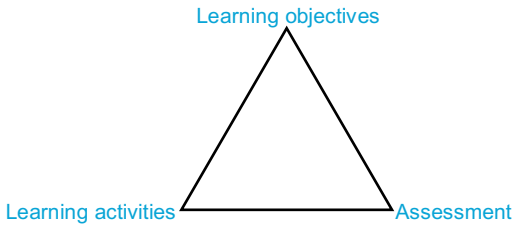
# Bloom's Taxonomy

## Constructive alignment

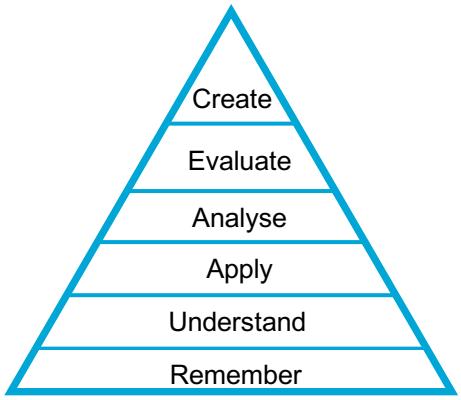
Constructive alignment is at the heart of solid course design (Biggs, 1996; Cohen, 1987).




The first step in designing a well-aligned course is to formulate good learning objectives. If it is unclear what students should have learned at the end of your course, there is no way of knowing what and how to assess, and which teaching and learning methods should be used.

### *Relating Bloom's Taxonomy to constructive alignment*

Bloom's Taxonomy of Educational objectives was created by Bloom (1956) in order to categorise different levels of cognitive skills that students use in learning situations. Since then, Kratwhol & Anderson have revised the taxonomy (2009).




Bloom's taxonomy is based on the main principle that each level requires a higher level of abstraction and that a teacher should attempt to move students up the taxonomy (Bloom, 1956). This means that if the learning objective is formulated on a higher cognitive level, the learning activities and assessment should be designed accordingly. Using this revised taxonomy in educational design provides teachers with a hands-on tool to constructively align their learning objectives, learning activities and assessment on the same cognitive level.

Bloom's taxonomy is hierarchical by nature, which implies that learning at the higher cognitive level requires an attained prerequisite knowledge and skills at the lower levels. Both the original and revised version of Bloom's taxonomy should be treated with a little caution as learning is not always perfectly linear. As with any framework, model or construct, Bloom's taxonomy is not perfect nor is it a silver bullet. Relying on the template without thinking about the reasons behind the framework can lead to a too literal interpretation

### *Applying Bloom's taxonomy*

Bloom's taxomy provides a categorisation that instructors can use to organise learning objectives and to create lesson plans with aligned content and teaching activities. To do so, it is key to define learning objectives in terms of observable behaviour. To be able to so, there are so called 'verb tables' based on Bloom's Taxonomy that include action verbs which align with each level in Bloom's Taxonomy. These verb tables are not always perfect, some list verbs at different levels. The main principle should be that the skill, action or activity that is taught *using that verb* that determines the Bloom's Taxonomy level.

| Bloom's level | Action verbs |
|---|---|
| Create | Design, develop, produce, build, construct, etc. |
| Evaluate | Argue, assess, compare, judge, recommend, etc. |
| Analyse | Choose, select, order, inspect, appraise, etc. |
| Apply | Apply, employ, show, use, plan, calculate, etc. |
| Understand | Cite, illustrate, discuss, explain, interpret, etc. |
| Remember | Find, identify, name, , memorise, etc. |

Once clear learning objectives are set, the taxonomy can be used to plan homework and in-class activities that align with the order of learning. For instance, if a student is asked to analyse, make sure activities based on verbs such as *categorise, compare or debate* are included. Using these action verbs allows teachers to avoid the common pitfall of setting learning outcomes at higher-order levels of learning, then neglecting to align their teaching to help students meet those outcomes.

### *Bloom's taxonomy and assessment*

Bloom's taxonomy was originally designed to help structure questions that validly assess the extent of each student's mastery of material (Kratwohl & Anderson, 2009). Not all categories of (exam) questions allow the assessment of higher-order learning. For example, multiple-choice questions are best for assessing lower-order levels. One can use the action verbs to align assessments with the learning outcomes.

### *References*


Cohen, S.A. (1987). 'Instructional alignment: Searching for a magic bullet', Educational Researcher 16(8), 16--20.

Biggs, J. (1996). Enhancing teaching through constructive alignment. *Higher education*, *32*(3), 347-364.

Bloom, B. S. (1956). Taxonomy of educational objectives. Vol. 1: Cognitive domain. *New York: McKay*, 20-24.

Krathwohl, D. R., & Anderson, L. W. (2009). *A taxonomy for learning, teaching, and assessing: A revision of Bloom's taxonomy of educational objectives*. Longman.