

Taxonomy

Adapted from: Dimensions of Learning (Marzano & Pickering); The New Taxonomy of Educational Objectives (Marzano & Kendall)

USING KNOWLEDGE: Generating & Testing Hypotheses to...

...Address Situations & Issues

Decision Making

Select from among seemingly equal alternatives

- Select the best alternative
- Generate criteria to select
- What is the best way
- Which has the most suitable

Situational Problem Solving

Accomplish a goal for which obstacles exist

- Figure out a way to
- Given the conditions/obstacles, how will you reach your goal

Invention

Develop a new product/process that fulfills a perceived need

- Create a new way to
- Devise something that will
- Change the way
- Improve this situation with a new

...Clarify Phenomena & Events

Experimental Inquiry

Offer and test explanations for what is observed

- If....then...
- What can be predicted
- What would happen if
- How would you determine if
- How can this be explained

Investigation

*Historical-Projective-Definitional
Resolve confusions related to concepts or events*

- What actually happened when
- What would have happened if
- Resolve the confusion about
- What will happen if
- Construct a definition of

Systems Analysis

Explain parts of a system and how changing one part influences others

- Explain purpose of system
- Describe how parts affect each other
- What would happen if this part changes

ANALYZING KNOWLEDGE: Examining & Generating....

...Similarities & Differences

Comparing

Identify similarities & differences among items and ideas

- Compare
- Contrast
- Differentiate
- Discriminate
- Distinguish

Classifying

Group items according to similarities

- Sort
- Categorize
- Organize

Analogical Thinking

Show similar relationships for items across domains

- Create an analogy for
- ___ is to ___ as ___ is to ___
- Show the same pattern in both

...Arguments & Assertions

Analyzing Perspectives

Identify reasons & logic for perspectives on an issue

- Clarify the reasons for
- Identify the logic behind
- Find out why someone might think

Constructing Support

Build support for assertions or opinions

- Take a position on
- Defend your position on
- Explain your reasons
- Offer arguments for

Analyzing Errors in Reasoning

Identify logical or factual errors

- Question the validity of
- Listen to insure
- Assess
- Expose fallacies in

...Logical Inferences

Deductive Reasoning

Apply general statements to specifics; draw conclusions

- Make and defend
- Predict what will happen
- Complete: If...then
- Because this is A, what do you know

Inductive Reasoning

Draw general conclusions from multiple specifics

- Create a principle
- Create a rule
- What conclusions can be drawn

COMPREHENDING KNOWLEDGE

Symbolizing: *Construct symbolic representations of information*

- Symbolize
- Represent
- Draw/Illustrate
- Show the organizational patterns in
- Diagram to highlight
- Chart

Integrating: *Identify basic elements/structure of knowledge*

- Describe how or why
- Identify the key parts of
- Trace the development of ideas in
- Describe in your own words the effects
- Explain ways in which
- Paraphrase, Summarize

RETRIEVING KNOWLEDGE

Recognizing: *Identify information related to targeted knowledge*

- Select
- True, False
- Match
- Identify
- Point to

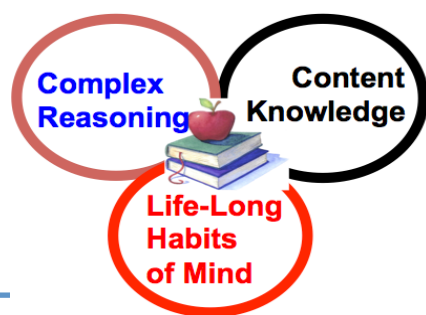
Recalling: *Produce information related to targeted knowledge*

- State
- Describe
- Explain the major
- Who, what, when where
- How, why
- List, name

Executing: *Carry out a mental or physical procedure*

- Read
- Write
- Demonstrate
- Add, Subtract
- Multiply, Divide
- Solve for
- Complete
- Use
- Perform

Planning (Stimulus) Questions for Structured Tasks



Analysis

Comparing

- Would it be useful to show how things are similar and/or different?
- Would it be useful for students to focus on identifying how similar things are different and how different things are similar?

Classifying

- Would it be helpful to have students group things?
- Would it be beneficial for students to generate a number of ways to group the same list of things?

Analogical Thinking

- Is there a relationship in one domain that could be used to understand something in a very different domain?
- Could something complex or unfamiliar be understood better by connecting it to a relationship from something simple or more familiar?

Constructing Support

- Are there important claims to be refuted or supported?
- Would it be important to examine existing arguments that support or refute a claim?

Analyzing Errors in Reasoning

- Are there situations in which it would be beneficial to identify errors in reasoning?

Analyzing Perspectives

- Would it be useful to identify and understand the reasoning or logic behind a perspective on a topic or issue?
- Would it be useful to analyze opposing perspectives on a topic or issue?

Inductive Reasoning

- Are there important unstated conclusions that could be generated from observations or facts?
- Are there situations for which probable or likely conclusions could be generated?
- Are there issues or situations for which students could examine the inductive reasoning used?

Deductive Reasoning

- Are there generalizations (or rules or principles) that could be applied to reach conclusions and make predictions?
- Are there topics or issues for which students could examine the validity of the deductive reasoning used?

Using Knowledge

Decision Making

- Is there an unresolved decision important to the unit?
- Is there an unresolved issue about who or what
 - has the most or least?
 - is the best or worst?

Problem Solving

- Is there a situation in which a goal cannot be achieved because of a major constraint or limiting condition?
- Is there a situation or process that could be better understood if constraints or limiting conditions were placed on it?

Invention

- Is there a situation that can and should be improved on?
- Is there something new that should be created?

Experimental Inquiry

- Is there an unexplained phenomenon (physical or psychological) for which students could generate explanations that can be tested?

Investigation

- Is there an unresolved issue about something for which a resolution could be posed? For example, are there unresolved issues about
 - the defining characteristics of something? (Definitional)
 - how or why something occurred? (Historical)
 - what would happen if or what would have happened if? (Projective)

Systems Analysis

- Is there a system for which the interaction of parts could be clarified?
- Is there a system for which parts could be altered and then conclusions drawn about potential effects?