Teaching for Learning

To teach … a series of sentences or statements that clearly state what is to be accomplished are specified. The sentences or statements include the terms – objectives, criteria, learning criteria or specifications – are used interchangeably and mean the same thing. The outcome for all of these words is pupil achievement and performance.

Each sentence or statement must begin with a verb that states the action to be taken to show accomplishment. The most important word to use in an assignment is a verb – because verbs show if accomplishment has taken place or not.

Verbs are "action words" or "thinking words".

Dr. Benjamin Bloom and a group of psychologists developed Bloom's Taxonomy of Cognitive Processes. Verbs are arranged into six related groups:

Bloom's Taxonomy of Cognitive

- Knowledge
- Comprehension
- Application
- Analysis
- Synthesis
- Evaluation
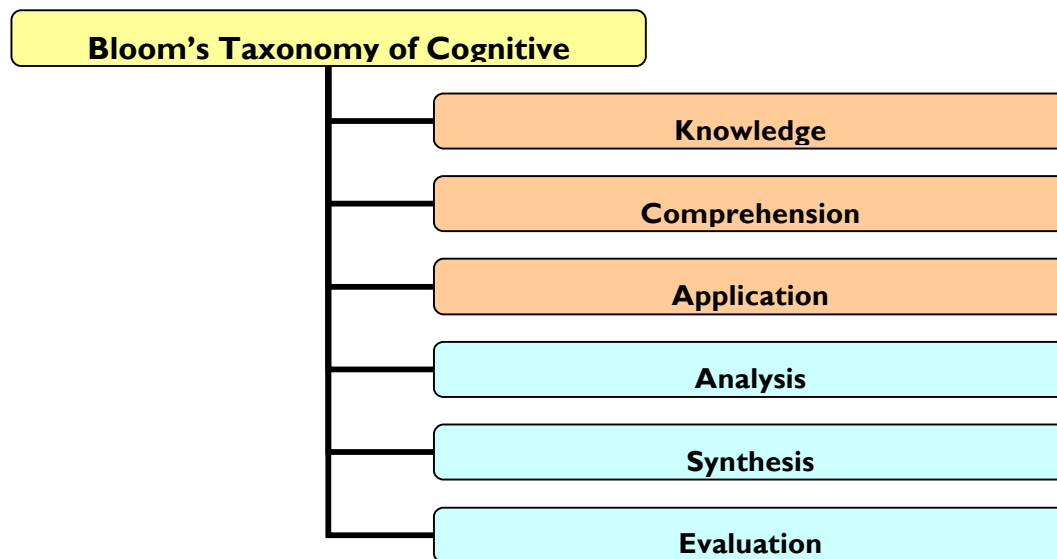
Notes about Bloom's Taxonomy

- Bloom's Taxonomy was first developed in 1956 by Dr. Benjamin Bloom with a group of psychologists at the University of Chicago, USA.

- Bloom's Taxonomy includes 6 groups that increase in complexity when proceeding from **Knowledge** to **Evaluation.**

- The first three groups (**Knowledge, Comprehension, and Application**) result in convergent-type thinking processes.

- The next three groups (**Analysis, Synthesis, and Evaluation**) result in divergent thinking processes.

- Teachers can use Bloom's Taxonomy as a Planning Tool.

- Teachers can use Bloom's Taxonomy to write objectives using higher level thinking skills

Using Bloom's Taxonomy

Some ways to use Bloom's Taxonomy include:

- All pupils work through Knowledge and Comprehension.

- All pupils work through Knowledge and Comprehension then select at least one activity from Application, Analysis, Synthesis and Evaluation.

- All pupils work through Knowledge and Comprehension then select activities from any of Application, Analysis, Synthesis and Evaluation.

- Some pupils may work through Knowledge and Comprehension while other pupils work through Application, Analysis, Synthesis and Evaluation.

- All pupils select activities from any level.

Bloom's Taxonomy of Cognitive Processes lists the six groups of cognitive thinking in the first column; the meaning in the second column; examples of questions for Reading, Maths and Science in the third, fourth and fifth columns.

