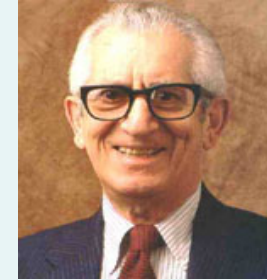


## Bloom's Taxonomy for Teaching-Learning and Assessment

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## Bloom's Taxonomy of Learning

**Benjamin Samuel Bloom**  
Born at 1913, at Pennsylvania  
Graduation and masters:  
Pennsylvania State University

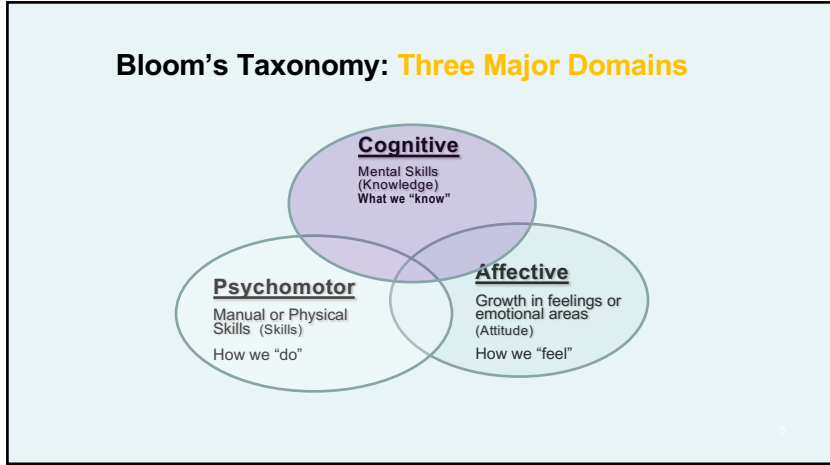


## Bloom's Taxonomy

- In 1956, **Benjamin Bloom** headed a group of educational psychologists who developed a classification of levels of intellectual behavior in learning.
- During the 1990's a new group of cognitive psychologist, lead by **Lorin Anderson** (a former student of Bloom's), updated the taxonomy reflecting relevance to 21st century work.

## Use of Bloom's Taxonomy

1. Defining the **Learning Outcomes** (LOs) & **educational objectives**
2. Selecting **Teaching methods/strategies**
3. Selecting **Teaching aids-materials**
4. Preparation of **Assessment Tools**
5. **Development & review of CURRICULUM**
6. **Development & review of SYLLABUS**



### Bloom's Taxonomy (Taxonomy of Learning) 3 Domains

Cognitive/ Knowledge	Affective/ Attitude	Psychomotor/ Skill
6. Create	5. Characterization	5. Naturalization
5. Evaluate	4. Organization	4. Articulation
4. Analyze	3. Valuing	3. Precision
3. Apply	2. Responding	2. Manipulation
2. Understand	1. Receiving	1. Imitation
1. Remember		

- ### Bloom's cognitive domain
- Six sub-domains of cognitive domain:
- 1. Remembering
  - 2. Understanding
  - 3. Applying
  - 4. Analysing
  - 5. Evaluating
  - 6. Creating
- Lower-level Learning (1-3)  
 Higher Order Learning (4-6)

### 1.1: Recall or Remember

Ability to recall or recognize items of information, ideas etc.

- Define
- Recall, find
- Write, record
- Select, match
- Name, list
- Underline
- Label, draw



Can the student recall or remember the information?

### 1.1: Recall or Remember

Ability to recall or recognize items of information, ideas etc.

BLOOMS TAXONOMY		
	Useful Verbs	Sample Question Stems
Level 1	tell list describe	What happened after...? How many...? Who was it that...? Can you name the...?
Knowledge	relate locate write	Describe what happened at...? Who spoke to...? Can you tell why...?
-recall	find state name	Find the meaning of...? What is...? Which is true or false...?

