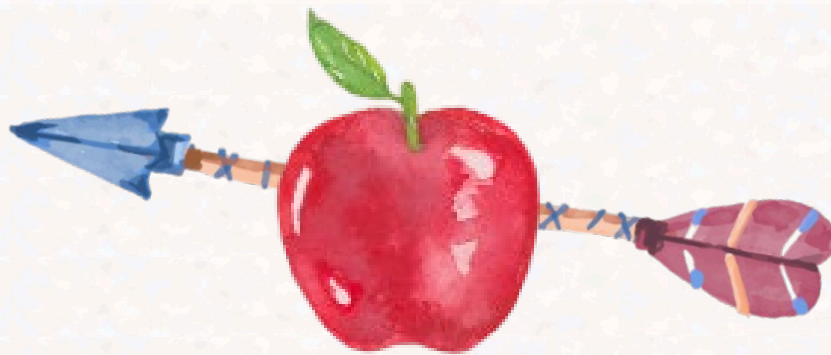# When Learning Hits the Mark: A Primer on Developing and Using Learning Outcomes

A resource co-developed by:

DALHOUSIE UNIVERSITY

CENTRE FOR LEARNING AND TEACHING

nscc

Academic Equity & Quality

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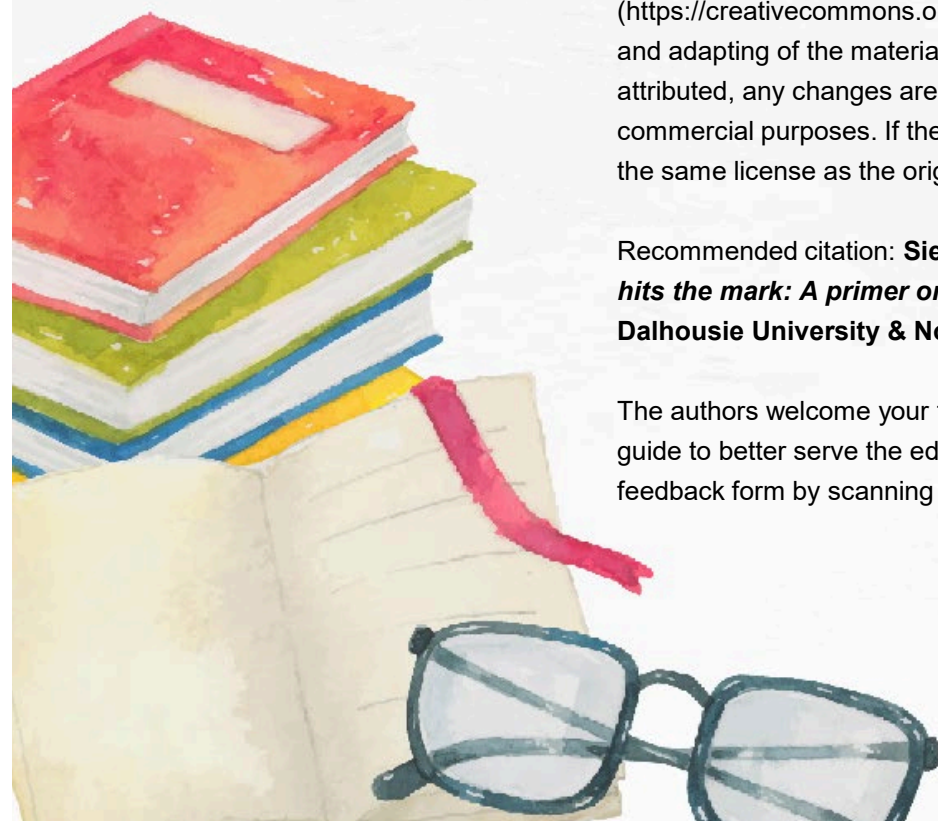
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Introduction

Clear and meaningful learning outcomes are essential for effective curriculum design and student success (Brooks et al., 2014; Kyriakides et al., 2013; Schoepp, 2017). With many post-secondary institutions across the country facing identity crises and the urgent need to better adapt to today's learners (Wells, 2025), clarity in the design of courses and programs is even more important. Well-designed and aligned learning outcomes can support this pursuit and ensure learning hits the mark!

This comprehensive primer, co-developed by Dalhousie University and Nova Scotia Community College, is grounded in educational theory and guided by the 25 years of experience the co-authors share in educational development and teaching.

WHO IS THIS PRIMER FOR?

This resource is designed to provide guidance and support when developing and using program- and course-level learning outcomes in the post-secondary learning environment. The following groups can benefit from using this primer:

- **Instructors across all disciplines** who are planning lessons/modules, learning activities, and assessments that are well aligned to learning goals/outcomes.
- **Academic leaders** supporting curriculum development, program reviews, and accreditation efforts.
- **Subject matter experts** who support the design and delivery of courses/programs, and would like to connect to the big-picture principles behind learning outcomes.
- **Graduate students and new instructors** building foundational knowledge in educational development and teaching.
- **Instructional designers and educational developers** who need a refresher on developing and using learning outcomes to support the design and delivery of courses/programs.

No prior knowledge in developing or using learning outcomes is required.
This primer meets you where you are and provides practical strategies you can implement now.

The true value of learning outcomes emerges when everyone actively uses outcomes to support their unique role in curriculum development and delivery. This transforms learning outcomes from a compliance requirement into a powerful tool that fosters student success and continuous improvement.

HOW TO USE THIS PRIMER

This primer is divided into two parts:

I.   **Developing learning outcomes,** an introduction to learning outcomes, characteristics of effective outcomes, and the process for developing learning outcomes.

II.   **Using learning outcomes,** an overview of how to use learning outcomes to plan aligned lessons/modules, learning activities, and assessments.

This resource supports both sequential learning and quick reference.

- **If you are new to developing or using learning outcomes,** it is recommended to read through the sections in order. You will build understanding progressively, from foundational concepts through to practical application and assessment alignment.

- **If you have some experience developing or using learning outcomes,** you may prefer to navigate to the specific section(s) that are relevant to the stage of developing or using outcomes that you are currently in. Each section stands on its own with clear examples and strategies.

