COGNITIVE COMPLEXITY IN TEST DEVELOPMENT
ALPINE TESTING SOLUTIONS

Cognitive Level [1]	Description	Item Characteristics	Possible Example Associated Verbs[2]
Remember	Retrieve relevant knowledge from long term memory	No scenario – knowledge based question where the answer could be directly found in a resource	define, describe, find, identify, label, list, match, name, recall, recognize, record, repeat, reproduce, state, tell, underline
Understand/ Apply	Construct meaning from information, demonstrate comprehension of concepts or processes, apply processes or procedures.	May have a short scenario – candidate must use knowledge to answer the question.	apply, arrange, calculate, classify, compare, complete, compute, contrast, convert, demonstrate, discuss, distinguish, estimate, execute, explain, extend, extrapolate, generalize, give examples, illustrate, infer, interpolate, interpret, locate, manipulate, measure, modify, operate, outline, paraphrase, predict, prepare, report, restate, schedule, score, show, sketch, solve, sort, summarize, translate, use, utilize
Analyze/ Evaluate	Break material into parts, determine how parts relate to one another or overall structure, make judgments based on criteria.	Detailed scenario – candidate must make some kind of decision using several pieces of information provided in the scenario (think 4-6 details in the scenario)	analyze, appraise, argue, assess, attack, breakdown, conclude, criticize, critique, debate, decide, deduce, defend, determine, diagram, differentiate, discriminate, discuss, distinguish, evaluate, examine, experiment, investigate, judge, justify, prioritize, question, rate, reason, recommend, reconcile, separate, subdivide, support, survey, take apart, test, transform, value, verify
Create	Put elements or material together to form a new representation or product, reorganize material in a new pattern	Lab environment – or possibly essay style response – these typically require human scoring – cannot truly be assessed in a multiple choice item	assemble, combine, compile, compose, construct, create, design, devise, edit, formulate, generate, invent, modify, organize, plan, predict, present, propose, rearrange, reconstruct, reorganize, revise, rewrite, set up, synthesize and create a new representation

[1] Alpine Testing Solution's suggested cognitive complexity levels were created after considering multiple approaches to defining cognitive processing (e.g., Anderson, et al., Webb, Bloom, Frisbie). Clients may also choose to use an existing framework for their program.

[2] Associated verbs should not be used as an explicit rule, but rather a guide for item writers to target specific levels. Some verbs may be appropriate at other levels in appropriate context.