

# An In-Depth Look at Bloom's Taxonomy

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Now that we have looked at the broad categories of Bloom's Taxonomy and have the six basic cognitive levels in mind, we need to dig a little deeper to appreciate the possibilities for expanding our questioning repertoire. In the following information, each of the six levels of Bloom's Taxonomy of the Cognitive Domain have been broken down into several subcategories. A brief definition of the subcategory is given for each one along with sample questions which would be classified under that subcategory. Endless possibilities for question development can result from knowing these subcategories.

## Questions from the Cognitive Domain

### 1.00 Knowledge

Teachers need to know how to plan effective questions; to do so they must understand the various types of questions.

#### 1.10 KNOWLEDGE OF SPECIFICS

Questions at this level emphasize regurgitation of facts. Questions at this level are easy to formulate and one rarely needs practice. But, always ask yourself, "How is the response going to assist students in obtaining greater understanding of particular information?"

- Examples:**
- How far is it from Austin to San Antonio?
  - Who was the sixteenth president of the United States of America?
  - Which of the four colors is red?

#### 1.20 KNOWLEDGE OF WAYS AND MEANS OF DEALING WITH SPECIFICS

Questions at this level emphasize the knowledge of processes of dealing with facts.

#### 1.21 Knowledge of Conventions

In this category one needs to know accepted ways of dealing with various types of information or situations. Questions as to how a sentence should be constructed as well as the meaning of various mathematical symbols would fit here.

- Examples:**
- What is the correct form for a friendly letter?

- What are the two main factors influencing the effect a question has?
- What does the symbol, +, mean?

#### 1.22 Knowledge of Trends and Sequences

Questions at this level ask about various phenomena in relation to a time dimension.

- Examples:**
- What were the events that led to the fall of the Alamo?
  - What can you say about population growth in America?

#### 1.23 Knowledge of Classifications and Categories

Questions at this level stress remembering certain groupings of information.

- Examples:**
- What are some kinds of poems in English literature?
  - What are the names of the five senses?
  - Name the ten species of trees in the park.

#### 1.24 Knowledge of Criteria

Questions at this level stress awareness of criteria.

- Examples:**
- What are the four criteria for judging bulletin boards?
  - What are the criteria for passing this course?
  - What conditions are required for fog to form?
  - What are two signs of poor dental care in children?

#### 1.25 Knowledge of Methodology

Questions at this level are concerned with a student's awareness of several methods or processes, not in her ability to apply them.

- Examples:**
- If a teacher wishes to individualize her instruction, she should first do...
  - What is the process by which an archaeologist can most correctly date an artifact?

- What method of cooking first requires that the food be sauteed?
- What method of teaching is used to teach multiplication factors?

### 1.30 KNOWLEDGE OF THE UNIVERSALS AND ABSTRACTIONS IN A FIELD

Questions at this level deal with knowledge of principals and generalizations, and knowledge of theories and structures. Questions at this level ask only for awareness of diverse abstractions. Being able to respond is only possessing knowledge; it is not using knowledge. Often students can verbalize generalizations without really comprehending them.

- Examples:**
- What is the basic structure of the discipline of philosophy as presented in class?
  - From the study of various cultures what can we say about the family?
  - Which of the following describes the atomic theory?
  - Which of the following statements of the relationship between the sun and moon are true?

Words used with knowledge questions:

know	repeat	recall	state
define	record	name	write
memorize	list	relate	select
what	distinguish	which	where
when	identify	indicate	acquire
who	reorganize	tell	recognize
describe	show		

### Questions from the Cognitive Domain: 2.00 Comprehension

Questions at this level determine by the student's behavior or response whether she understands the literal message contained in the questions or communications.

#### 2.10 TRANSLATION

Questions at this level focus on the student's ability to translate or paraphrase a communication from one form to another. This could be translating an algebraic formula into a written statement or repeating what an author meant in the student's own words. Knowledge is required, but the stress is on employing this knowledge to understand particular material.

- Examples:**
- Translate this paragraph into Latin.
  - Looking at the map on page 232, list the ten highest elevations.
  - What does the phrase, "smart as a fox," mean?
  - Which of the following philosophies is best represented by the statement, "Cognition consists in forging ideal tools or instruments with which to cope with a given situation."