BENEFITS OF DEVELOPING AND USING LEARNING OUTCOMES

Well-designed outcomes create value across the educational ecosystem, including with the following:

STUDENTS

- Make informed choices about the courses that are most appropriate for them
- Focus efforts on what they are expected to know and be able to do
- Increase motivation and engagement when they know the "why" behind what they are learning and relevance to future goals
- Perform according to clear standards for success
- Self-monitor progress toward outcomes and seek support when needed
- Articulate acquired skills in professional contexts (e.g., job interviews, graduate school applications)

INSTRUCTORS

- Plan well-aligned lessons/ modules, activities, and assessments
- Evaluate what content to keep, modify, or remove when updating courses (e.g., remove redundant or out-of-scope topics)
- Use precise language to explain expectations to students, and provide feedback and guidance
- Define consistent standards for success and assess whether those standards are equitable and inclusive
- Ensure that different cohorts receive comparable experiences

ACADEMIC LEADERS

- Facilitate alignment of existing and proposed programming with institutional strategic priorities, labour market needs, and accreditation standards
- Collect student learning data to identify program strengths, weaknesses, gaps, and opportunities to make evidence-based curriculum changes
- Facilitate prior learning assessment and recognition (PLAR) decisions and articulation agreements by making course content and expectations transparent

Part I:
Developing Learning Outcomes

What are Learning Outcomes?

LEARNING OUTCOMES are goal-oriented statements that outline observable and measurable knowledge, skills, and/or attitudes (KSAs) that learners are expected to develop and demonstrate upon completion of a learning experience. Learning outcomes can be identified at the program/credential- or course-level. **PROGRAM-LEVEL LEARNING OUTCOMES** are broad statements that identify overarching program goals and may highlight important program components (e.g., "By the end of the program, learners will be able to conduct scholarly research that addresses gaps in the discipline."). Program-level outcomes should be consistent with the program's purpose, and align with the vision and values of the department and educational institution. As illustrated, program outcomes are supported by course-level outcomes of both core and elective courses. **COURSE-LEVEL OUTCOMES** are more specific learning goals that are assessed with, and aligned to, the learner assessments (e.g., "By the end of the course, learners will be able to develop a research proposal."). Each assessment should align with at least one course-level outcome. Moving from program-level outcomes to course-level outcomes to assessments, the focus narrows, with more detail and specificity.

PROGRESSING FROM TOP TO BOTTOM, focus narrows with more specificity.

PROGRAM OUTCOMES

Course 1 Outcomes

Course 2 Outcomes

Course 3 Outcomes
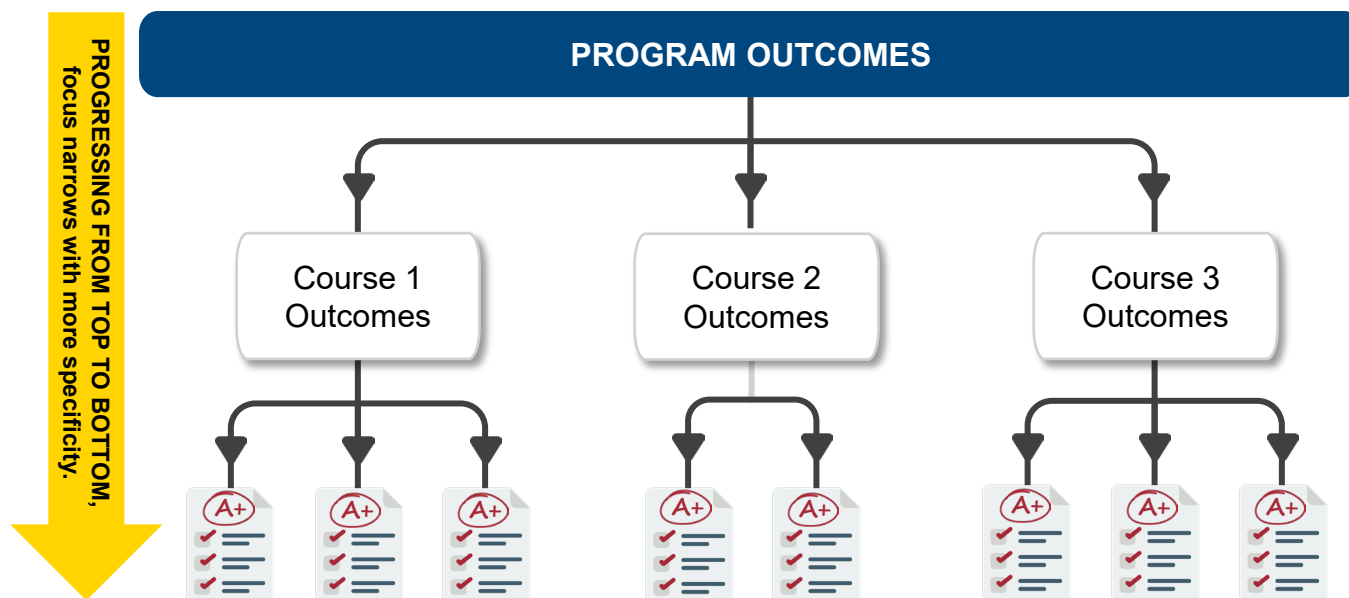
QUICK TIP

Learning outcomes are different from learning objectives. **LEARNING OBJECTIVES** describe the learning sub-goals and additional context that an educator uses to help learners achieve learning outcomes. Educators use learning objectives to help plan lessons/modules, instructional strategies, and learning activities.

Example:
Outcome – By the end of the course, learners will be able to develop a research proposal.
Objective – Discuss the characteristics of an effective research question.

Components of Learning Outcomes

A well articulated learning outcome is comprised of four interrelated components, as outlined in the following "formula." Use this "formula" when writing learning outcomes.

By the end of the course, learners will be able to create a persuasive argument supported by secondary sources.

STEM + **VERB** + **CONTENT** + **CONTEXT**
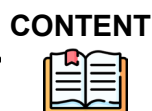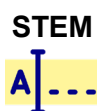
STEM: A future-tense phrase indicating the timeframe an outcome should be achieved by.

VERB: One observable and measurable action verb that describes the depth or complexity of learning expected for a learner to develop and demonstrate (e.g., "describe" requires a deeper level of understanding than "identify"). *It can be helpful to consult learning taxonomies such as Bloom's taxonomy (pages 9 & 29-30) or this primer's verb dictionary (pages 18-20) to choose specific verbs.*

CONTENT: A KSA that learners are expected to develop and demonstrate.

- **K**nowledge – concepts or theories
- **S**kills – applied capabilities
- **A**ttitudes – values, motivations, or priorities of the profession

CONTEXT (AS REQUIRED):
The scope and/or expected level of achievement for a learner's performance that may be described in a variety of ways, as illustrated in the accompanying table.

CONTEXT	EXAMPLE
Industry/discipline standard	"comply to ABC regulation"
Performance benchmark	"with 95% accuracy
Environment	"in an office setting"
Audience	"with clients"
Resources	"using ABC software"
Ability	"lift 25 lbs."
Modality	"in a debate"
Consistency expectations	"in varied settings"

QUICK TIP

The number of learning outcomes for a course or program depends on a variety of factors such as the duration, level, or complexity of training; discipline-specific requirements; and guidelines from the institution or governing body.

