

# “Making Connections”

## Depth of Knowledge Levels and Rigor & Relevance Quadrants

### LEVEL 1 – RECALL & REPRODUCTION/QUADRANT A - Acquisition (Low Rigor/Low Relevance)

#### Teacher Works

Curricular elements that fall into this category involve basic tasks that require students to recall or reproduce knowledge and/or skills. The subject matter content at this particular level usually involves working with facts, terms and/or properties of objects. It may also involve use of simple procedures and/or formulas. There is little transformation or extended processing of the target knowledge required by the tasks that fall into this category. Key words that often denote this particular level include: list, identify and define. A student answering a Level 1/A item either knows the answer or does not; that is, the answer does not need to be “figured out” or “solved.”

#### POSSIBLE PRODUCTS

Quiz	Definition	Fact	Worksheet
Test	Label	List	Workbook
Reproduction	Vocabulary Quiz	Recitation	Example
Collection	Explanation	Show and Tell	Outline
Blog	Wiki	Podcast	Categorizing/Tagging
Commenting	Bulleting	Highlighting	Social networking
Social bookmarking	Searching	Googling	

#### ROLES

##### TEACHER

Directs	Tells
Shows	Examines
Questions	Evaluates
Demonstrates	Listens
Compares	Contrasts
Examines	

##### STUDENT

Responds	Absorbs
Remembers	Recognizes
Memorizes	Describes
Explains	Translates
Restates	Demonstrates
Interprets	

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#### POTENTIAL ACTIVITIES (Level 1/QA)

- ✓ Develop a concept map showing a process or describing a topic.
- ✓ Make a timeline
- ✓ Write a list of keywords you know about...
- ✓ Make a chart showing...
- ✓ Recite a fact related to...
- ✓ Write in your own words...
- ✓ Cut out, or draw a picture that illustrates an event, process, or story.
- ✓ Report or present to the class.
- ✓ Make a cartoon strip showing the sequence of an event, process, or story.
- ✓ Write and perform...
- ✓ Write a brief outline and explain the event, process, or story.
- ✓ Write a summary report of the event
- ✓ Prepare a flow chart that illustrates the sequence of events.
- ✓ Paraphrase a chapter in the book
- ✓ Retell in your own words
- ✓ Outline the main points
- ✓ Recall, restate, remember, or recognize a fact, term, or property (Recognizing, listing, describing, identifying, retrieving, naming, locating, finding)
- ✓ Using basic calculation tasks involving only one step (i.e. addition, subtraction, etc), complete the following...
- ✓ Locate or retrieve information in verbatim form.
- ✓ Straight-forward recognition tasks related to identifying features, objects and/or steps that don't vary greatly in form (i.e. recognizing features of basic tools).
- ✓ Writing tasks that involve applying a standard set of conventions and or criteria that should eventually be automated (i.e. using punctuation, spelling, etc)
- ✓ Basic measurement tasks that involve one step (i.e. using a ruler to measure length)
- ✓ Use this simple formula where at least one of the unknowns is provided to...
- ✓ Locating information in maps, charts, tables, graphs, and drawings
- ✓ Recall details of a story (events, character, plot, setting, etc.).
- ✓ Identify specific information contained in graphics.
- ✓ Conduct basic mathematical calculations.
- ✓ Label locations on a map.
- ✓ Represent in words or diagrams a scientific concept or relationship.
- ✓ Perform routine procedures like measuring length or using punctuation marks correctly.
- ✓ Describe the features of a place or people group.
- ✓ Identify *who, what, where, when* of a particular event or issue, list attributes, or define the meaning of terms.

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**Level 2 – WORKING WITH SKILLS & COONCEPTS/ QUARDRANT B - Low Rigor/High Relevance**

**Student Work**

Level 2/B includes the engagement of some mental processing beyond recalling or reproducing a response. This level generally requires students to contrast or compare people, places, events and concepts; convert information from one form to another; classify or sort items into meaningful categories ; describe or explain issues and problems, patterns , cause and effect, significance or impact, relationships, points of view or processes. A Level 2 “describe or explain” would require students to go beyond a description or explanation of recalled information to describe or explain a result or “how” or “why.” The learner should make use of information in a context different from the one in which it was learned. Elements found in a curriculum that fall in this category involve working with or applying skills and/or concepts to tasks related to the field of study in a laboratory setting. The subject matter content at this particular level usually involves working with a set of principles, categories, heuristics, and protocols. At this level students are asked to transform/process target knowledge before responding. Example mental processes that often denote this particular level include: summarize, estimate, organize, classify, and infer.