### 1.2: Comprehend

Ability to show understanding of ideas, e.g. by expressing ideas in own words or transposing into alternative forms

- Classify, group
- Explain, outline
- Summarize
- Compare, contrast
- Represent
- Predict, fill in
- Distinguish between



Can the student explain ideas or concepts?

### 1.2: Comprehend

Ability to show understanding of ideas, e.g. by expressing ideas in own words or transposing into alternative forms

Level 2 –	explain interpret outline discuss	Can you write in your own words...? Can you write a brief outline...? What do you think could of happened next...?
Comprehension	distinguish predict restate	Who do you think...? What was the main idea...? Who was the key character...? Can you distinguish between...?
Understand	translate compare describe	What differences exist between...? Can you provide an example of what you mean...? Can you provide a definition for...?

### 1.3: Apply

Ability to apply knowledge and ideas in order to meet the demands of situations or problems, which are new to the learner

- Predict
- Demonstrate
- Compute
- Find, discover
- Solve
- Modify, convert
- Show, arrange
- Operate, perform
- Construct, prepare



Can the student use the information in a new way?

### 1.3: Apply

Ability to apply knowledge and ideas in order to meet the demands of situations or problems, which are new to the learner

<p><b>Level 3</b></p> <p><b>Application</b></p> <p>- put to Use</p>	<p>solve show use illustrate construct complete examine classify</p>	<p>Do you know another instance where...? Could this have happened in...? Can you group by characteristics such as...? What factors would you change if...? Can you apply the method used to some experience of your own...? What questions would you ask of...? From the information given, can you develop a set of instructions about...? Would this information be useful if you had a ...?</p>
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### 1.4: Analyze

Ability to deal with situations where elements have to be analyzed and restructured before relevant ideas can be applied

- Break down, categorize
- Conclude, generalize
- Criticize
- Differentiate
- Diagram
- Estimate, determine
- Infer, illustrate
- Order, classify
- Separate, discriminate
- Subdivide, take apart



Can the student distinguish between the different parts?

### 1.4: Analyze

Ability to deal with situations where elements have to be analyzed and restructured before relevant ideas can be applied

<p><b>Level 4</b></p> <p><b>Analysis</b></p> <p>-break down</p>	<p>analyse distinguish examine compare contrast investigate categorise identify explain separate</p>	<p>Which events could have happened...? I ... happened, what might the ending have been? How was this similar to...? What was the underlying theme of...? What do you see as other possible outcomes? Why did ... changes occur? Can you compare your ... with that presented in...? Can you explain what must have happened when...? How is ... similar to ...? What were some of the motives behind...? What was the turning point in the game? What was the problem with...?</p>
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### 1.5: Evaluate

Ability to judge the quality or value of material by reference to appropriate criteria

- Argue, criticize
- Compare
- Conclude
- Discriminate
- Judge, select
- Justify, verify
- Measure, test
- Support, defend



Can the student justify a stand or decision?

### 1.5: Evaluate

Ability to judge the quality or value of material by reference to appropriate criteria

Level 6	judge	Is there a better solution to...
	select	Judge the value of...
- judge	choose	Can you defend your position about...?
	decide	Do you think ... is a good or a bad thing?
	justify	How would you have handled...?
	debate	Are you a ... person?
	assess	How would you feel if...?
	discuss	How effective are...?
	rate	What do you think about...?
	prioritise	
	determine	

### 1.6: Create (Synthesize)

Ability to put ideas together in new ways that reach beyond what has been specifically taught

- Argue
- Combine
- Compose
- Construct
- Create
- Design, plan
- Formulate
- Re-arrange
- Revise, rewrite
- Generalize, deduce