For example, the Maritime Provinces Higher Education Commission (Richard, 2016), that focuses primarily on university education, recommends 3-6 program-level outcomes and 2-6 outcomes for a 3-credit, 45-hour course. An example guideline at the college level is Nova Scotia Community College (2015) recommends 5-7 outcomes, with each outcome representing 7-9 hours of training.

Having too few outcomes may not adequately capture the scope (i.e., depth and breadth) of a course or program. On the other hand, having too many outcomes may not allow sufficient time for learners to acquire new knowledge or practice new skills before being assessed, or there might not be sufficient opportunities to appropriately assess all outcomes.

Characteristics of Effective Learning Outcomes

As learning outcomes are goals, effective outcomes should follow the SMARTIE acronym (Doran, 1981; Management Centre, 2018).

Specific: A learning outcome should only focus on one discrete piece of knowledge, skill, or attitude (KSA). Complexity or nuance can be added to the "context" component of the outcome.
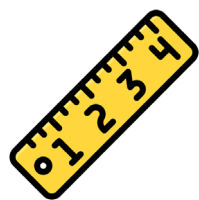
Measurable: A learning outcome should include one observable and concrete action verb that appropriately ties to the KSA and is aligned with how learners will demonstrate meeting the outcome.

Achievable: A learning outcome should identify a KSA that is feasible for learners to demonstrate their competence, given the training level and available resources.

Relevant: A learning outcome should include a KSA that is representative of the discipline, and where relevant, future academic and career pathways.

Time-based: A learning outcome should include sufficient opportunities for learners to practice and apply the KSA, and receive constructive feedback.

Inclusive: A learning outcome should be flexible enough to be able to incorporate multiple perspectives, diverse ways of knowing, and Universal Design for Learning (UDL) principles.
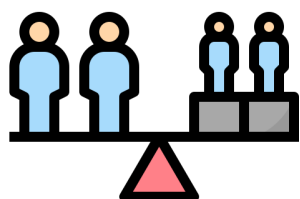
Equitable: Regardless of a learner's circumstances or background, they should have a fair and barrier-free opportunity to achieve the learning outcome (e.g., access to tools and materials).

Process for Developing Learning Outcomes

The following step-by-step process* is for writing course-level learning outcomes. A similar process can be used for developing program-level outcomes. This process should be iterative and driven by values of EDIA.

❶ Create EDIA-Informed Learner Personas

Using an EDIA lens, create multiple learner personas that best represent your learners: Who are they? (e.g., ages, interests, professional goals). What prior courses, knowledge, and volunteer/work experiences do they bring?

❷ Identify KSAs

Taking into consideration your learner personas, determine what you would like each learner to know, be able to do, and value by the end of the course.† These KSAs represent the **CONTENT** portions of your outcomes.

❸ Select Verbs

Identify the observable & measurable aspects of the KSAs. What do they look like in practice? *Consult a learning taxonomy (pages 8-9) or verb dictionary (pages 18-20) to identify one observable and measurable* **VERB** *per outcome.*

❹ Add Stems and Contexts

Add a **STEM** and identify any **CONTEXTS** relevant for each outcome. Be specific, but not unnecessarily narrow, where it may restrict how you teach or learner expressions of individuality and creativity in assessments.
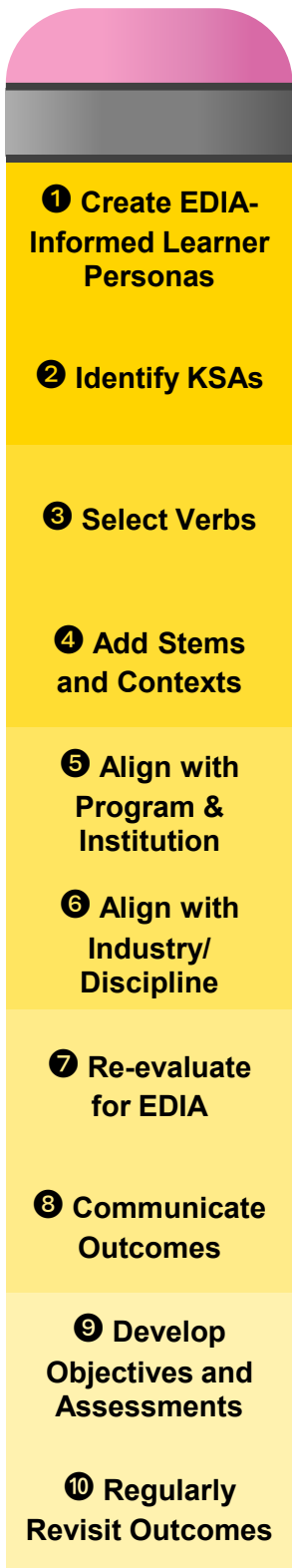
❺ Align with Program & Institution

Align course outcomes with program outcomes, other courses in the program (no redundancies or gaps and appropriate scaffolding – KSAs become more complex over time), institutional competencies, and graduate attributes.

❻ Align with Industry/Discipline

Ensure outcomes align with industry/discipline expectations and the needs of future employers. Where applicable, align outcomes with professional frameworks, accreditation standards, and licensing requirements.

❼ Re-evaluate for EDIA

Consider if the outcomes are equitable, diverse, inclusive, and accessible (EDIA) for all learners. Do any outcomes have the potential to disadvantage specific groups of learners? Make adjustments to minimize impacts.

❽ Communicate Outcomes

Communicate learning outcomes to learners in the syllabus and online platforms to increase transparency. Learning outcomes represent an agreement you have with your learners!

❾ Develop Objectives and Assessments

Use the Backwards Design Model (Wiggins & McTighe, 1998; *refer to page 11 for an overview*) to develop learning objectives (for lesson-planning) and learner assessments that align with course outcomes.‡

❿ Regularly Revisit Outcomes

Regularly revisit learning outcomes to ensure they continue to follow the SMARTIE acronym.

*Use the Learning Outcomes Development Checklist (page 25) to confirm all key features of learning outcomes are included.
†Use the KSA Inventory Worksheet (page 26) to brainstorm KSAs.
‡ Use the Course-Level Assessment Alignment Worksheet (page 27) to plan out different assessments you could use to assess your outcomes.

Taxonomies of Learning

LEARNING TAXONOMIES are frameworks that describe and classify a learner's knowledge, skills, and/or attitudes into various levels or categories. These frameworks may be used to develop learning outcomes, teaching approaches, learning activities, and assessments. **In the context of writing effective learning outcomes, these models can be useful for identifying observable and measurable action verbs. They can also be helpful when aligning assessment approaches and appropriately scaffolding learning.**

There are countless taxonomies of learning, each with their own strengths and weaknesses. When using a learning taxonomy to frame learning outcomes, you should use a model that aligns with the context of your discipline and your teaching philosophy, as well as the vision and values of your department and educational institution.

