

Alignment between Learning Outcomes and Assessment

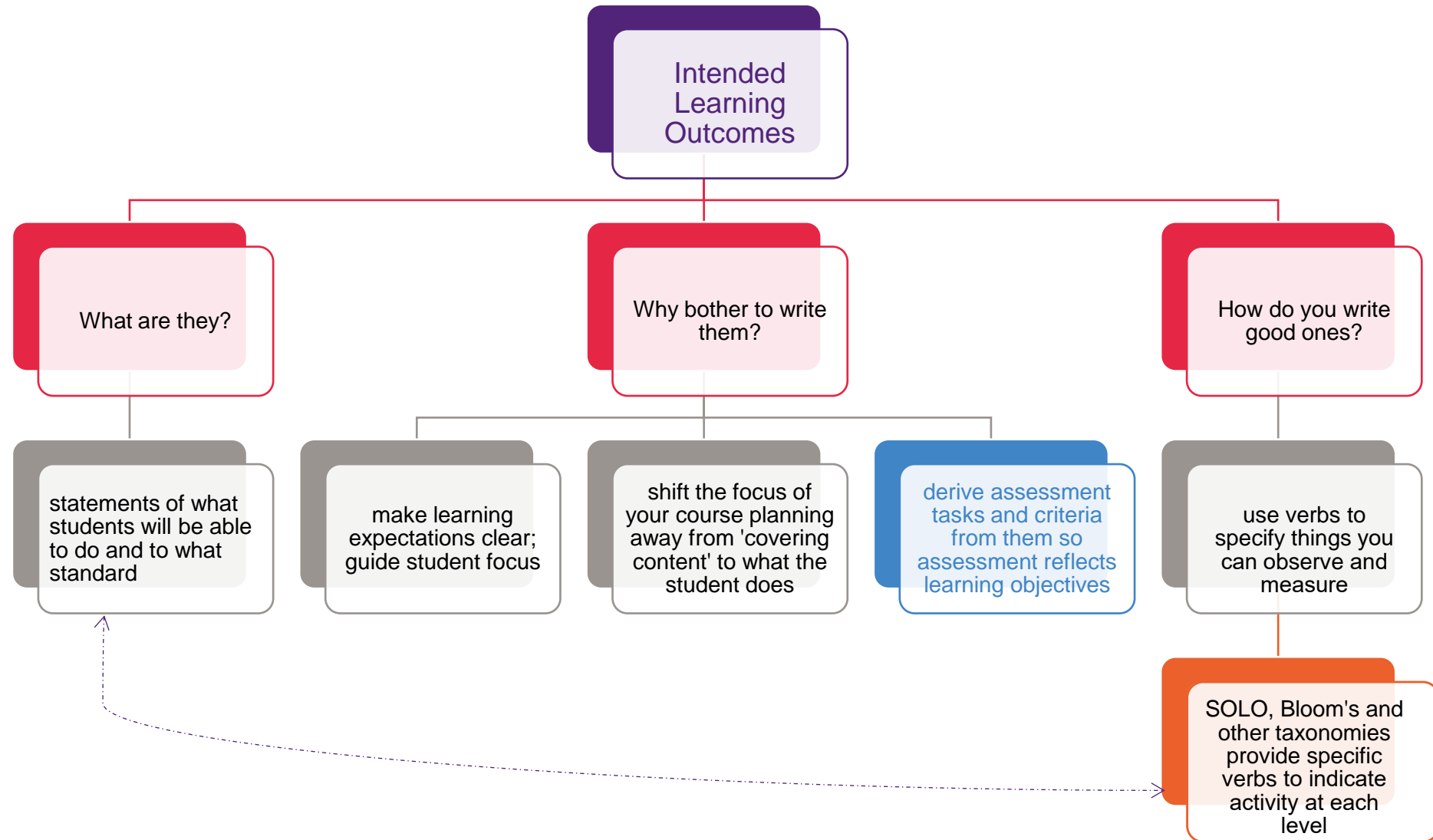


Figure 1: Intended Learning Outcomes

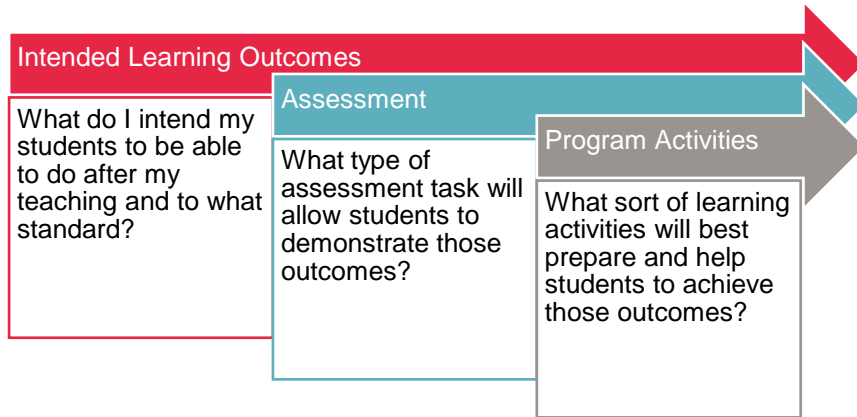


Figure 2: Aligning learning outcomes with assessment and coursework

The following table is a visual tool you can use to check whether the assessment tasks you have designed will result in students demonstrating achievement of the learning outcomes.