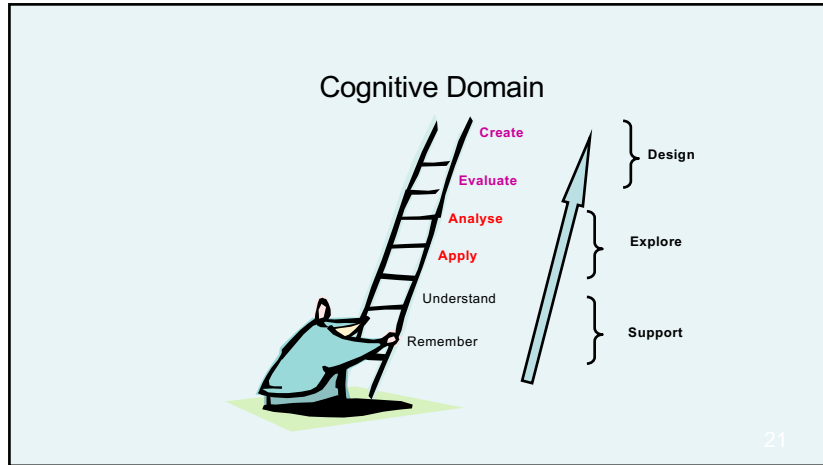


Can the student create new product/point of view?

### 1.6: Create (Synthesize)

Ability to put ideas together in new ways that reach beyond what has been specifically taught

Level 5	create	Can you design a ... to ...?
	invent	Why not compose a song about...?
	compose	Can you see a possible solution to...?
	predict	If you had access to all resources how would you deal with...?
	plan	Why don't you devise your own way to deal with...?
	construct	What would happen if...?
	design	How many ways can you...?
	imagine	Can you create new and unusual uses for...?
	propose	Can you write a new recipe for a tasty dish?
	devise	can you develop a proposal which would...
formulate		
- Put together		



- What I hear, I forget
- What I see, I remember
- What I say, I understand
- What I do, I understand and remember

### কাজের ছেলে

যোগিন্দ্রনাথ সরকার

- দাদখানি চাল, মুসুরির ডাল, চিনি-পাতা দৈ,  
দুটা পাকা বেল, সরিষার তেল, ডিমভরা কৈ।  
পথে হেঁটে চলি, মনে মনে বলি, পাছে হয় ভুল;  
ভুল যদি হয়, মা তবে নিশ্চয়, ছিঁড়ে দেবে চুল।
- দাদখানি চাল, মুসুরির ডাল, চিনি-পাতা দৈ,  
দুটা পাকা বেল, সরিষার তেল, ডিমভরা কৈ।
- বাহবা বাহবা – ভোলা ভুতো হাবা, খেলিছে তো বেশ!  
দেখিব খেলাতে, কে হারে কে জেতে, কেনা হলে শেষ।

- দাদখানি চাল, মুসুরির ডাল, চিনি-পাতা দৈ,  
ডিম-ভরা বেল, দুটা পাকা তেল, সরিষার কৈ।
- ওই তো ওখানে, ঘুরি ধরে টানে, ঘোষদের ননী;  
আমি যদি পাই, তা হলে উড়াই, আকাশে এখনি!  
দাদখানি তেল, ডিম-ভরা বেল, দুটা পাকা দৈ,  
সরিষার চাল, চিনি-পাতা ডাল, মুসুরির কৈ!
- এসেছি দোকানে-কিনি এই খানে, যত কিছু পাই;  
মা যাহা বলেছে, ঠিক মনে আছে, তাতে ভুল নাই!  
দাদখানি বেল, মুসুরির তেল, সরিষার কৈ,  
চিনি-পাতা চাল, দুটা পাকা ডাল, ডিম ভরা দৈ।

## 2. Affective

Your attitude is a little thing, but it makes a big difference.

It's your attitude that determines your altitude.



## 2. Affective

- **Receiving** phenomena: Being aware of or attending to something in the environment, this is the 'I'll listen-to-the-concept-but-I-won't-promise-to-like-it level.
- **Responding** to phenomena: Active participation on the part of the learners.
- **Valuing**: The worth or value a person attaches to a particular object, phenomenon, or behavior. Showing some definite involvement or commitment.
- **Organization**: Integrating a new value into one's general set of values, giving it some ranking among one's general priorities; this is the level at which a person would begin to make long-range commitments to concert attendance.
- **Characterization** (Internalizing values): Acting consistently with the new value; at this highest level, a person would be firmly committed to a love of music and show it openly and consistently.

