How to Create a Rubric or Set of Criteria

To construct a rubric for an individual assignment, a teacher should do the following:

- Choose an assignment that tests what you want to evaluate and make sure you are clear about your objectives for the assignment.
- Identify the criteria or 'traits' that will count in the evaluation. These are nouns and phrases, e.g., 'thesis, 'eye contact, or 'use of color'.
- For each trait construct a two-to five-point scale by creating descriptive statements of good and poor versions of this trait (this constitutes the standards for the assessment).
- Try out the scale with a sample work or with colleagues, and revise as necessary.[1]

Utilizing verbs and cognitive levels from Bloom's Taxonomy[2] for constructing grading criteria:

Knowledge

Remembering (recalling) appropriate, previously learned information, such as terminology or specific facts.

Verbs to use in assignments to have students demonstrate knowledge: define; describe; enumerate; identify; label; list; match; name; read; record; reproduce; select; state; view.

Example: Ask your students to do a free-write in class, in which they **identify** three causes of the Civil War, or **define** Progressivism. Use their responses as a starting point for discussion or have the students discuss their responses in small groups.

Comprehension

Understanding the meaning of informational materials.

Verbs to use in assignments to have students demonstrate comprehension: classify; cite; convert; describe; discuss; estimate; explain; generalize; give examples; make sense of; paraphrase; restate (in own words); summarize; trace; understand.

Example: Ask your students to **paraphrase** an author's argument, or a part of their lecture notes, in one paragraph. Then divide the students into pairs and ask the students to **discuss** any gaps or discrepancies in their comprehension and to construct a new and better paragraph together.

Application

Using previously learned information in new and concrete situations to solve problems that have single or best answers.

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[1] Creating significant learning experiences by L. Dee Fink (Jossey-Bass Books, 2013 pages 99-100.)
[2] Lorin Anderson, David Krathwohl, et al. published a revision of the taxonomy in 2000: *A Taxonomy for Learning, Teaching, and Assessing: A Revision of Bloom's Taxonomy of Educational Objectives*. New York: Longman.

Verbs to use in assignments so that students can demonstrate their ability to apply: act; administer; articulate; assess; chart; collect; compute; construct; contribute; control; determine; develop; discover; establish; extend; implement; include; inform; instruct; operationalize; participate; predict; prepare; preserve; produce; project; provide; relate; report; show; solve; teach; transfer; use; utilize.

Example: Ask students to **relate** classroom instruction on the immigrant experience in the United States to primary sources which you provide (or which they **collect** on their own). Ask the students to **use** the primary sources to **teach** a course theme to their peers or have them **report** their observations on a threaded discussion list.

Analysis

Breaking down informational materials into their component parts, examining (and trying to understand the organizational structure of) such information to develop divergent conclusions by identifying motives or causes, making inferences, and/or finding evidence to support generalizations.

Verbs to use in assignments so that students can demonstrate their ability to analyze: break down; correlate; diagram; differentiate; discriminate; distinguish; focus; illustrate; infer; limit; outline; point out; prioritize; recognize; separate; subdivide.

Example: In an exam essay question, students may be asked to **analyze** the reasons for European settlement in the " New World." Beyond simply identifying the reasons, they are asked to **prioritize** the reasons in order of significance and to **distinguish** between the reasons for settlement in New England vs. Virginia.

Synthesis

Creatively or divergently applying prior knowledge and skills to produce a new or original whole.

Verbs to use in assignments so that students can demonstrate their ability to synthesize: adapt; anticipate; categorize; collaborate; combine; communicate; compare; compile; compose; contrast; create; design; devise; express; facilitate; formulate; generate; incorporate; individualize; initiate; integrate; intervene; model; modify; negotiate; plan; progress; rearrange; reconstruct; reinforce; reorganize; revise; structure; substitute; validate.

Example: In preparation for a research paper, students may be asked to **create** a prospectus, in which they **formulate** a hypothesis, **compile** a bibliography, and **plan** a research schedule.

Evaluation

Judging the value of material based on personal values or opinions, resulting in an end product, with a given purpose, without real right or wrong answers.

Verbs to use in assignments so that students can demonstrate their ability to evaluate: appraise; compare and contrast; conclude; criticize; critique; decide; defend; interpret; judge; justify; reframe; support.

Example: Have students write a five-page essay in which they **compare and contrast** two authors' arguments on a given topic, **evaluate** their use of evidence, and **defend** one interpretation over the other.

How to Connect Criteria to Course Goals

If the course goal was that *students should be able to "design, construct, and assess electronic apparatus to measure physical properties",*[3] a guideline for connecting criteria to course goals could look as follows:

I. **Design**: To "design" well, students should be able to…

- A. Conceptualize the problem
- B. Use a computer program to design
  1. Effectively
  2. Efficiently
- C. Identify the accuracy and precision needed for the measurement and available from the experiment

II. **Construct** electronic measure equipment that is…

- A. Effective (measures properly, accurately, and only the intended property)
- B. Efficient
  1. Few wires
  2. Small amount of time to construct
- C. Robust (durable)
- D. Reliable
- E. Useful in the future

III. **Analyze and assess** to…

- A. Determine how well the apparatus works
- B. Determine how it can be approved

[3] Creating Significant Learning Experiences by L. Dee Fink (Jossey-Bass Books, 2013, pages 100-101)

Five Educational Learning Theories

Terminology[4]

1. **Behaviorism** is a worldview that operates on a principle of "stimulus-response." All behavior caused by external stimuli (operant conditioning). All behavior can be explained without the need to consider internal mental states of consciousness.

2. **Cognitivism** focuses on inner mental activities — opening the "black box" of the human mind. It is necessary to determine how processes such as thinking, memory, knowing, and problem-solving occur. People are not "programmed animals" that merely respond to environmental stimuli; people are rational beings whose action are a consequence of thinking.

3. **Constructivism** is the idea that people are responsible in creating their own understanding of the world and using what they know based on previous experiences in the process of linking new information to these experiences. People use these experiences and new information to construct their own meaning.

4. **Humanism** is a paradigm/philosophy/pedagogical approach that believes learning is viewed as a personal act to fulfill one's potential.

5. **Connectivism** is driven by the understanding that decisions are based on rapidly altering foundations. New information is continually being acquired. The ability to draw distinctions between important and unimportant information is vital. The ability to recognize when new information alters the landscape based on decisions made yesterday is also critical.

[4] https://www.educationdegree.com/articles/educational-learning-theories/

"When the fear response has been tempered, the artist is able to overcome risk aversion and embrace novelty. Of course, this is easier said than done. As human beings, we're wired to seek out categories, labels, and clean conclusions. Because of our natural aversion to uncertainty, there are very few things in life that we enjoy more than a sure thing or a tidy solution!

But in order to think differently, the fear of uncertainty has to go. The nonconformist embraces the unknown and learns to play in life's gray areas - asking impertinent questions and engaging with numerous solutions to a single problem. Those murky, ambiguous places, as highly imaginative people well know, are quite often where the creative magic happens."[5]

[5] Wired to Create: Unraveling the Mysteries of the Creative Mind by Scott Barry Kaufman & Carolyn Gregoire (Teacher Perigree Books, 2016, page 183.)