ABCD1234: Course Name	Assessment Task 1	Assessment Task 2	Assessment Task 3
Use this row to describe what the assessment task requires students to do. Use verbs in your description. Tick where what the student needs to do is aligned with an intended learning outcome.			
ILO 1:			
ILO 2:			
ILO 3:			
ILO 4:			
ILO 5:			
ILO 6:			

Using verbs and taxonomies in assessment design

Assessment Design	Criteria and Standards	Marking and Exemplars
<ul style="list-style-type: none"> carefully chosen verbs help when designing assessment because the action indicates <u>what sort of activity</u> you want students to undertake and <u>what 'product' they have to produce</u> in order for you to be able to see them demonstrate their learning. 	<ul style="list-style-type: none"> the verbs you choose to describe the action students are to undertake to complete the assessment task are part of your explicit and pre-determined criteria. performance against the criteria will be measured with standards. 	<ul style="list-style-type: none"> <i>what can I see</i> in their work that shows me that learning verb? develop an annotated example of what an answer that <i>just outlines reasons</i> looks like. Contrast it with an example that shows what a <i>proper justification</i> looks like.

Choose verbs aligned to each level of a taxonomy to communicate to students what you want them to do

Levels of Observed Learning Outcomes (SOLO) Taxonomy ¹	Verbs aligned to levels of the SOLO Taxonomy
Unistructural Level (one aspect)	define, find, identify, label, name, match, memorise, order, recall, recite, re-organise, tell, follow steps, arrange, reproduce, recognise, calculate, locate
Multistructural Level (several aspects at a time)	classify, categorise, describe, discuss, list, narrate, outline, report, select, separate, distinguish, sequence, combine, structure, conduct, illustrate, express
Relational Level (several aspects integrated)	analyse, apply, argue, justify, defend, substantiate, compare, contrast, conclude, research, construct, critique, debate, differentiate, draft, examine, explain, integrate, plan, organise, paraphrase, review and re-write, problem solve, resolve, summarise, relate, translate principles to another circumstance, adapt, synthesise
Extended Abstract Level (generalised or abstract implications)	create, generate, extrapolate, generalise, hypothesise, interpret, invent, devise, prove, derive, predict, judge, assess, evaluate, reflect

Table 1: Structure of Observed Learning Outcomes (SOLO) Taxonomy

¹ For more information about the SOLO Taxonomy, see Biggs and Tang (2009), Teaching for Quality Learning at University: What the Student Does. (3rd ed.) pp.76-80

Levels of Bloom's Revised Taxonomy

Verbs aligned to levels of Bloom's Revised Taxonomy

Remember	recall, identify, recognise, acquire, state, define, name, list, label, reproduce, order, indicate, record, relate, repeat, select, tell, describe, match, locate, report, cite, define, outline, complete, draw, find, give, isolate, pick, put, show
Understand Constructing meaning from information	translate, extrapolate, convert, interpret, transform, select, indicate, illustrate, represent, formulate, explain(who/what/when/where/that/how), classify, describe, discuss, express, locate, paraphrase, re-state, review, summarise, find, relate, define, clarify, diagram, compare, contrast, derive, arrange, estimate, extend, generalise, distinguish
Apply Using information in new situations	apply, sequence, carryout, solve, prepare, operate, plan, repair, predict, instruct, compute, use, perform, implement, employ, construct, demonstrate, give examples, illustrate, interpret, investigate, practice, measure, operate, adjust, show, paint, draw, collect, dramatize, classify, order, change, write, manipulate, modify, produce, schedule, translate, complete, examine, advocate, persuade, resolve
Analyse Distilling and /or organising information into its components; solving problems	analyse, estimate, detect, classify, discover, discriminate, explore, distinguish, catalogue, investigate, breakdown, order, determine, differentiate, dissect, examine, interpret, calculate, categorize, debate, diagram, experiment, question, solve, test, deconstruct, focus, find coherence, survey, compare, contrast, classify, investigate, separate, structure, categorize, determine evidence/premises and conclusions, appraise, criticize, debate, illustrate, infer, inspect, inventory, select, deduce, induce, argue, balance, moderate, explain(how/why), challenge, question
Create Generate new ideas or compile information in a new way	plan, formulate, propose, theorise, design, build, compose, construct, create, perform, prepare, compare, contrast, hypothesize, invent, modify, improve, adapt, devise, generate, revise, extend, project
Evaluate Using standards criteria, theories or processes to judge value	evaluate, argue, verify, assess, test, judge, rank, measure, appraise, check, justify, determine, support, defend, critique, weigh, choose, decide, estimate, grade, rate, revise, score, coordinate, debate, monitor, discriminate
Affective domain	<i>Is missing from Bloom's which is why it is useful to work with more than one taxonomy</i>

