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?* | | |
| ***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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