**POSSIBLE PRODUCTS**

Photograph	Illustration	Simulation	Sculpture
Demonstration	Presentation	Interview	Performance
Dairy	Journal	Mind Maps	Blog Commenting
Blog Reflecting	Moderating	Validating	Linking

**ROLES**

**TEACHER**

**STUDENT**

Shows	Facilitates	Solves problems	Demonstrates use of knowledge
Observes	Evaluates	Calculates	Compiles
Organizes	Questions	Completes	Illustrates      Constructs

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**POTENTIAL ACTIVITIES (DOK 2 & QB)**

- ✓ Classify a series of steps
- ✓ Construct a model to demonstrate how it looks or works
- ✓ Practices a play and perform in class
- ✓ Make a diorama to illustrate an event
- ✓ Write a diary/blog entry
- ✓ Make a scrapbook about the area of study
- ✓ Make a topographic map
- ✓ Make up puzzle or game about the topic
- ✓ Write an explanation about this topic for others
- ✓ Make a model...
- ✓ Routine application tasks (i.e. applying a simple set of rules or protocols to a laboratory situation the same way each time)
- ✓ Explaining the meaning of a concept and/or explaining how to perform a particular task
- ✓ Stating relationships among a number of concepts and or principles<sup>10</sup>
- ✓ More complex recognition tasks that involve recognizing concepts and processes that may vary in how they “appear”
- ✓ More complex calculation tasks (i.e. multi-step calculations such as standard deviation)
- ✓ Research projects and writing activities that involve locating, collecting, organizing and displaying information
- ✓ (i.e. writing a report with the purpose to inform; meeting all steps of the writing process)
- ✓ Measurement tasks that occur over a period of time and involve aggregating/organizing the data collected in
- ✓ Identify and summarize the major events of a narrative.
- ✓ Use context cues to identify the meaning of unfamiliar words.
- ✓ Solve routine multi-step problems.
- ✓ Describe the cause and effect of a particular event or issue.
- ✓ Identify patterns in events or behavior.
- ✓ Compare/contrast people, places, events, and concepts.
- ✓ Convert information from one form to another form.
- ✓ Formulate a routine problem/issue given data and conditions.
- ✓ Organize, represent, and interpret data.

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**LEVEL 3 – SHORT-TERM STRATEGIC THINKING/QUADRANT C – ASSIMILATION (High Rigor/Low Relevance)**

**Student Thinks**

Items falling into this category demand a short-term use of higher order thinking processes, such as analysis and evaluation, to solve real-world problems with predictable outcomes. Stating one’s reasoning is a key marker of tasks that fall into this particular category. The expectation established for tasks at this level tends to require coordination of knowledge and skill from multiple subject-matter areas to carry out processes and reach a solution in a project-based setting. Key processes that often denote this particular level include: analyze, explain and support with evidence, generalize, and create.

**POSSIBLE PRODUCTS**

Graph	Spreadsheet	Checklist	Chart
Outline	Survey	Database	Mobile
Abstract	Report	Debate	Panel
Report	Evaluating	Investigation	Conclusion
Program	Film	Animation	Video cast
Podcast	Publishing	Wiki-ing	

**ROLES**

**TEACHER**

**STUDENT**

Probes	Guides	Discusses	Uncovers	Argues
Observes	Evaluates	Debates	Thinks deeply	Tests
Acts as a resource		Questions	Examines	Questions
Organizes	Dissects	Judges	Disputes	Compares
Clarifies	Accepts	Assesses	Decides	Selects
Guides		Justifies	Calculates	

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#### POTENTIAL ACTIVITIES Level 3/QC