In this section, two of the most commonly used models are summarized:

- Bloom's Taxonomy (Bloom et al., 1956) – cognitive domain

  Refer to Appendix B for additional domains.

- Fink's Taxonomy of Significant Learning (2013)

Refer to Appendix B for a summary table of additional taxonomies that you may wish to further explore.

QUICK TIP

Some taxonomies of learning may use verbs that are not directly observable and measurable. In these cases, a more measurable, specific, and precise verb may need to be used. *Refer to pages 13-15 for more information.* In other cases, particularly at the program-level, learning outcomes may represent learning and educational processes of deeper growth as human beings (e.g., develop an appreciation of, increase self-confidence, value). This type of outcome reflects broader goals, beliefs, and values that the instructor, institution, and/or discipline wishes to impart to learners. It is often difficult to articulate this level of growth using observable or measurable verbs. If learners are expected to experience deeper growth resulting in changed beliefs and values, those changes should be evident in what learners do, say, and how they work. Therefore, there should be concrete evidence in assessments that represents the deeper growth. For example, an instructor may use a case study or experiential learning to measure learner growth in professionalism and ethics.

Some learning outcomes may represent learner growth that may only be fully achieved or realized until the learner has worked in the discipline for a period of time, is more mature, or acquired further lived experience. The expected level or depth of growth should be adjusted in the learning outcome to reflect what is expected of learners by the end of the course or program. Otherwise, broader goals, beliefs, and values to be achieved past the end of the course or program may be included in course descriptions.

BLOOM'S TAXONOMY (BLOOM ET AL., 1956) – COGNITIVE DOMAIN

Bloom's taxonomy divides learning outcomes into three domains – with the cognitive domain illustrated in the following diagram. *The affective and psychomotor (Simpson, 1966) domains, along with Bloom's digital taxonomy (Churches, 2008) can be found in Appendix B.* A hierarchy of scaffolded skills and abilities is outlined for each domain, with the lowest level representing foundational knowledge.

CREATE: Produce new or original work
E.g., assemble, construct, develop, formulate, investigate

EVALUATE: Justify a position or decision
E.g., appraise, argue, critique, defend

ANALYZE: Draw connections among ideas
E.g., compare, differentiate, test

APPLY: Use information in new situations
E.g., implement, interpret, solve

UNDERSTAND: Explain ideas or concepts
E.g., classify, describe, discuss, explain, identify, locate, report

REMEMBER: Recall facts and basic concepts
E.g., define, duplicate, list, repeat

FINK'S TAXONOMY OF SIGNIFICANT LEARNING (2013)

This taxonomy identifies six kinds of **SIGNIFICANT LEARNING**, which are types of learning that result in lasting changes that are important and valuable to the learner. This model recognizes the interconnected, relational, and interactive nature of the different types of learning. Achieving one kind of learning enhances the possibility for other types of learning to be achieved.

FOUNDATIONAL KNOWLEDGE:
Understand and remember information and ideas to enable other kinds of learning.
Example verbs: define, describe, identify, label, summarize

LEARNING HOW TO LEARN:
Reflect upon the learning process to become a self-directed, curious, lifelong learner.
Example verbs: generalize, identify resources, inquire, reflect, self-assess, self-monitor, set goals

APPLICATION:
Engage in a new action (intellectual, physical, social) or a kind of thinking (critical, creative, practical) to develop skills that make other kinds of learning useful.
Example verbs: advise, analyze, assess, calculate, create, infer, refine, solve

CARING:
Develop new feelings, interests, and values, that results in increased motivation to learn about something, engage with it, and care about it.
Example verbs: commit, comply, express, pledge, support, value

SIGNIFICANT LEARNING

INTEGRATION:
Determine connections between ideas, experiences, disciplines, and realms of life (e.g., work, home, school).
Example verbs: align, compare, contrast, integrate, synthesize

HUMAN DIMENSION:
Learn about personal and social implications of what is being learned, which enables more effective interactions with oneself and others.
Example verbs: advocate, collaborate, influence, promote, share

Part II:
Using Learning Outcomes

Backwards Design Model

The traditional design model for developing curriculum involves the instructor creating a lesson plan for each class, with identified concepts/theories or skills to teach, and then creating assessments to measure learning. The **BACKWARDS DESIGN MODEL** takes the opposite approach, highlighting the importance of learning outcomes (Wiggins & McTighe, 1998). **The instructor first sets learning goals/outcomes and then chooses aligned instructional methods and assessments.**

Consider an instructor and their learners embarking on a road trip. In the traditional design model, they begin driving without a destination identified before the journey begins. The backwards design model chooses the destination (i.e., learning goals/outcomes) first, and then uses a roadmap (e.g., curriculum, lesson plans) to plan the most effective path to get the learners to the desired destination. This method helps the instructor and learners stay on track and focused on learning goals.

The backwards design model consists of three steps:

1. Identify learning goals/outcomes.
What knowledge, skills, and attitudes (KSAs) do you expect your learners to acquire by the end of the course? Identify what you would like each learner to know, be able to do, and value.

2. Develop assessments.
What evidence do you need to collect to determine if learners have achieved the learning goals/outcomes identified in the previous step? Create a variety of formative and summative assessments that will give learners opportunities to practice and apply the KSAs, receive constructive feedback, and demonstrate competence of the KSAs.

3. Plan lessons/modules and learning activities.
How can you support learners on their pathway to the learning goals/outcomes? Plan a scaffolded sequence of lessons/modules and learning activities that will equip learners with the knowledge and skills required to achieve the learning outcomes.

The Relationship Between Learning Outcomes and Assessments

Learning is a process of aiming toward goals, practicing, and as a result, growing. The following analogy illustrates how a learner can demonstrate their growth and competence by aiming and shooting arrows (assessments) toward a target (learning outcome).

THE ARROW: LEARNER ASSESSMENTS

Shooting the arrow is like when a learner completes an assessment. When the learner shoots an arrow, they are attempting to hit the target. The closer the arrow lands to the centre of the target, the more clearly the learner has demonstrated the specific piece of knowledge, skill, or attitude (KSA) that the learning outcome represents. As a learner practices their aim by shooting multiple arrows – or a variety of formative and summative assessments – their technique and precision will become more refined.

In addition, it is important for the arrow or assessment to be "sharp." An assessment that is not well aligned to the learning outcome is like providing the learner with arrows that have dull points or crooked shafts; it may fly in the general direction of the target, but won't successfully hit it. The arrow should also be authentic to what the learner will encounter in the workplace. It won't benefit the learner to assess their capabilities using wood arrows if the workplace will only be using aluminum arrows.

THE TARGET: LEARNING OUTCOME

The target represents the learning outcome. Similar to aiming for the centre of a target, a learning outcome should pinpoint the specific KSA that it is trying to hit. A foundational learning outcome is like a large, target, while a more advanced outcome may be smaller, requiring more practice and precision to successfully hit.