## 3. Psychomotor

Action speaks louder than words



## 3. Psychomotor

1. **Imitation**: Observing and patterning behavior after someone else
2. **Manipulation**: Being able to perform certain actions by following instructions and practicing
3. **Precision**: Refining, becoming more exact.
4. **Articulation**: Coordinating a series of actions, achieving harmony and internal consistency
5. **Naturalization**: Having high level performance become natural, without needing to think much about it.



Different classes of Cognitive learning and the Action / Bloom's Verbs		<b>Factual</b>	<b>Conceptual</b>	<b>Procedural</b>	<b>Metacognitive</b>
	<b>Remember</b>	List primary and secondary colors	Recognize symptoms of exhaustion	Recall how to perform CPR (Cardio Pulmonary Resuscitation)	Identify strategies for retaining information
	<b>Understand</b>	Summarize features of a new product	Classify adhesives by toxicity	Clarify assembly instructions	Predict one's response to culture shock
	<b>Apply</b>	Respond to frequently asked questions	Provide advice to novices	Carry out pH tests of water samples	Use techniques that match one's strenghts
	<b>Analyze</b>	Select the most complete list of activities	Differentiate high and low culture	Integrate compliance with regulations	Deconstruct one's biases
	<b>Evaluate</b>	Check for consistency among sources	Determine relevance of results	Judge efficiency of sampling techniques	Reflect on one's progress
<b>Create</b>	Generate a log of daily activities	Assemble a team of experts	Design efficient project workflow	Create a learning portfolio	

Action / Bloom's Verbs for Cognitive Domain	Remember	Understand	Apply	Analyze	Evaluate	Create
	Define Identify List Name Recall Recognize Record Relate Repeat Underline	Choose Cite examples of Demonstrate use of Describe Determine Differentiate between Discriminate Discuss Explain Express Give in own words Identify Interpret Locate Pick Report Reslate Review Recognize Select Tell Translate Respond Practice Simulates	Apply Demonstrate Calculate Dramatize Employ Generalize Illustrate Interpret Operate Operationalize Practice Relate Schedule Shop Use Utilize Initiate	Analyze Appraise Calculate Categorize Compare Conclude Contrast Correlate Critique Debate Detect Determine Develop Diagram Differentiate Distinguish Draw conclusions Evaluate Examine Experiment Identify Infer Inventory Predict Question Relate Solve Test Diagnose	Appraise Assess Choose Compare Critique Estimate Judge Measure Rate Revise Secure Select Validate Value Test	Arrange Assemble Collect Compose Construct Create Design Develop Formulate Manage Modify Organize Plan Prepare Produce Propose Predict Reconstruct Estimate Synthesize Systematize Devise