Bloom's Taxonomy of Cognitive Processes				
Thinking Process	**Meaning**	**Reading**	**Maths**	**Science**
Knowledge	Recall or recognition of factual information	What are some of the things Rabbit did to Fox?	What is a 100 Square?	What is a plant?
Comprehension	Show an understanding of given information	Why do you think Fox tricked Rabbit?	Explain how to use the 100 Square to show multiples of 2.	Find a picture of a plant and say why you think it is a plant.
Application	Use some previous knowledge, rule or method in a new situation	If Fox had met you at the river, what are some things you might do?	Colour in square and triangular numbers. What patterns do you notice?	Collect pictures of 10 different plants. Arrange them into flowering plants and conifers.
Analysis	Break information into parts to explore understandings and relationships	What parts of *Why Rabbit has a Short-Tail* could have actually happened?	Compare multiples of three and multiples of four on the same square.	Compare flowering plants with conifers. How are they alike? How are they different?
Synthesis	Put together ideas in anew way to develop a new product or original product	How might the story have been different if Rabbit did not trick Fox?	Create a colour code for the factors and multiplication table for the number 3.	Using the characteristics of flowering plants, create a new plant.
Evaluation	Judge the value of materials or ideas on the basis of new criteria	Do you think Rabbit was good or bad? Why do you think so?	In what ways is the 100 Square better than using a Multiplication Table?	Do you think your plant would grow in your compound? Why?

Knowledge

Definition

The pupil is able to recall, restate and remember information that has been learned.

Sample Verbs

Use these verbs to ask a pupil to recall information:

define
describe
distinguish
fill-in-the-blank
find
group
identify
label
list
locate
match
memorize
name
quote
recall
recite
relate
review
show
spell
state
tell
underline
write

Teacher Role

- directs
- evaluates
- examines
- questions
- shows
- tells

Pupil Role

- absorbs
- defends
- describes
- listens
- memorizes
- recognizes
- remembers
- responds
- retells

Activities and Products

- Make a list of the main events of the story.
- Make a time line of events.
- Make a facts chart.
- Write a list of any pieces of information you can remember.
- List all the animals in the story.
- Make a chart showing …
- Make a word search.
- Make a Story Map.
- Recite a poem.

Comprehension

Definition

The pupil shows an understanding or comprehension of the given information.

Sample Verbs

Use these verbs to ask a pupil to show understanding of given information:

compare

convert

describe

discuss

distinguish

explain

interpret

outline

paraphrase

predict

put in order

restate

retell in your own words

rewrite

summarize

trace

translate

Teacher Role

- compares
- contrasts
- demonstrates
- examines
- listens
- questions

Pupil Role

- demonstrates
- describes
- explains
- interprets
- outlines
- restates
- translates

Activities and Products

- Report to the class.
- Illustrate the main idea.
- Make a cartoon strip showing the sequence of events.
- Write and perform Readers Theatre based on the story.
- Retell the story in your own words.
- Prepare a Story Map to illustrate the sequence of events.
- Outline the main points

Application

Definition

The pupil is able to transfer some previous knowledge, rule or method to a life problem or a new task with a minimum of direction.

Sample Verbs

Use these verbs to ask a pupil to use learning in a new situation:

apply
calculate
classify
complete
compute
conclude
construct
demonstrate
determine
draw
examine
find out
give an example
illustrate
make
operate
show
solve
state a rule or principle
use

Teacher Role

- evaluates
- facilitates
- observes
- organizes
- questions
- shows

Pupil Role

- calculates
- compiles
- completes
- constructs
- demonstrates use of knowledge
- illustrates
- solves problems

Activities and Products

- Construct a model to demonstrate how it will work.
- Make a diorama to illustrate an important event.
- Make a scrapbook about the areas of study.
- Make a puzzle game using ideas from the story.
- Design a market strategy for a product.
- Dress a doll in national costume.
- Create a mural or collage.
- Continue the story.

Analysis

Definition

The pupil is able to break the information into parts to: examine, classify, predict, draw conclusions, and explore understandings and relationships.

Sample Verbs

Use these verbs to ask a pupil to show that she can see parts and relationships:

analyze
calculate
categorize
classify
compare
contrast
debate
deduct
determine the factors
diagnose
diagram
differentiate
dissect
distinguish
draw conclusions
examine
infer
predict
question
research
sequence
specify
take apart
test

Teacher Role

- dissects
- evaluates
- guides
- observes
- organizes
- probes
- questions

Pupil Role

- argues
- calculates
- debates
- discusses
- examines
- investigates
- questions
- tests

Activities and Products

- Design a questionnaire to gather information.
- Write a commercial to sell a new product.
- Conduct an investigation to produce information to support a view.
- Make a flow chart to show the critical stages.
- Make a jigsaw puzzle.
- Write a biography of a person studied.
- Prepare a report about the area of study.