THE SCORING RINGS: ASSESSMENT CRITERIA

To determine whether a learner's arrow has landed close enough to the centre of the target, educators use assessment criteria – similar to the rings around a target. Often represented in rubrics, the assessment criteria helps define what counts as a direct hit to the centre of the target, what is "close enough" to demonstrate satisfactory achievement, and what falls outside the acceptable range. This ensures that assessments are fair, consistent, and meaningful. The scoring rings, or assessment criteria, should be clear to the learner before they begin an assessment.
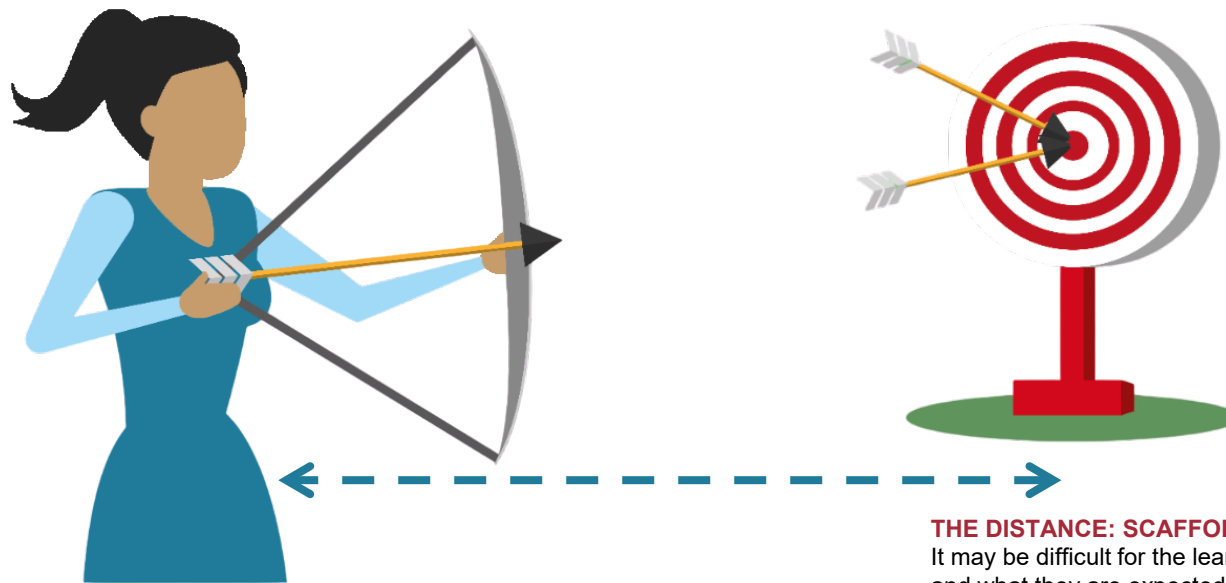
THE BOW: TOOLS AND SUPPORTS

The bow is akin to the tools and supports that the learner needs to succeed, such as access to specialized equipment representative of what would be available in the workplace, or supports from the instructor and peers. These tools and supports help the learner develop the strength and precision needed to reach the target. The bow must be appropriately adjusted and calibrated for the specific person shooting the arrow, such as considering their prior knowledge, academic accommodations, or extenuating circumstances.

THE DISTANCE: SCAFFOLDED LEARNING

It may be difficult for the learner to hit the target if the distance between the learner and what they are expected to know, do, or value is far away. It is important to choose a target that is appropriate and feasible given the learner's starting point. If the learner needs to cover a greater distance, scaffolded learning can help them reach the target. **SCAFFOLDED LEARNING** is when educators set intermediate targets that are closer and easier for the learner to hit. Instead of expecting the learner to hit the far target in a single attempt, the learner practices hitting closer targets first. As they hit each intermediate target, their strength, precision, and confidence gradually builds, which makes it easier to hit the farthest target.

A Primer on Developing and Using Learning Outcomes (Sieukaran & Komar, 2025).

Using Appropriate and Aligned Verbs

Verbs play an important role in learning outcomes, describing the depth or complexity of the learning expected of learners. The verb in a learning outcome also influences the assessment methods used to determine if a learner has achieved the learning outcome. Verbs should be observable and measurable in order to reliably assess valid measures of learner achievement.

Continuing the analogy in the previous section, a learning outcome that reliably hits the intended target uses an action verb that meets the following three criteria:

1. MEASURABLE

2. SPECIFIC

3. PRECISE

1. USE MEASURABLE VERBS

Some verbs used in learning outcomes describe internal mental processes that can't be directly observed or measured. Immeasurable verbs are like shooting an arrow in foggy conditions; the target can't clearly be seen. It can't be verified whether the arrow landed on the target nor how close it is to the intended target. These verbs are not appropriate to use in learning outcomes. Instead, use measurable verbs that represent the clearly marked targets and the observable actions associated with the internal mental processes. Similar to a target's scoring rings, clear achievement criteria should be articulated to learners, often using rubrics. For each of the immeasurable verbs in the accompanying table, examples of more targeted verbs/ phrases are suggested.

EXAMPLES OF IMMEASURABLE VERBS	EXAMPLES OF MEASURABLE ALTERNATIVES
Appreciate	Explain the importance
Believe	Defend, explain
Discover	Synthesize literature
Gain awareness	Define, identify
Know	Describe, explain
Realize	Classify, identify
Recognize	Classify, identify
Understand	Describe, explain

2. USE SPECIFIC VERBS

Some verbs can be vague and ambiguous, which is like shooting an arrow at an unintentionally large target. The learner shoots at the larger target, but it is so large that that it doesn't pinpoint the specific actions that learners are expected to do. Instead, use verbs that best describe the specific actions a learner will be doing to demonstrate competence, which will make the target more focused and precise. There are instances when a broad verb may be acceptable (e.g., high-level program outcomes or competencies). In addition, a verb may appear vague, but have a precise meaning in a specific context or industry/discipline (e.g., "examine" in healthcare). For each of the following vague verbs, more precise verbs/phrases are noted.

EXAMPLES OF VAGUE VERBS	EXAMPLES OF SPECIFIC ALTERNATIVES
Communicate	Discuss, explain, present
Complete [task]	*Use verb related to task.**
Comply	*[Do the task] adhering to ABC regulation.*
Demonstrate [skill]	*Use verb related to skill.*[†]
Examine	Collect data, inspect
Experience	Apply, predict
Explore	Apply, predict
Familiarize	Define, identify
Integrate	Analyze, compare
Relate	Analyze, compare
Research	Collect data, investigate
Review	Assess, inspect
Use [skill]	*Use verb related to skill.**

*e.g., "Demonstrate/use critical analysis skills" could be rewritten as "Critically analyze an article."
[†]e.g., "Complete patient records" could be rewritten as "Document findings in patient records."

