

Note-taking Guide

How Can I Assess Critical Thinking with Objective Items?

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Outcomes

- Formulate discipline-relevant student learning outcomes that involve critical thinking (CT) & are suitable for you to assess
- To compose matching, multiple choice, & multiple true/false items that assess your students' targeted CT skills



Where CT applies

When a “claim” may or may not be valid, complete, or the best possible.

“Claim” = belief, value, assumption, interpretation, problem definition, theory, generalization, analysis, viewpoint, opinion, contention, hypothesis, solution, inference, decision, prediction, or conclusion – **not** a fact or term definition.



Must-have CT learning outcomes

- Outcomes = statements of what students should *be able to do* by end of the day, week, unit, or course.
- Across the disciplines, CT involves, at a minimum, *interpretation/analysis* and *evaluation*



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Learning outcomes

“Performances” you can *observe* so you can assess and *set standards* for them
– *not* internal states of mind like “know,” “learn,” “feel,” “understand,” “appreciate”
(Supplementary Material)



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Discipline-relevant CT skills/outcomes

(Supplementary Material)

- Check those relevant to your course.
- Add more if necessary.
- Write some CT outcomes.
- Start sequencing them: In what order will students achieve them?



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Assessments should *mirror* outcomes.

Outcome



Assessment



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Objective items should *require & assess* these:

- Interpretation
- Generalization
- Inference
- Problem solving
- Conclusion drawing
- Comprehension
- Application
- Analysis
- Synthesis
- Evaluation



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Types of objective items

- Fill-in-the-Blank/Completion
- True/False
- Matching
- Multiple Choice
- Multiple True/False



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Fill in the blank & True/false

Fill-in-the-Blank/Completion

- Focus on memorization (which you may want) – not CT

True/False

- Can assess CT *IF* “stimulus-based”; see multiple choice & multiple true/false below.



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Matching tests

Homogenous items within set—every option plausible for every item in list

- *“Match each theory with its originator.”*
- *Cause with effect*
- *Definition with term*
- *Achievement/work with person/author*
- *Foreign word with translation*



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Matching tests (cont.)

- *Pictures of objects with names*
- *Symbol with concept*
- *Organ/equipment/tool/apparatus with use or function*
- *Labeled parts in a picture with function*
- *Processes, sequences (less known /used)*



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Matching tests (cont.)

To Assess CT, Have Students Match ...

Causes with likely effects

–*Concepts with new examples of them*

–*New, hypothetical problems with tools, concepts, or approaches needed to solve them*

(Suskie, L. (2009). *Assessing student learning* (2nd ed.). San Francisco: Jossey-Bass.)



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Matching tests (cont.)

Guidelines for Writing Matching Items

- Imperfect match between columns: *“Some options may be used more than once, & others, not at all.”*
- Short options (1-3 words, phrase)
- Up to 15-17 items, all on 1 page
- List options alphabetically, numerically, or chronologically.



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Think about ...

What two sets of items could you have your students match to assess their CT skills?



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Multiple choice tests

Guidelines for Writing Multiple Choice Items

- Avoid phraseology & distracters that would prevent a knowledgeable student from answering the item correctly.
- Avoid giving clues that would help a poorly prepared student answer the item correctly. (Suskie, 2009)



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Multiple choice tests (cont.)

More specifically:

- List options alphabetically, numerically, chronologically.
- Make all distracters plausible, grammatically parallel, & just as long as correct response.
- Create distracters from elements of correct response.



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Multiple choice tests (cont.)

Use sparingly:

- ***no, not, never, none, except***

Use generously – not just when correct:

- all of the above
- none of the above



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Multiple true/false tests

- Each option below stem is a T/F item.
- Superior flexible, efficiency, reliability
- Easier and quicker to develop
- More challenge, no process-of-elimination
- Stem must be clear.



Multiple T/F tests (cont.)

To Assess CT, Compose:

... a **series** of multiple choice or multiple T/F items (or both) around a new*, realistic **stimulus** that students must interpret/analyze correctly to answer the items accurately.

* New to the students



Possible stimuli for multiple T/F tests

- **Text:** claim, statement, passage, mini-case, quote, report, text-based data set, description of an experiment
- **Graphic:** chart, graph, table, map, picture, model, diagram, drawing, schematic, spreadsheet



Guidelines for writing stimulus-based items
(Supplementary Material)

- New stimulus, but students must have **prior practice** in the CT skills assessed
- Few interlocking items
- Be creative with stimulus!



Strengths and limitations of stimulus-based items

- + Assess more CT skills more efficiently than constructed responses
- *Cannot* assess abilities to communicate, create, organize, define problems, or conduct research. *Only constructed responses can.*



Think about ...

What stimuli could you use for a series of multiple choice or multiple T/F items to assess your students' CT skills?