Table 2: Bloom's Revised Taxonomy

Taxonomy

Adapted from: Dimensions of Learning (Marzano & Pickering); The New Taxonomy of Educational Objectives (Marzano & Kendall)

USING KNOWLEDGE: Generating & Testing Hypotheses to...					
...Address Situations & Issues			...Clarify Phenomena & Events		
Decision Making <i>Select from among seemingly equal alternatives</i>	Situational Problem Solving <i>Accomplish a goal for which obstacles exist</i>	Invention <i>Develop a new product/process that fulfills a perceived need</i>	Experimental Inquiry <i>Offer and test explanations for what is observed</i>	Investigation <i>Historical-Projective-Definitional</i> <i>Resolve confusions related to concepts or events</i>	Systems Analysis <i>Explain parts of a system and how changing one part influences others</i>
<ul style="list-style-type: none"> Select the best alternative Generate criteria to select What is the best way Which has the most suitable 	<ul style="list-style-type: none"> Figure out a way to Given the conditions/obstacles, how will you reach your goal 	<ul style="list-style-type: none"> Create a new way to Devise something that will Change the way Improve this situation with a new 	<ul style="list-style-type: none"> If....then... What can be predicted What would happen if How would you determine if How can this be explained 	<ul style="list-style-type: none"> What actually happened when What would have happened if Resolve the confusion about What will happen if Construct a definition of 	<ul style="list-style-type: none"> Explain purpose of system Describe how parts affect each other What would happen if this part changes
ANALYZING KNOWLEDGE: Examining & Generating....					
...Similarities & Differences			...Arguments & Assertions		...Logical Inferences
Comparing <i>Identify similarities & differences among items and ideas</i>	Classifying <i>Group items according to similarities</i>	Analogical Thinking <i>Show similar relationships for items across domains</i>	Analyzing Perspectives <i>Identify reasons & logic for perspectives on an issue</i>	Constructing Support <i>Build support for assertions or opinions</i>	Analyzing Errors in Reasoning <i>Identify logical or factual errors</i>
<ul style="list-style-type: none"> Compare Contrast Differentiate Discriminate Distinguish 	<ul style="list-style-type: none"> Sort Categorize Organize 	<ul style="list-style-type: none"> Create an analogy for ___ is to ___ as ___ is to ___ Show the same pattern in both 	<ul style="list-style-type: none"> Clarify the reasons for Identify the logic behind Find out why someone might think 	<ul style="list-style-type: none"> Take a position on Defend your position on Explain your reasons Offer arguments for 	<ul style="list-style-type: none"> Question the validity of Listen to insure Assess Expose fallacies in
Deductive Reasoning <i>Apply general statements to specifics; draw conclusions</i>		Inductive Reasoning <i>Draw general conclusions from multiple specifics</i>			
<ul style="list-style-type: none"> Make and defend Predict what will happen Complete: If...then Because this is A, what do you know 		<ul style="list-style-type: none"> Create a principle Create a rule What conclusions can be drawn 			
COMPREHENDING KNOWLEDGE					
Symbolizing: <i>Construct symbolic representations of information</i>			Integrating: <i>Identify basic elements/structure of knowledge</i>		
<ul style="list-style-type: none"> Symbolize Represent Draw/Illustrate 	<ul style="list-style-type: none"> Show the organizational patterns in Diagram to highlight Chart 		<ul style="list-style-type: none"> Describe how or why Identify the key parts of Trace the development of ideas in 	<ul style="list-style-type: none"> Describe in your own words the effects Explain ways in which Paraphrase, Summarize 	
RETRIEVING KNOWLEDGE					
Recognizing: <i>Identify information related to targeted knowledge</i>		Recalling: <i>Produce information related to targeted knowledge</i>		Executing: <i>Carry out a mental or physical procedure</i>	
<ul style="list-style-type: none"> Select True, False Match 	<ul style="list-style-type: none"> Identify Point to 	<ul style="list-style-type: none"> State Describe Explain the major 	<ul style="list-style-type: none"> Who, what, when where How, why List, name 	<ul style="list-style-type: none"> Read Write Demonstrate 	<ul style="list-style-type: none"> Add, Subtract Multiply, Divide Solve for
				<ul style="list-style-type: none"> Complete Use Perform 	

Table 3: Marzano's Taxonomy