

Critical and Creative Thinking - Bloom's Taxonomy



What are critical thinking and creative thinking?

Benjamin Bloom (1956) developed a classification of levels of intellectual behavior in learning. This taxonomy contained three overlapping domains: the cognitive, psychomotor, and affective. Within the cognitive domain, he identified six levels: knowledge, comprehension, application, analysis, synthesis, and evaluation. These domains and levels are still useful today as you develop the critical thinking skills.

Critical Thinking

Critical thinking involves logical thinking and reasoning including skills such as comparison, classification, sequencing, cause/effect, patterning, webbing, analogies, deductive and inductive reasoning, forecasting, planning, hypothesizing, and critiquing.

Creative Thinking

Creative thinking involves creating something new or original. It involves the skills of flexibility, originality, fluency, elaboration, brainstorming, modification, imagery, associative thinking, attribute listing, metaphorical thinking, forced relationships. The aim of creative thinking is to stimulate curiosity and promote divergence.

While critical thinking can be thought of as more left-brain and creative thinking more right brain, they both involve "thinking." When we talk about HOTS "higher-order thinking skills" we're concentrating on the top three levels of Bloom's Taxonomy: analysis, synthesis, and evaluation.

Knowledge

collect	describe	identify	list	show	tell	tabulate
define	examine	label	name	retell	state	quote
enumerate	match	read	record	reproduce	copy	select

Examples: dates, events, places, vocabulary, key ideas, parts of diagram, 5Ws

Comprehension

associate	compare	distinguish	extend	interpret	predict	differentiate
contrast	describe	discuss	estimate	group	summarize	order
cite	convert	explain	paraphrase	restate	trace	

Examples: find meaning, transfer, interpret facts, infer cause & consequence, examples

Application

apply	classify	change	illustrate	solve	demonstrate
calculate	complete	solve	modify	show	experiment
relate	discover	act	administer	articulate	chart
collect	compute	construct	determine	develop	establish
prepare	produce	report	teach	transfer	use

Examples: use information in new situations, solve problems

Analysis

analyze	arrange	Connect	divide	infer	separate
classify	compare	Contrast	explain	select	order
breakdown	correlate	Diagram	discriminate	focus	illustrate
infer	outline	Prioritize	subdivide	points out	prioritize

Examples: recognize and explain patterns and meaning, see parts and wholes

Synthesis

combine	compose	generalize	modify	invent	plan	substitute
create	formulate	integrate	rearrange	design	speculate	rewrite
adapt	anticipate	collaborate	compile	devise	express	facilitate
reinforce	structure	substitute	intervene	negotiate	reorganize	validate

Examples: discuss "what if" situations, create new ideas, predict and draw conclusions

Evaluation

assess	compare	decide	discriminate	measure	rank	test
convince	conclude	explain	grade	judge	summarize	support
appraise	criticize	defend	persuade	justify	reframe	

Examples: make recommendations, assess value and make choices, critique ideas

Affective Domain

Domain Attributes: interpersonal relations, emotions, attitudes, appreciations, and values

accepts	attempts	challenges	defends	disputes	joins	judges
contributesid	praises	questions	shares	supports	volunteers	