

# BLOOM'S TAXONOMY

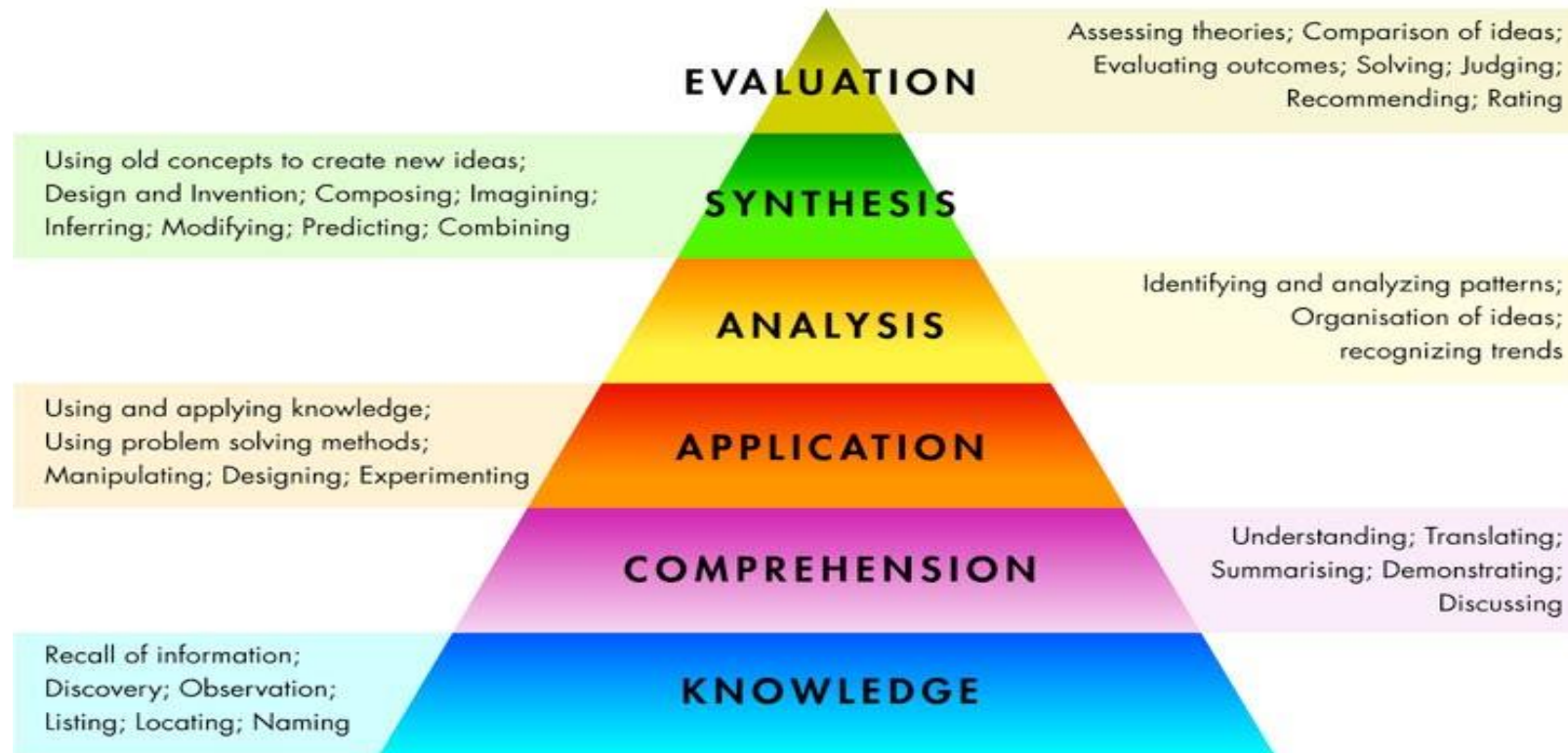