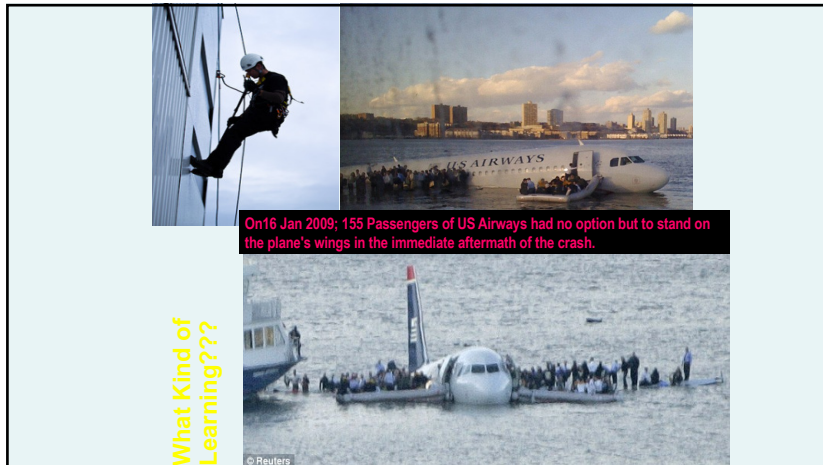
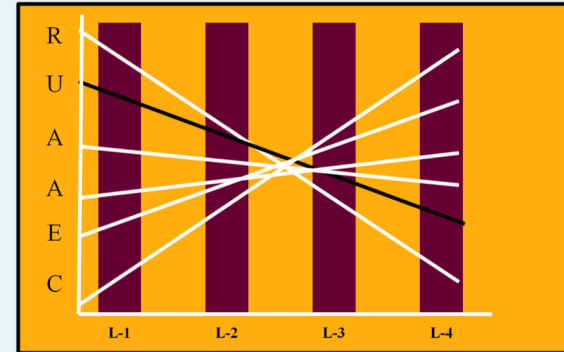
Cognitive	<b>Knowledge</b>	<b>Comprehension</b>	<b>Applications</b>	<b>Analysis</b>	<b>Synthesis</b>	<b>Evaluations</b>
	Define List Recall Name Identify Recognize State Repeat Record Label	Estimate Describe Explain Identify Translate Restate Express Convert	Computer Demonstrate Illustrate Operate Perform Interpret Apply Use Practice Predict	Distinguish Analyze Differentiate Compare Contrast Categorize Appraise	Diagnose Propose Design Manage Hypothesize Summarize Plan Formulate Organize	Evaluate Compare Assess Justify Judge Appraise Rate Choose decide
	<b>Receiving</b>	<b>Responding</b>	<b>Valuing</b>	<b>Organization</b>	<b>Value complex</b>	
Sit erect Reply Accept Show	Answer Greet Read Report	Join Share Complete Follow	Adhere Integrate Organize Discipline	Act Practice Influence		
<b>Perception</b>	<b>Set</b>	<b>Guided response</b>	<b>Mechanism</b>	<b>Complex</b>	<b>Adaptation</b>	<b>Origionation</b>
Identify Detect Differentiate	React Respond Start	Display Manipulate Work Perform	Display Manipulate Work Operate	Display Manipulate Work Change	Adapt Revise Change	Create Compose Arrange