3. USE PRECISE VERBS
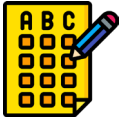
Some similar verbs are used interchangeably even though they have unique distinctions. When a verb is incorrectly substituted, it is like the arrow is aiming for the wrong thing. Using the incorrect verb changes the target changes the type of actions a learner will be doing to demonstrate competence to irrelevant or unrelated actions. The following table includes four sets of verbs that are commonly substituted for one another. When using these verbs, confirm that the chosen verb accurately represents the types of actions the learner is expected to do.

	VERB	DEFINITION	EXAMPLE
	Analyze	Break a concept or object into its elements and explain how the elements relate to each other	Analyze the arguments and structure of a written text.
	Assess	Determine the value, performance, or efficacy of a concept or object	Assess a new app or software.
	Evaluate	Make a judgement or form an opinion on the overall quality of a concept/object	Evaluate a book.
	Describe	Provide detailed characteristics or features of a concept or object	Describe how to use a tool.
	Discuss	Talk about a concept or object, while considering different viewpoints	Discuss the long-term impacts of climate change.
	Explain	Share detailed information about the reasoning behind a concept or how an object functions	Explain the role that mitochondria play in the human body.
	Differentiate	Describe the differences between two or more concepts or objects	Differentiate between Impressionism and Cubism art.
	Determine	Make an informed decision about an idea/argument or object	Determine whether a tablet meets your computing needs.
	Select	Select a course of action based on a determination	Select a tablet after weighing the pros and cons.
	Create	Construct a new idea/argument or build a new product	Create a new computer algorithm.
	Design	Determine an object's structure, form, function, or aesthetic features	Design the layout of solar panels on an A-frame roof.
	Produce	Develop an existing product or a new product with existing resources	Produce a community garden.

A Primer on Developing and Using Learning Outcomes (Sieukaran & Komar, 2025).

Framework of Assessment Approaches and Methods

Learning outcomes should be aligned with assessments. *This relationship will be further explored on pages 18-20.* McTighe and Ferrera (1994; 2021) identified five broad approaches to assessing learners: selected responses, constructed responses, process-focused outputs, products, and performances. In the following table, the five assessment approaches are defined, aligned with Bloom's taxonomy, illustrated with an updated and expanded list of example assessment methods, and evaluated by considering benefits and limitations.

APPROACH	DEFINITION	BLOOM'S LEVELS	EXAMPLE METHODS*	BENEFITS	LIMITATIONS
Selected Responses	Select a response from a provided set of options	Remember	• Multiple choice question • Matching question • True/false question	• Quick to administer • Quick to grade (e.g., machine-scoring) • Effective method to objectively assess knowledge of factual information • Can quickly assess a broad range of concepts	• Encourages a performance/grade-based mindset • Can arrive at correct answer by rote memorization or guessing • Assesses knowledge in isolation or out of context
Constructed Responses	Construct a brief response to an open-ended question, problem, or prompt	Remember Understand	• Fill-in-the-blank question • Short answer question • Discussion or graded participation • Case study • "Show your work" question/problem set • Label a diagram • Visual representations: e.g., concept map, flowchart, graph, table, matrix, illustration	• Quick to administer • Evaluation is guided by criteria or model responses	• Requires judgement-based evaluation • May produce a wide range of responses, with the potential for biased or unreliable scoring
Process-Focused Outputs	Describe the thinking process or learning strategies behind a task or procedure	Understand Apply Analyze	• Process description: e.g., steps for completing a task, how solved problem • Explain rationale for decision • Journal/logbook • Reflection • Self-assessment • Peer evaluation • Oral defense/questioning	• Encourages a growth mindset • Learners can receive formative feedback • Heightens learners' self-awareness of thinking processes and learning strategies	• Often used over a long-term period

*This Guide expands and modernizes McTighe & Ferrera's original set of example methods.

APPROACH	DEFINITION	BLOOM'S LEVELS	EXAMPLE METHODS*		BENEFITS	LIMITATIONS
Products	Apply knowledge and skills to create a structured document or artifact	Apply Analyze Evaluate Create	• Essay • Research paper • Literature review • Critical appraisal • Lab report • Position paper • Research proposal • Capstone/thesis project • Visual representations: e.g., infographic, poster, pamphlet • Spreadsheet/database	• Portfolio • PSA video • Podcast • Story • Poem • Advocacy letter • Artwork • Blog/website • Code/algorithm • 3D model • Policy brief • Script	• Often aligned to products that learners will be expected to produce in the workplace • Requires development of transferable skills (e.g., critical thinking, communication) • May enhance learner engagement • Opportunity for learners to express creativity/individuality	• Requires a lot of time for learners to create & to grade • Grading may be unfairly influenced by unintended factors (neatness, spelling) • May require resources, funding, and space for display or storage
Performances	Apply knowledge and skills that are directly observed by the instructor/ evaluator	Apply Analyze Evaluate Create	• Presentation • Debate • Simulation • Skills demonstrations: e.g., technical, clinical • Skills applications: e.g., co-op, service learning, field work • Training/train-the-trainer session • Lead a discussion	• Workshop • Fine arts: e.g., dance, musical recital, play • Dramatic reading • Lab demonstration • Roleplay/reenactment	• Authentic and applicable to real-world contexts • Learners may invest more effort as there is an audience • Conducive for self- or peer-evaluations • Can assess attitudes (e.g., professionalism) • Has potential for high community impact	• Time- and labour-intensive for learners and instructors (e.g., rehearsals) • Susceptible to evaluator bias

QUICK TIP

The action verbs in learning outcomes can indicate the assessment methods that would be best for determining if a learner has met a learning outcome. For example, to "identify" could be appropriately assessed using a selected or constructed response, but would most likely be too simplistic for assessment methods that utilize higher-order thinking such as a product or performance.

In addition, verbs should represent the most advanced learning that will be assessed by the end of the learning experience. For example, if learners are expected to identify a concept at the beginning of the learning experience, but later describe it, the verb "describe" should be used in the outcome.

If your verbs and assessments don't align, then the verbs and/or assessments need to be adjusted.

Verb Dictionary and Assessment Approaches

The verbs used in learning outcomes should be observable, measurable, and aligned with assessment approaches. This table contains 50 verbs that are commonly used in learning outcomes, with definitions and the most relevant assessment approaches. *Refer to the Assessment Framework on pages 16-17 for example methods for each assessment approach.* Verbs may have different meanings in different contexts or industries/disciplines. Confirm the appropriateness of verbs with a subject matter expert.