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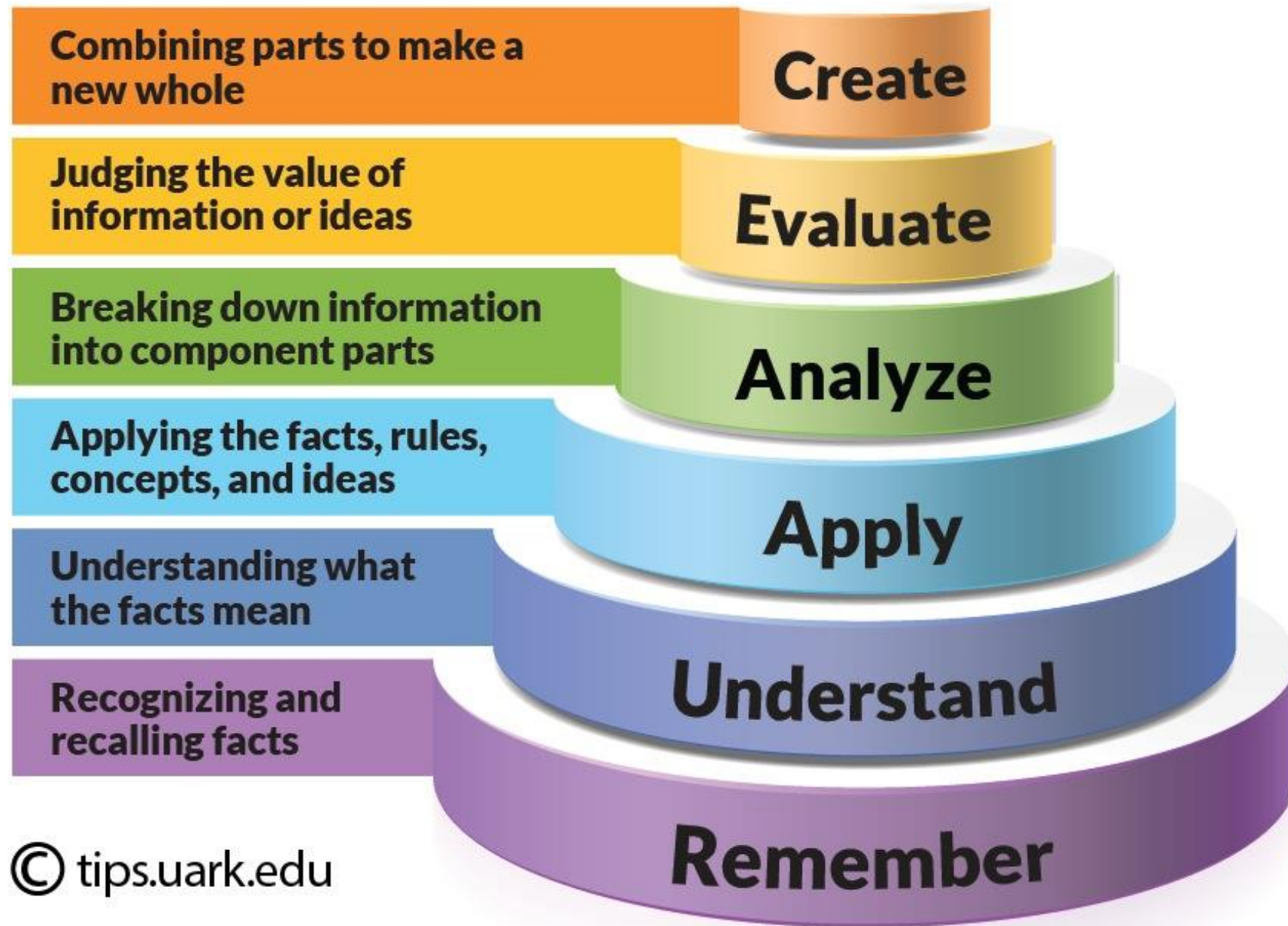
E.C. Mwalimu

