The lists below are general examples, but they are not a complete list. Depending upon how the item is written, these descriptions may not always apply.

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|  **Cognitive Skill** | **Description** |
| ***Remembering***  | * **Identify or define a basic concept or term with little or no context**
* Recall facts with little or no context

*Does the item require recalling or remembering facts or definitions?* |
| ***Understanding*** | * **Describe, explain, or identify typical classroom examples for a chemistry concept**
* Recognize and differentiate representations and descriptions of familiar models (e.g., gas law equations, models of matter, atomic models, VSEPR models)
* Predict the molecular geometry of familiar molecules
* Identify correctly drawn Lewis dot structures for familiar molecules and compounds
* Identify and write the electron configuration elements 1–20 in the periodic table
* Name compounds and provide chemical formulas given a compound’s name
* Recognize appropriate use of chemistry techniques in a familiar situation
* Solve simple quantitative problems using one formula with three variables (e.g., density, simple gas-law applications)

*Does the item require the recognition or a description of a familiar concept?* |
| ***Applying*** | * **Describe, explain, or identify a concept presented in a novel situation**
* Draw conclusions by comparing and contrasting information in novel situations
* Draw conclusions by interpreting information/data (including graphs and tables) or make predictions based on data (does not include “critical examination” of data, as is done for analyzing)
* Make predictions (e.g., equilibrium shifts) based on information or data
* Identify Lewis dot structures for unfamiliar molecules and compounds
* Predict the molecular geometry of unfamiliar molecules
* Solve chemistry problems (e.g., gas laws, dilution, percent yield, percent composition, stoichiometry with familiar compounds, molecules, or atoms)

The following apply to open-response items:* Describe or explain a concept in a novel situation using familiar models (e.g., gas laws, models of matter, VSEPR)
* Draw models (e.g., atomic models, Lewis dot structures) of familiar atoms, molecules, and compounds
* Describe or explain appropriate use of chemistry techniques in a given situation

*Does the item require drawing conclusions based on novel information or solving problems?* |
| ***Analyzing*** | * **Critically examine and interpret data** (e.g., graphs with lines with differing slopes or tables with multiple variables) or diagrams to draw conclusions or perform complex calculations based on given information (Note: An item with a graph/ table/diagram is not necessarily analyzing—it depends on how the information needs to be interpreted.)*Does* *the item require critical examination of information to make conclusions or perform calculations?*
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| ***Creating***  | * **Generate an explanation/conclusion** by combining **two or more chemistry concepts** in a novel situation
* **Construct** models, graphs, charts, drawings, or diagrams **and generate explanations** or conclusions based on the information
* Propose solution(s) to a scientific problem based on given criteria and constraints and generate an explanation for the solution(s)

*Does the item require the synthesis of different concepts or skills to generate a solution?* |
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