Taxonomy of Educational Objectives

Brief Summary of
Taxonomy developed by Benjamin Bloom

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1. **Knowledge:**
   The recall of specifics and universals, involving little more than bringing to mind the appropriate material.

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   Examples:
   a.   Define the term "short term memory."
   b.   Identify the five major Prophets of the Old Testament.
   c.   Who won the Battle of Waterloo?
   d.   Write the equation for the Ideal Gas Law.
   e.   What are the five sections of a research report?
   f.   List the characteristics peculiar to the Cubist movement.
   g.   What are gram-positive bacteria?

2. **Comprehension**:
   The ability to process knowledge on a low level such that the knowledge can be reproduced or communicated without verbatim repetition.

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   Examples:
   a.   From a "story problem" description, set up the mathematical manipulation needed to solve the problem.
   b.   Describe in prose what is shown in graph form.
   c.   In one sentence give the point of a written passage.
   d.   From a blueprint describe the article depicted.
   e.   Given an experimental paradigm, state the question being asked.
   f.   Translate the following paragraph from "Der Spiegel" into proper English.

3. **Application:**
   The use of abstractions in concrete situations.

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   Examples:
   a.   Relate the principle of reinforcement to classroom interactions.
   b.   Describe an experiment to answer the question of the effects of weight on the fall of an object.
   c.   Determine the centroid of a plane figure.
   d.   Train a rat to press a bar.
   e.   Apply shading to produce depth in a drawing.
   f.   Reduce the following circuit by Thevenin's theorem and find the current I1.

4. **Analysis:**
   The breakdown of a situation into its component parts.

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   Examples:
   a.   Identify the assumptions underlying a geometric proof.
   b.   Given an argument for the abolition of guns, enumerate the positive and negative points presented.
   c.   Analyze the following oscillator circuit and determine the frequency of oscillation.
   d.   Given a research design, identify the predictor and criterion variables and the constraints on external and internal validity.
   e.   Evaluate the reliability of the following vapor-liquid equilibrium data using the Gibbs-Duhem equation.

5. **Synthesis**:
   The putting together of elements and parts to form a whole.

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   Examples:
   a.   Write a logically organized argument in favor of a given position.
   b.   Given a set of data derive an hypothesis to explain them.
   c.   Given two opposing theories design an experiment to compare them.
   d.   Design an overhead condenser for a distillation column which will condense 75.0 percent of the vapor. Specify number and size of tubes, flow rate of cooling water required, and control equipment for maintaining necessary pressure in shell-side of condenser.
   e.   Construct an original work which incorporates five common materials in sculpture.
   f.   Write a short story relating a personal experience in the style of a picaresque novel.

6. **Evaluation:**
   The making of judgments about the value of material/ methods.

<u>Examples:</u>
   a. Given an argument on any position, enumerate the logical fallacies in that argument.
   b. Given the data available on a research question, take a position and defend it.
   c. Given any research study, evaluate the appropriateness of the conclusions reached based on the data presented.
   d. In a given clinical situation, select the most reasonable intervention and predict the main effects and possible side effects.
   e. Evaluate a work of art, giving the reasons for your evaluation.
   f. On the basis of operating data for the past six months, decide whether the company should buy steel used in our manufacturing process from Company A or Company B.