Synthesis

Definition

The pupil is able to originate, combine, and integrate parts of prior knowledge into a product, plan or proposal that is new and original.

Sample Verbs

Use these verbs to ask a pupil to take parts of information to create an original whole:

change
create
combine
compose
construct
design
devise
formulate
generate
imagine
improve
invent
originate
plan
predict
pretend
produce
propose
reorganize
revise
suggest
suppose
visualize
write

Teacher Role

- analyzes
- coaches
- extends
- facilitates
- reflects

Pupil Role

- creates
- composes
- designs
- formulates
- invents
- modifies
- plans
- writes

- Invent a machine to do a specific task.
- Design a building to store the rice or maize harvest.
- Create a new product for breakfast. Give it a name; design a marketing campaign.
- Write a Radio Show, Readers Theatre, Puppet Show, Song or poem about …
- Design a cover for a CD, DVD, Video Game or Book.
- Compose a rhythm or melody.

Evaluation

Definition

The pupil is able to appraise, assess, or criticize on the basis of specific standards and criteria.

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Sample Verbs

Use these verbs to ask a pupil to make a judgement based on criteria:

appraise
argue
assess
choose
compare
conclude
debate
decide
defend
determine
discuss
evaluate
give your opinion
judge
rate
judge
justify
prioritise
rank
rate
recommend
select
support
value
verify

Teacher Role

- clarifies
- coaches
- encourages
- guides
- suggests
- supports
- questions

Pupil Role

- compares
- conducts
- convinces
- decides
- justifies
- prepares
- questions

Activities and Products

- Prepare a list of criteria to judge a contest, competition or show. Indicate priority and ratings.
- Conduct a debate about an issue of special interest.
- Make a booklet about 5 Ground Rules that are important. Convince others.
- Write a letter to the Ministry of Education requesting for changes in the final examinations.

	Creating Lessons using Bloom's Taxonomy		
	Bloom's Categories	**Thinking Words**	**Levels of Pupil Thinking**
1	**Knowledge** Use these verbs to ask pupils to recall information	define, describe, distinguish, fill-in-the-blank, find, group, identify, label, list, locate. match, memorize, name, quote, recall, recite, relate, review, show, spell, state , tell, underline, write	This thinking skill tells you a pupil can recall or recognize information, concepts, and ideas in the approximate form in which they were learned.
2	**Comprehension** Use these verbs to ask a pupil to show comprehension or understanding	compare, convert, describe, discuss, distinguish, explain, interpret, outline, paraphrase, predict, put in order, restate retell in your own words, rewrite, summarize, trace	This thinking skill tells you that a pupil can grasp and interpret prior learning.
3	**Application** Use these verbs to ask a pupil to use learning in a new situation	apply, calculate, classify, complete, compute, conclude construct, demonstrate, determine, draw, examine, find out, give an example, illustrate, make, operate, show solve , state a rule or principle use	This thinking skill tells you that a pupil can transfer selected information to a life problem or a new task with a minimum direction.
4	**Analysis** Use these verbs to ask a pupil that she can see parts and relationships	analyze, calculate, categorize, classify, compare, contrast, debate, deduct, determine the factors, diagnose, diagram, differentiate, dissect, distinguish, draw conclusions, examine, infer, predict, question, research, sequence, specify, take apart, test	This thinking skill tells you a pupil can examine, take apart, classify, predict, and draw conclusions.
5	**Synthesis** Use these verbs to ask a pupil to take parts of information to create an original whole.	change, create, combine, compose, construct, design, devise, formulate, generate, imagine, improve, invent, originate, plan, predict, pretend, produce, propose, reorganize, revise, suggest, suppose, visualize, write	This thinking skill tells you that a pupil can originate, combine, and integrate parts of prior knowledge into a product, plan, or proposal that is new.
6	**Evaluation** Use these words to ask a pupil to make a judgement based on criteria or a standard.	appraise, argue, assess, choose, compare, conclude, debate, decide, defend, determine, discuss, evaluate, give your opinion, judge, rate, judge, justify, prioritise, rank, rate, recommend, select, support, value, verify	This thinking skill tells you that a pupil can appraise, assess, or criticize on the basis of specific standards and criteria.