#### 2.20 INTERPRETATION

Questions at this level ask the responder to derive the essential meanings of a communication. One is asked to relate the different elements of the communication. This category applies as well to art works, music, or events, as well as to written or spoken words. The question is not what did the author or material say, but what is the basic idea or ideas, or message of the situation or writing. Sanders utilizes this category thoroughly and states that six categories of relationships can be found in materials. One uses a common-sense level as opposed to an analytical approach in answering.

- Examples:**
- What does "singing the blues" imply?
  - Which term does not belong in this sentence?
  - A lion is to pride as \_\_\_\_\_ is to flock.
  - Explain why Paul is a developing character in the story.

#### 2.30 EXTRAPOLATION

Questions at this level require a student to translate and gain a basic understanding of the material or situation and also go beyond the situation to expand the information. Questions here ask for making an inference. Drawing conclusions from reading various materials is the major emphasis of this level of comprehension.

- Examples:**
- If the heat continues in Austin, what effect do you think it will have on the park swimming pools? On the attendance at the pools?
  - Using the maps showing how people migrated in the past, where do you think the greatest number of people will be living in 2031?
  - Looking at the graphs you made on plant growth so far, how tall do you think your plant will get?

Words used with *comprehension* questions:

restate	recognize	identify	review
discuss	explain	locate	tell
describe	express	report	infer
relate	illustrate	extrapolate	rephrase
conclude	reorder	rearrange	fill in
estimate	extend	assume	predict
interpret	translate	inform	prepare
read		represent	change

### Questions from the Cognitive Domain: 3.00 Application

Questions at this level ask the students to apply what they have learned. Students must use the information they know; they are not told how to apply the information. Part of the application is in the student selecting a process by which she can use the information required. The main thrust of application questions requires the student to deal with data or solve some type of problem. If you teach a “hands-on” or “discovery/inquiry” type program, students must be given time to apply what they know.

- Examples:**
- Looking at the map, state the possible locations for the cultivation of wheat.
  - Choose from the array of watercolors and paint a picture of a rock.
  - Select a series of chords and play them in a chromatic sequence.
  - Take the proper kind of wood and make a spoon by whittling it.
  - Look at the following paragraph and correctly identify those words that are serving the function of nouns.
  - Take the bunsen burner, hose, equipment on the table, and light the burner.
  - Make a slide of your cheek cells.
  - Write a short story using this week’s spelling words.

#### **Situation Examples:**

1. You’re making a sandwich for your little brother and cut yourself seriously with the knife. Dramatize the steps you would take to handle this emergency situation. If the wound was not serious, what would you do differently?
2. You’re a foreign student with limited English speaking skills who has just arrived in the U.S. for the first time. The person who was to meet you is not there.

- a. How do you get your luggage?
- b. How would you get in contact with the person who was supposed to meet you?
- c. What would you do if you could not get in contact with that person?

Words used with *application* questions:

apply	translate	use	operate
demonstrate	interpret	dramatize	schedule
illustrate	employ	practice	shop
sketch	play	paint	mold
How would	build	choose	restructure
Tell us	test	construct	classify
indicate	model	solve	Check out
plan	Show your work		

### Questions from the Cognitive Domain: 4.00 Analysis

Questions at this level require a student to diagnose material, situations, or environments. Students then separate them into their component parts and focus on the relationships among these parts to each other and to the total structural organization.

#### 4.10 ANALYSIS OF ELEMENTS

Questions at this level guide one in recognizing elements of materials or written communications.

- Examples:**
- Study the pictures:
    - a. What features of the land allow cultivation?
    - b. Which vehicles would most likely be used to travel?
    - c. Do the above answers tell you what kind of occupation most people living here would have? Why?
  - In Mr. Reagan’s speech, which of his statements are based on fact and which on assumptions?
  - After studying the chapter, tell what principal tools and machines the people use.

#### 4.20 ANALYSIS OF RELATIONSHIPS

Questions at this level emphasize the relationships among various elements in materials or communications.

The questions develop students' abilities to determine cause-effect relationships.

- Examples:**
- How do the customs of a society relate to the behaviors of members of the society?
  - Which of the following allowed the lava from Mt. St. Helens to flow into the Toutle River?
  - Our principal told us that no talking could be allowed in the cafetorium at lunch. Analyze his reasoning.

#### 4.30 ANALYSIS OF ORGANIZATIONAL PRINCIPLES

Questions at this level look at materials, environments and written communications as a whole. Students must be able to reconstruct the processes by which something was done.