- In 1956, Benjamin Bloom headed a group of educational psychologists who developed a classification system for levels of cognitive skills and learning behavior.
- The word taxonomy means classifications or structures.
- They classified thinking according to six cognitive levels of complexity:
  1. Knowledge
  2. Comprehension
  3. Application
  4. Analysis
  5. Synthesis
  6. Evaluation

- The categories are ordered from simple to complex and from concrete to abstract.
- The classification is often referenced as a progressive climb to a higher level of thinking with the highest level being “evaluation.”

## B L O O M S   T A X O N O M Y





## Changes to Terminology

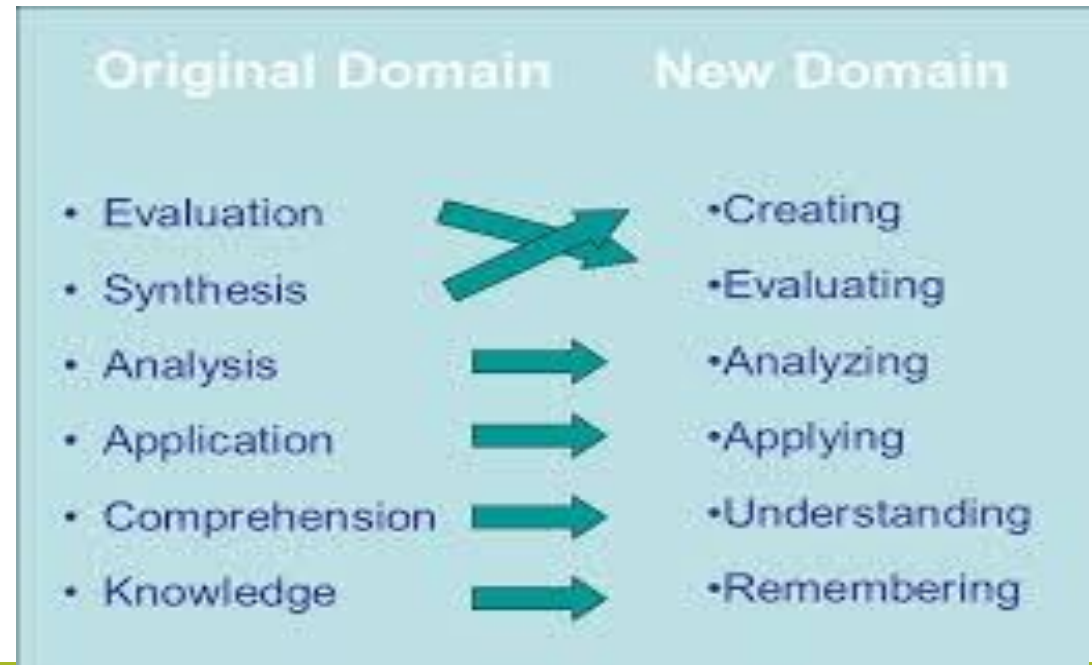
- You will recognize the difference terminology. The revised version changes the names of each of the six levels. For example, the lowest level of the original, “knowledge” was renamed and classified as “remembering.” It is also important to note the change from nouns to verbs to describe the different levels of the taxonomy.
- The names of the major cognitive process categories were changed to indicate action because thinking implies active engagements. Knowledge is an outcome or product of thinking, it is not a form of thinking. Consequently, since the word “knowledge” inaccurately described a category of thinking, it was replaced with the verb “remembering.”

## Changes to Structure

- The top two levels are essentially swapped from the old to the new version. This revised taxonomy moves the “evaluation” stage down a level and the highest element becomes “creating.”
- At the second to the highest level of the revised version, people defend, support, justify and evaluate their opinion on this information. And at the highest level, people generate new ideas, create a new product, or construct a new point of view.
- This change was made because the taxonomy is viewed as a hierarchy reflecting increasing complexity of thinking, and creative thinking (creating level) is considered a more complex form of thinking than critical thinking (evaluating level).
- A person can evaluate information without being creative, but creative thinking requires some level of evaluation or critical thinking (i.e. you need to evaluate the effectiveness of your new idea).

## Changes in Emphasis

- The revision emphasizes the use of taxonomy as a tool for alignment of curriculum planning, instructional delivery, and assessment. Additionally, the revision is aimed at a broader audience.
- The original taxonomy was viewed as a tool best applied in the younger grades at school.
- The revised version is more universal and easily applicable at elementary, secondary, as well as adult training.



## The new terms are defined as:

### Levels

### Description

Remembering	Retrieving, recognizing, and recalling relevant knowledge from long-term memory. This level is simply remembering or recalling previous learned information.
Understanding	Constructing meaning from oral, written, and graphic messages through interpreting, exemplifying, classifying, summarizing, inferring, comparing, and explaining. This is essentially demonstrating understanding of information by explaining ideas or concepts.
Applying	Carrying out or using a procedure through executing, or implementing. Basically, this is using the information in another familiar situation.
Analyzing	Breaking material into constituent parts, determining how the parts relate to one another and to an overall structure or purpose through differentiating, organizing, and attributing.

Evaluating	Making judgments based on criteria and standards through checking and critiquing. This includes justifying a decision or course of action.
Creating	Putting elements together to form a coherent or functional whole; reorganizing elements into a new pattern or structure through generating, planning, or producing. This includes generating new ideas, products, or ways of viewing things.

## Applying the Revised Version of Bloom's Taxonomy

- Similar to the original taxonomy, the revised version provides a valuable framework for teachers, trainers, and instructional designers to use to focus on higher order thinking.
- By providing a hierarchy of thinking, both version can help in developing performance tasks, creating questions, or constructing problems.