Knowledge	Comprehension	Application	Analysis	Synthesis	Evaluation
<i>Recall/recognize facts without understanding. Identify previously learned material by recognizing facts, terms, basic concepts and issues.</i>	<i>To show understanding (bring to attention) prior to use. Demonstrate basic understanding of facts and ideas.</i>	<i>To act in a new situation. Solving problems by applying acquired knowlege, facts, techniques and rules in a different way.</i>	<i>To examine in detail. Examining and breaking information into parts by identifying motives or causes; making inferences and finding evidence to support generalizations.</i>	<i>To change or create into something new. Combining information to gather in a different way by combining elements to form a new pattern or proposing alternative solutions.</i>	<i>To justify, preventing and defend. Making judgments about information, validity of ideas or quality of work based on a set of criteria.</i>
<b>Key words:</b> Define, Recall, List, Name, Identify, Recognize, State, Repeat, Record, Label	<b>Key words:</b> Explain, Describe, Summarize, Paraphrase, Compare, Contrast, Categorize, Relate, Apply, Use, Illustrate, Demonstrate, Compute, Calculate, Estimate, Interpret, Translate, Convert, Express	<b>Key words:</b> Apply, Demonstrate, Calculate, Dramatize, Employ, Generalize, Illustrate, Interpret, Operate, Operationalize, Practice, Relate, Schedule, Shop, Use, Utilize, Initiate	<b>Key words:</b> Analyze, Appraise, Calculate, Categorize, Compare, Conclude, Contrast, Correlate, Critique, Debate, Detect, Determine, Develop, Diagram, Differentiate, Distinguish, Draw conclusions, Evaluate, Examine, Experiment, Identify, Infer, Inventory, Predict, Question, Relate, Solve, Test, Diagnose	<b>Key words:</b> Arrange, Assemble, Collect, Compose, Construct, Create, Design, Develop, Formulate, Manage, Modify, Organize, Plan, Prepare, Produce, Propose, Predict, Reconstruct, Estimate, Synthesize, Systematize, Devise	<b>Key words:</b> Evaluate, Compare, Assess, Justify, Judge, Appraise, Rate, Choose, decide
<b>Actions:</b> Define, List, Recall, Name, Identify, Recognize, State, Repeat, Record, Label	<b>Outcomes:</b> Explain, Describe, Summarize, Paraphrase, Compare, Contrast, Categorize, Relate, Apply, Use, Illustrate, Demonstrate, Compute, Calculate, Estimate, Interpret, Translate, Convert, Express	<b>Outcomes:</b> Apply, Demonstrate, Calculate, Dramatize, Employ, Generalize, Illustrate, Interpret, Operate, Operationalize, Practice, Relate, Schedule, Shop, Use, Utilize, Initiate	<b>Outcomes:</b> Analyze, Appraise, Calculate, Categorize, Compare, Conclude, Contrast, Correlate, Critique, Debate, Detect, Determine, Develop, Diagram, Differentiate, Distinguish, Draw conclusions, Evaluate, Examine, Experiment, Identify, Infer, Inventory, Predict, Question, Relate, Solve, Test, Diagnose	<b>Outcomes:</b> Arrange, Assemble, Collect, Compose, Construct, Create, Design, Develop, Formulate, Manage, Modify, Organize, Plan, Prepare, Produce, Propose, Predict, Reconstruct, Estimate, Synthesize, Systematize, Devise	<b>Outcomes:</b> Evaluate, Compare, Assess, Justify, Judge, Appraise, Rate, Choose, decide
<b>Questions:</b> Can you list them...? Can you recall...? Can you repeat...? How did... happen?...? How would you describe...? How would you explain...? How would you compare...? How would you contrast...? How would you summarize...? How would you paraphrase...? What is the main idea of...? What is the best answer...? Which statements support...? Which one...? Who were the main...? Why did... happen...? Why did...? Why did...? Why did...?	<b>Questions:</b> Can you explain what is happening... what is meant...? Can you recall...? Can you repeat...? How would you describe the types of...? How would you compare...? How would you contrast...? How would you summarize...? How would you paraphrase...? What is the main idea of...? What is the best answer...? Which statements support...? Which one...? Who were the main...? Why did... happen...? Why did...? Why did...? Why did...?	<b>Questions:</b> How would you apply...? What examples can you find to...? How would you demonstrate... using what you have learned...? How would you illustrate the meaning...? How would you interpret...? How would you operationalize...? How would you practice...? How would you relate...? How would you schedule...? How would you shop...? How would you use...? How would you utilize...? How would you initiate...?	<b>Questions:</b> What are the parts... related to...? How is... related to...? How do you...? What is the theme...? What is the...? Can you list the parts...? How would you identify...? How would you analyze...? Can you identify the difference parts...? What evidence can you find...? What is the relationship between...? Can you make a distinction between...? What is the function of...? What does...? What are the...?	<b>Questions:</b> What change would you make to solve...? How would you improve...? What would happen if...? Can you elaborate on the reason...? How would you...? Can you invent...? How would you... to create...? How would you change...? What would be done to minimize...? How would you...? What would you...? How would you...? Can you...? Can you...? Can you...? Can you...? Can you...? Can you...?	<b>Questions:</b> Do you agree with the action/instance...? What is your opinion of...? What would you predict...? Can you assess the value/importance of...? How would you...? Why did they do the...? How would you...? How would you...? What would you...? How would you...? How would you...? How would you...? How would you...? How would you...? How would you...?



### Few Questions

1. **Name & differentiate** the three domains of Bloom's Taxonomy
2. **How many levels** are there altogether in Bloom's Taxonomy?
3. **Mention** two action verbs for each of the cognitive level
4. What are the **uses of** Bloom's Taxonomy in teaching-learning?
5. How will you **use** Bloom's Taxonomy in your Lesson Plan?



### Advice of an Educationist

**When we are green**  
**We are growing**  
**When we are ripen**  
**We are ready to rot**

