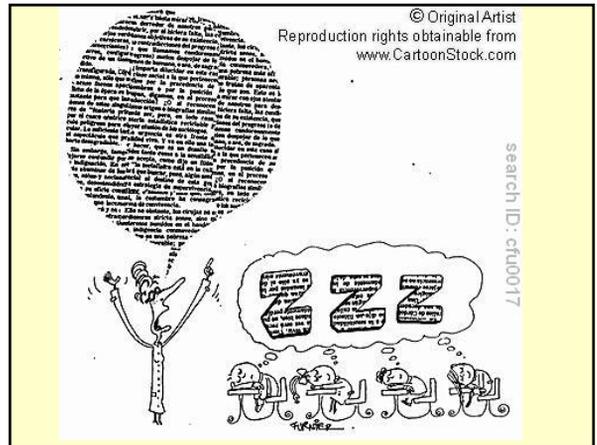
# Lesson Planning and Tools to Develop Thinking



### WHAT IS IT ABOUT YOUR STUDENTS THAT MAKES YOU THINK THEY NEED TO LEARN HOW TO THINK?

- What do you see them doing?
- What do you hear them saying?
- How are they feeling?
- How would you like them to be?

- Take think time
- Generate lots of options when making a decision
- Look beyond the obvious toward a richer conception of a topic
- Challenge assumptions and question the validity of given information
- Find problems and solve them
- Wonder about deep issues or structure
- Seek alternative solutions and perspectives
- Pay attention to detail to achieve deeper understanding
- Make connections to ideas and subjects students already know about in or out of school
- Seek hidden causes and explanations
- Give examples and evidence to make a point
- Produce reasons and arguments from multiple perspectives
- Find new and effective ways to apply knowledge
- Anticipate potential consequences
- Demand and provide proof
- Make plans, set goals and standards
- Anticipate obstacles
- Use diagrams, graphs, and organizers to illustrate ideas and concepts
- Detect patterns of thinking
- Describe strengths and weaknesses in learning



## Curriculum Planning for a Thinking Classroom

### Step 1 Engagement

- Relevance
- Novelty
- Cognitive Dissonance
- Emotional Hooks
- Making connections



## Relevance

Need

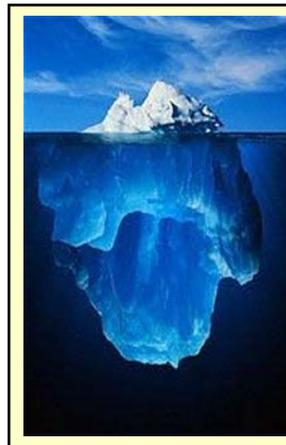
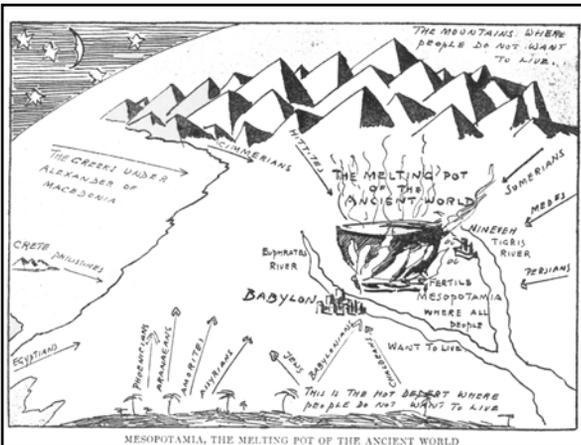
Want

Experience

Expectations

## Novelty

- Story telling
  - Metaphor: create meaning
  - Personal or unusual stories
- Questioning
  - Leading/Non-leading questions
  - Divergent questions



The photographer, Ralph A. Clevenger, says he created it from a composite of **four** images.

He says: "I created the image as a way of illustrating the concept of what you get is not necessarily what you see.

How could you use it?



Cognitive dissonance -

trying to make sense of things

## Emotional Hooks

- Music - 
- Questioning
- Hot Button Topics
- Student's interest
- Student's life experiences

## Making Connections

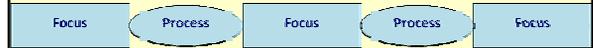
- The brain - patterns  
- sense of the world.
- connection with what is previously known.
- connections move it from short term to long term memory (15 seconds!)

## Pulse Learning

The brain prefers alternating focused instruction with processing

Age  $\pm$  2 minutes for focused learning

2 - 5 minutes for processing



## Step 2 Setting Goals



Go beyond

Make thinking explicit

Make thinking visible

## Going Beyond

ACTIVE learners go beyond the information given.

They construct meaning, generate explanations, challenge assumptions, make comparisons, apply ideas to new contexts.



Passive learners  
Inert knowledge  
Routine expertise

Active learners  
Transformational knowledge  
Flexible, Adaptive expertise



## Backward Design

(Wiggins & McTighe Understanding By Design)

1. What enduring knowledge, understand, or skills do I want my students to have?
2. What evidence will tell me if they have these?
3. What learning activities will develop these?

# St. Aloysius College 3 April 2009

## Develop then Demonstrate

The only way to know with certainty how much students understand is to ask them to carry out some task that requires them to **go beyond** what you have told them or what they have read in a textbook.

**Bloom**

**Create**

**Evaluate**

**Analyze**

**Apply**

You are teaching percentages, Archimedes Principle or the history of the Second World War.

Define the enduring knowledge, understanding and/or skills you want your students to have.

Make sure they **go beyond** the information or routines you provide.

processing

## Mathematics

Find the following: 84% of 3,576,  
12% of 450,  
50% of .766

students perform a mathematical routine.

Rewrite this as a task that will develop and demonstrate the routines and understanding of how to use percentages to describe real world happenings

- **go beyond by applying to the real world.**

## Science

Students read and/or teacher explains Archimedes' principle.

THEN

They then create a set of visuals/diagrams that explain the principles involved  
- **go beyond by processing non-linguistically.**

## History

*Identify the differences in these two accounts of the causes of the second world war.*

recalling, analysing, describing  
- not going beyond what they read or were told

Could be rewritten as:

*identify the differences between two accounts, and consider why they differ and how you might find out what really happened?*

evaluating, creating  
- **go beyond by thinking about fundamental questions about historical reference material.**

## Planning Tools



Bloom's Revised Taxonomy poster  
Bloom's Taxonomy Activity Planning Framework  
Bloom's Experiment Form





St. Aloysius College  
3 April 2009



processing

Try it!

Topic: Teaching thinking.

Rules

One roll per group member  
Answer question that is face up as individual or as group

Go round twice  
Group challenges - roller records  
Same challenge - respond second time, thereafter re roll



processing

Next Steps

The Thinking Curriculum is *interdisciplinary*

"a core integrative function"  
VELS 2008

How do you realize this 'integrative function' in this school?

How is thinking a part of the culture of the school?

We invite your continued contact with us



Thinking & Learning In  
Concert

... promoting the harmonious integration  
of skillful thinking and learning  
[ausaTLC@aol.com](mailto:ausaTLC@aol.com)

[www.ThinkingAndLearningInConcert.org](http://www.ThinkingAndLearningInConcert.org)