VERB	DEFINITION	SELECTED RESPONSES	CONSTRUCTED RESPONSES	PROCESS-FOCUSED OUTPUTS	PRODUCTS	PERFORMANCES
Analyze	Break a concept or object into its elements and explain how the elements relate to each other		✓	✓	✓	✓
Apply	Use a concept or object for a practical purpose		✓	✓	✓	✓
Assemble	Join or fit together existing, separate parts or components for a particular purpose				✓	✓
Assess	Determine the value, performance, or efficacy of a concept or object			✓	✓	✓
Audit	Review an object to determine its condition or quality			✓	✓	
Calculate	Determine the number or amount of an object(s)	✓	✓			
Classify	Divide concepts or objects into groups based on their similarities	✓	✓			
Collect	Gather objects together from different sources				✓	✓
Compare	Analyze two or more concepts or objects to determine similarities and/or differences		✓		✓	
Compute	Perform a set of multi-step and/or complex calculations		✓	✓		
Conduct	Perform a particular activity or behave in a particular way					✓
Create	Construct a new idea/argument or build a new product				✓	✓

VERB	DEFINITION	SELECTED RESPONSES	CONSTRUCTED RESPONSES	PROCESS-FOCUSED OUTPUTS	PRODUCTS	PERFORMANCES
Defend	Express an opinion, disputing counterevidence or criticism		✓	✓	✓	✓
Define	Provide the meaning of a word or concept	✓	✓			
Describe	Provide detailed characteristics or features of a concept or object		✓	✓		
Design	Determine an object's structure, form, function, or aesthetic features				✓	✓
Determine	Make an informed decision about an idea/argument or object		✓	✓		
Develop	Build on a concept, object, or skill over a period of time			✓	✓	✓
Diagnose	Analyze the cause or nature of a phenomena/situation		✓	✓		✓
Differentiate	Describe the differences between two or more concepts or objects		✓		✓	
Discuss	Talk about a concept or object, while considering different viewpoints		✓		✓	
Document	Record the details of a process or event as evidence that it occurred		✓	✓	✓	✓
Estimate	Make an approximate judgement or calculation about the size, cost, or value of an object		✓			✓
Evaluate	Make a judgement or form an opinion on the overall quality of a concept or object				✓	✓
Explain	Share detailed information about the reasoning behind a concept or how an object functions		✓	✓	✓	✓
Identify	Find a concept/object from a group or list and/or show that it exists	✓	✓			
Illustrate	Explain a concept using a visual depiction, an example, or an analogy/metaphor		✓		✓	
Implement	Put a process, plan, or system into action				✓	✓
Inspect	Obtain information about an object, particularly its quality or condition			✓		✓
Install	Set an object up for use or service			✓		✓
Interpret	Determine the intended meaning of an idea/argument, concept, or use of an object		✓		✓	✓

VERB	DEFINITION	SELECTED RESPONSES	CONSTRUCTED RESPONSES	PROCESS-FOCUSED OUTPUTS	PRODUCTS	PERFORMANCES
Investigate	Examine a concept or object through systematic inquiry to come to a definitive conclusion		✓	✓	✓	✓
List	Record brief pieces of information, often numbered or ordered		✓	✓		
Locate	Determine the location or position of an object	✓	✓			
Manage	Organize and direct people, a situation, or an object			✓		✓
Measure	Determine the size/amount of an object or the value/impact of a phenomena or situation		✓			✓
Operate	Perform a function, often using specialized tools or equipment				✓	✓
Organize	Determine plans for a procedure/event/object, including structure, processes, or systems etc.			✓	✓	✓
Outline	Summarize initial or key points of a piece of work or a condensed explanation of a concept		✓	✓		
Perform	Carry out an action, task, pattern of behaviour, or performance			✓	✓	✓
Plan	Make a set of decisions about how to complete a future action, task, or process		✓	✓	✓	✓
Predict	Make a hypothesis about a possible future event or action		✓	✓		✓
Prepare	Make a plan or act upon a prediction of a future event or action			✓	✓	✓
Present	Share information with others or provide an object to others			✓	✓	✓
Produce	Develop an existing product or a new product with existing resources				✓	✓
Repair	Restore an object or process to work again by fixing what is broken, damaged, or ineffective			✓		✓
Select	Select an option, tool, etc. based on a determination		✓	✓		✓
Solve	Find an answer for a question or a solution for a problem		✓		✓	✓
Support	Provide assistance, guidance, or resources for a person or situation			✓		✓
Test	Determine if an object, process, or person is working correctly and effectively			✓		✓

Conclusion

Developing and using learning outcomes effectively is both an art and a skill that improves with practice and reflection. It is hoped that this primer supports you on this ongoing journey.

MOVING FORWARD

As you implement what you have learned from this primer, remember that developing learning outcomes is an iterative process. You are encouraged to review and refine your outcomes based on:

- **Learner performance and feedback:** Do they understand what's expected of them? Are they achieving what you intended?
- **Teaching experience:** What worked well? What needs adjustment?
- **Evolving disciplinary standards:** How is your field changing and what new competencies are emerging?
- **Curriculum alignment:** How well do course-level outcomes connect to program-level outcomes?

CONTINUING YOUR DEVELOPMENT

Consider the following next steps to continue strengthening your ability to develop and use learning outcomes effectively:

- Have a learning outcomes swap! Share your learning outcomes with colleagues and ask for constructive feedback.
- Participate in curriculum mapping activities for your program or department/Faculty.
- Seek out and attend professional development workshops on related topics such as the backwards design model, assessment strategies, and inclusive pedagogy.
- Revisit this guide periodically when you need a quick reference or refresher.

By investing time and effort into developing and using learning outcomes effectively, you are choosing to commit to thoughtful course design, educational excellence, and student success. In these changing times for post-secondary institutions across the country, learning outcomes can act as promising agents of change to usher in new ways of thinking and doing for our students and ourselves.

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Appendix A:
Development Tools

Learning Outcomes Development Checklist

THE LEARNING OUTCOMES…

☐ contain stems.

☐ contain contexts (scope of learner's performance), where applicable.

☐ are not broad and vague.

☐ are not narrowly restrictive or granular learning sub-goals (learning objectives).

☐ are distinct from one another with no overlapping.

☐ are **S**pecific: Each outcome has only one discrete piece of knowledge, skill, or attitude (KSA).

☐ are **M**easurable: Each outcome has one observable and concrete action verb that is aligned with how learners will demonstrate meeting the outcome.

☐ are **A**chievable: Outcomes includes KSAs that are feasible for learners to demonstrate their competence, given the training level and available resources.

☐ are **R**elevant: Outcomes reflect KSAs representative of the discipline, and where relevant, future academic and career pathways.

☐ are **T**ime-based: Each learning outcome has sufficient opportunities for leaners to practice and apply the KSA, and receive constructive feedback.

☐ are **I**nclusive: Outcomes have the flexibility to incorporate multiple perspectives, diverse ways of knowing, and Universal Design for Learning (UDL) principles.