- Examples:**
- How has the artist used color and value to emphasize love and understanding?
  - How does that song describe flowers in the spring?
  - After hearing your principal speak, what would you say was his philosophical base?

Words used with *analysis* questions:

analyze	differentiate	test	inventory
compare	appraise	criticize	question
distinguish	calculate	diagram	relate
contrast	experiment	inspect	explain
solve	examine	debate	indicate the
categorize	discriminate	What assumption	classify
describe	recognize	What do you	Support your

### Questions from the Cognitive Domain: 5.00 Synthesis

Questions from this category require that students organize information they have obtained or considered at the lower levels of learning and produce results based on this study. Instead of taking apart information as in the Analysis category, Synthesis requires a student to put together information, often in a new way or form. This category allows for the use of divergent-productive questions. This could be called the creative category since one creates a whole greater than the parts. After analysis, what can you say?

#### 5.10 PRODUCTION OF A UNIQUE COMMUNICATION

Questions at this level require students to develop

a product that includes ideas, feelings and experiences uniquely theirs. The production does not need to be totally creative, but it does need to represent the producer's individual thinking and personality.

- Examples:**
- Write a short story.
  - Paint a picture.
  - Work with three other people and write a Thanksgiving play.
  - Describe your interpretation of the current drug problems in society.

#### 5.20 PRODUCTION OF A PLAN

Questions at this level require one to produce a plan or solution to a particular situation. Multiple-choice questions cannot be written for this subcategory.

- Examples:**
- Design a sand table so that you can study different kinds of erosion.
  - Offer two proposals to solving the crowding in our school's halls at lunch.
  - Propose a plan for getting others in class to be quiet when someone else is talking.

#### 5.30 DERIVATION OF A SET OF ABSTRACT RELATIONS

Questions at this level challenge one to develop hypotheses from previous analyses.

- Examples:**
- What probable causes can you develop for people using slang outside of school and correct language in the classroom?
  - Why do you think people talk one way about driving, then drive in an opposite fashion?
  - Since some birds migrate north to south and a few east to west, what reasons can you give for some migrating northwest to southeast?

Words used with *synthesis* questions:

create	design	propose	assemble
hypothesize	compose	formulate	collect
invent	plan	arrange	construct
set up	organize	manage	prepare
think of a way	develop	make up	suggest
synthesize		what major hypothesis	
what would be a solution		formulate/put together	

## Questions from the Cognitive Domain: 6.00 Evaluation

Questions from this category cause one to make a judgment about the value, for some purpose, of ideas, work, solutions, methods, materials, communications, etc. These questions involve the use of criteria as well as standards for appraising the extent to which particulars are accurate, effective, economical or satisfying. One makes judgments in terms of internal and external criteria.

### 6.10 EVALUATION IN TERMS OF INTERNAL EVIDENCE

Questions at this level require the student to analyze data or conclusions from standpoints such as logical accuracy, consistency, and absence of internal flaws.

- Examples:**
- Indicate in what ways this is a beautiful poem.
  - According to the stated situation, which is the most appropriate move the man could take?
  - Describe how well the principal used logic in making his case.
  - How well did the composition follow the standard of harmony?

### 6.20 EVALUATION IN TERMS OF EXTERNAL EVIDENCE

This second type of evaluation may be based on the use of external standards or criteria derived from a consideration of the ends to be served and the appropriateness of specific means for achieving these ends. Such evaluations are primarily based on considerations of efficiency, economy, or utility of specific means for particular ends. This type of evaluation also involves the use of particular criteria which are regarded as appropriate for members of the class of phenomena being judged, i.e., in terms of standards of excellence or effectiveness commonly used in the field or in a comparison of particular phenomena with other phenomena in the same field.

Questions at this level require the student to apply known criteria to judge various situations or conclusions encountered or developed. Students must ask, how close does something fit a set of criteria?

- Examples:**
- Appraise the speech's effectiveness based upon the class' criteria.
  - How well has humanity used technological knowledge?
  - How effective has your method of research been in supplying you with needed data?

Words used with *evaluation* questions:

judge	rate	revise	assess
appraise	value	score	estimate
evaluate	defend	select	check the
measure	indicate	choose	decide
What is			
Which would you consider			
What is most appropriate			

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adapted from: Bloom, Benjamin S. (Ed.). (1956). *Taxonomy of educational objectives: The classification of educational goals (Handbook I: Cognitive domain)*. New York: David McKay.