- ✓ Use a Venn Diagram that shows how two topics are the same and different
- ✓ Design a questionnaire to gather information
- ✓ Survey classmates/industry members to find out what they think about a particular topics
- ✓ Make a flow chart to show the critical stages.
- ✓ Classify the actions of the characters in book
- ✓ Prepare a report about an area of study
- ✓ Conduct an investigation to produce information to support a view
- ✓ Write a letter to the editor after evaluation product
- ✓ Prepare and conduct a debate
- ✓ Prepare a list of criteria to judge
- ✓ Write a persuasive speech arguing for/against...
- ✓ Make a booklet about five rules you see as important. Convince others.
- ✓ Form a panel to discuss viewpoints on...
- ✓ Write a letter to... advertising on changes needed.
- ✓ Prepare a case to present your view about...
- ✓ Short-term tasks and projects placing a strong emphasis on transferring knowledge to solve predictable problems
- ✓ Explaining and/or working with abstract terms and concepts
- ✓ Recognition tasks when the environment observed is real-world and often contains extraneous information which must be sorted through
- ✓ Complex calculation problems presented that draw upon multiple processes
- ✓ Writing and or explaining tasks that require altering a message to “fit” an audience
- ✓ Creating graphs, tables and charts where students must reason through and organize the information
- ✓ Support ideas, thesis, or predictions with specific evidence, details, and examples.
- ✓ Use *voice* appropriate to purpose and audience.
- ✓ Identify research questions and design investigations for a scientific problem.
- ✓ Develop a scientific model for a complex situation.
- ✓ Determine the author’s purpose and describe how it affects the interpretation of a reading selection.
- ✓ Apply a concept in another context.
- ✓ Draw conclusions from a variety of sources of information.
- ✓ Make connections across time and place to explain a concept or big idea.”

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**Level 4 – EXTENDED STRATEGIC THINKING/QUADRANT D – ASSIMILATION (High Rigor/High Relevance)**

**Student Works and Thinks**

Curricular elements assigned to this level demand extended use of higher order thinking processes such as synthesis, reflection, assessment and adjustment of plans over time. Students are engaged in conducting investigations to solve real-world problems with unpredictable outcomes. Employing and sustaining strategic thinking processes over a longer period of time to solve the problem is a key feature of curricular objectives that are assigned to this level. Key strategic thinking processes that denote this particular level include: synthesize, reflect, conduct, and manage.

**POSSIBLE PRODUCTS**

Film	Story	Project	Plan
New Game	Song	Newspaper	Media Product

**ROLES**

**TEACHER**

**STUDENT**

Facilitates	Extends	Designs	Formulates	Plans
Reflects	Analyses	Takes risks	Modifies	Creates
Evaluates		Proposes		

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#### POTENTIAL ACTIVITIES Level 4/ Quadrant D

- ✓ Applying information to solve ill-defined problems in novel situations
- ✓ Tasks that require a number of cognitive and physical skills in order to complete
- ✓ Writing and/or research tasks that involve formulating and testing hypotheses over time
- ✓ Tasks that require students to make multiple strategic and procedural decisions as they are presented with new information throughout the course of the event
- ✓ Tasks that require perspective taking and collaboration with a group of individuals
- ✓ Creating graphs, tables, and charts where students must reason through and organize the information without instructor prompts
- ✓ Writing tasks that have a strong emphasis on persuasion
- ✓ Devise a way to...
- ✓ Develop a menu for a new restaurant using a variety of healthy foods
- ✓ Sell an idea
- ✓ Write a jingle to advertise a new product
- ✓ Conduct an internship in industry where students are faced with real-world, unpredictable problems
- ✓ Conduct a project that requires specifying a problem, designing and conducting an experiment, analyzing its data, and reporting results and/or solutions.
- ✓ Analyze and synthesize information from multiple sources.
- ✓ Describe and illustrate how common themes are found across texts from different cultures.
- ✓ Design a mathematical model to inform and solve a practical or an abstract situation.
- ✓ Design a thesis, conduct an investigation using multiple sources, analyze and synthesize the evidence in a written report (essay) or multimedia presentation, and present to an audience.