☐ are **E**quitable: Outcomes are fair, barrier-free, and all learners will have access to the tools and materials needed to achieve outcomes.

☐ aligned with program outcomes, other courses in the program (no redundancies or gaps and appropriate scaffolding – KSAs become more complex over time), institutional competencies, and graduate attributes, where applicable.

☐ aligned with industry/discipline expectations, needs of future employers, professional frameworks, accreditation standards, and licensing requirements, where applicable.

KSA Inventory Worksheet

Use this worksheet to map out the knowledge, skills, and attitudes (KSAs) – what you would like each learner to know, be able to do, and value – by the end of your program or course.

KNOW	DO	VALUE

Course-Level Assessment Alignment Worksheet

Use this worksheet to map out different assessments you could use to assess each of your course-level learning outcomes.
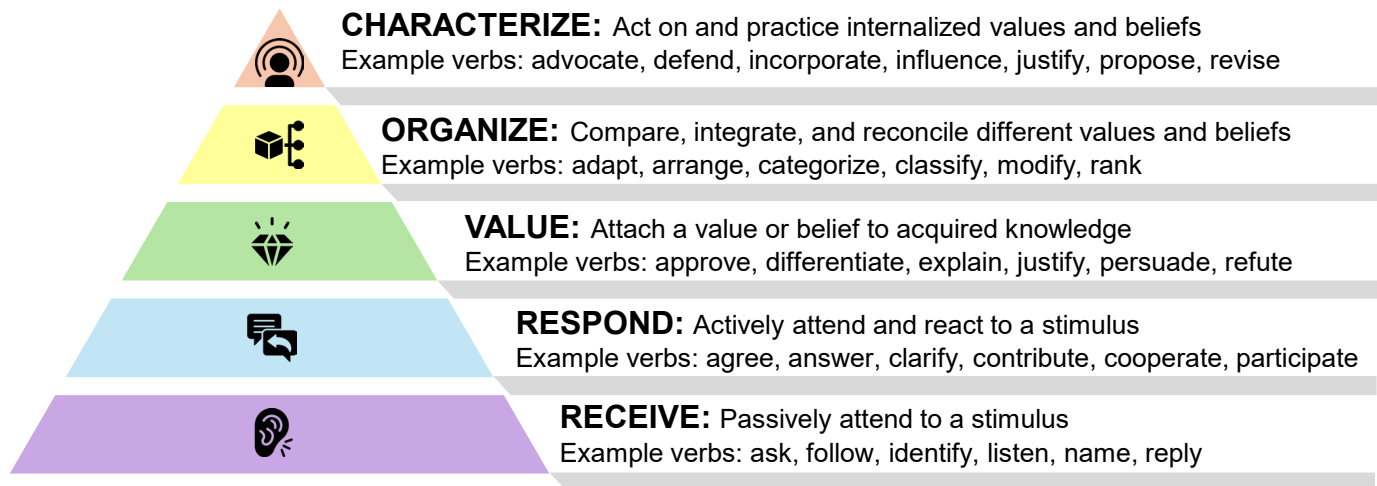
LEARNING OUTCOMES	ALIGNED ASSESSMENTS
1.	
2.	
3.	
4.	
5.	
6.	
7.	
8.	

Appendix B:
Taxonomies of Learning

Taxonomies of Learning

BLOOM'S TAXONOMY (BLOOM ET AL., 1956) – AFFECTIVE DOMAIN

CHARACTERIZE: Act on and practice internalized values and beliefs
Example verbs: advocate, defend, incorporate, influence, justify, propose, revise

ORGANIZE: Compare, integrate, and reconcile different values and beliefs
Example verbs: adapt, arrange, categorize, classify, modify, rank

VALUE: Attach a value or belief to acquired knowledge
Example verbs: approve, differentiate, explain, justify, persuade, refute

RESPOND: Actively attend and react to a stimulus
Example verbs: agree, answer, clarify, contribute, cooperate, participate

RECEIVE: Passively attend to a stimulus
Example verbs: ask, follow, identify, listen, name, reply

BLOOM'S TAXONOMY – PSYCHOMOTOR DOMAIN (SIMPSON, 1966)

ORIGINATION: Create new procedures and solutions for novel situations
Example verbs: build, combine, compose, create, initiate, redesign

ADAPTATION: Modify skills to fit specific circumstances
Example verbs: adapt, alter, modify, rearrange, reorganize, revise

COMPLEX OVERT RESPONSE: Perform complex tasks skillfully
Example verbs: assemble, calibrate, operate, perform

MECHANISM: Achieve skill proficiency where actions are habitual
Example verbs: construct, dismantle, fix, measure, organize

GUIDED RESPONSE: Build skills using imitation & trial & error
Example verbs: attempt, copy, follow, reproduce, respond

SET: Prepare to act mentally, physically, and emotionally
Example verbs: arrange, display, explain, prepare

PERCEPTION: Use sensory cues to guide motor activity
E.g., detect non-verbal cues, adjust tools based on cues

BLOOM'S DIGITAL TAXONOMY (CHURCHES, 2008)

CREATE: animate, direct and produce, film, mix and remix, podcast, program, publish, video-blog, videocast

EVALUATE: blog/vlog comment and reflect, collaborate and network, moderate, test an app, validate

ANALYZE: build mash-ups, code-crack, link, reverse-engineer

APPLY: edit, hack, play, run and operate, upload and share

UNDERSTAND: advanced/Boolean search, blog journal, categorize and tag, comment/annotate, subscribe and revisit feeds

REMEMBER: bookmark, bullet-point, Google or search, highlight, social network

ADDITIONAL TAXONOMIES OF LEARNING

Other models that are not covered in this guide, but you may wish to further explore include:

TAXONOMY	CATEGORIES OF LEARNING
Anderson & Krathwohl's Revised Taxonomy (2001)	Factual, conceptual, procedural, metacognitive
Depth of Knowledge (DOK) Framework (Webb, 2002)	Recall and reproduction, skills and concepts, strategic thinking, extended thinking
Experiential Learning Cycle (Kolb, 1984)	Concrete experience, reflective observation, abstract conceptualization, active experimentation
Marzano's New Taxonomy (Marzano & Kendall, 2007)	Retrieval, comprehension, analysis, knowledge utilization, metacognition, self-system thinking
Medicine Wheel of Learning Outcomes (Lafever, 2016)	Intellectual, spiritual, emotional, physical
Model of Skill Acquisition (Dreyfus & Dreyfus, 1980)	Novice, advanced beginner, competent, proficient, expert, mastery
Structure of Observed Learning Outcomes (SOLO) Taxonomy (Biggs & Collis, 1982)	Prestructural, unistructural, multistructural, relational, extended abstract
Undergraduate Cognitive Development Scheme (Perry, 1970)	Dualism, multiplicity, relativism, commitment