# Assessment of Learning Using the Revised Bloom's Taxonomy

Levels	Measurement
Remembering	Can the learner recall or remember the information?
Understanding	Can the learner explain ideas or concepts?
Applying	Can the learner use the information in a new way?
Analyzing	Can the learner differentiate between the various parts or components or the whole?
Evaluating	Can the learner justify a position or decision?
Creating	Can the learner create a new product, generate a new idea, or create a different thought process?

# Moving to the Higher Order of Thinking

- One can move from the lower levels of the taxonomy to the higher levels as you teach a topic. Each level is built on the preceding lower level.
- As you move higher, each level becomes more challenging.

1. Remembering: List different types of fruits
2. Understanding: Explain why they are classified as fruits
3. Applying: Illustrate the parts of your favorite fruit
4. Analyzing: Compare each fruit finding the characteristics that make it different from the others
5. Evaluating: Determine and justify which fruits are the healthiest
6. Creating: Create a drink using three fruits that would be considered extremely healthiest

# Examples to Assess Mastery at Each Level

## Remembering

- Write the definition of a vocabulary word.
- List the parts of a bicycle.
- Name the main characters in the book.
- Name the counties in Africa.

# Examples to Assess Mastery at Each Level Cont'

## Understanding

- Summarize the main idea of the story.
- Draw a picture showing the word's meaning.
- Classify the parts of speech in the sentence given.
- Predict what will happen to the object when placed in water.

# Examples to Assess Mastery at Each Level Cont'

## Applying

- Describe how you would use this net to catch fish.
- Write a sentence using three new vocabulary words.
- Apply the principles of learning to the workshop.
- Solve the problem using the concepts given.

# Examples to Assess Mastery at Each Level Cont'

## Analyzing

- Compare how the climate is similar between two counties.
- Explain why the main character decided to make the decision she did.
- Determine which parts of the bicycle is most important.
- Research the best methods of removing stains from clothing.

# Examples to Assess Mastery at Each Level Cont'

## Evaluating

- Explain the best alternative among the three choices.
- Determine which character in the stories was the most impacted by the events.
- Decide which parts of speech are most valuable to creating a sentence.
- Assess the value of the items on the table.

# Examples to Assess Mastery at Each Level Cont'

## Creating

- Invent a device that can pick up small objects.
- Create a game that will help students learn vocabulary words.
- Write a story that leaves the reader in suspense.
- Generate three ideas on how to improve the learning process.

# Bloom's Taxonomy Revised – Action Verbs

## Levels

## Action Verbs

Remembering

arrange, define, find, identify, label, list, match, name, memorize, recall, recite, repeat, state, tell, write.

Understanding

classify, covert, conclude, demonstrate, describe, discuss, explain, identify, illustrate, locate, paraphrase, predict, recognize, report, select, summarize, translate.

Applying

apply, choose, demonstrate, dramatize, employ, illustrate, interpret, modify, operate, produce, select, schedule, sketch, show, solve, use.

Analyzing

analyze, appraise, categorize, classify, compare, contrast, criticize, differentiate, discriminate, distinguish, examine, experiment, question, outline, research, separate, subdivide, test,

# Bloom's Taxonomy Revised – Action Verbs Cont'

## Levels

## Action Verbs

Evaluating

appraise, argue, assess, choose, conclude, defend, estimate, evaluate, judge, select, support, value.

Creating

assemble, construct, create, design, develop, devise, formulate, generate, integrate, invent

# THE UNESCO ICT COMPETENCY FRAMEWORK FOR TEACHERS

## THE UNESCO ICT COMPETENCY FRAMEWORK FOR TEACHERS

	TECHNOLOGY LITERACY	KNOWLEDGE DEEPENING	KNOWLEDGE CREATION
UNDERSTANDING ICT IN EDUCATION	Policy awareness	Policy understanding	Policy innovation
CURRICULUM AND ASSESSMENT	Basic knowledge	Knowledge application	Knowledge society skills
PEDAGOGY	Integrate technology	Complex problem solving	Self management
ICT	Basic tools	Complex tools	Pervasive tools
ORGANIZATION AND ADMINISTRATION	Standard classroom	Collaborative groups	Learning organizations
TEACHER PROFESSIONAL LEARNING	Digital literacy	Manage and guide	Teacher as model learner

THE SIX ASPECTS OF A TEACHER'S WORK

# The 18 Modules of the Framework

