

# Test question design

## WHAT IS THIS RESOURCE?

A comparison chart of test question types that outlines the purpose of each question type, or why you would elect to use that type of question on a test. The chart also includes tips for writing each type of question. The set of reflection prompts can be used as a final check of each question you have designed.

## HOW DO I USE IT?

Consult the comparison chart of test question types while you are creating or redesigning a test. Begin by deciding the most appropriate type of question for the skill used by the student (i.e. the purpose of the question you are asking). Next, compose the question using the provided tips. After composing each question, consider the reflection prompts to help ensure you have designed the most effective question possible. Consider asking a peer or TA to review the test and provide feedback before its use. For assistance, please contact [CET](http://cet.usc.edu/).

Assessments provide instructors with the tangible, gradable evidence needed to measure student performance against our course learning objectives. This means that assessments align to our course learning objectives and are direct measurements of them. Ideally, a course uses a variety of assessment types, such a papers, projects, and presentations. Tests, also called exams, are another type of assessment that can be used to measure student performance. For more information on assessment types, see the CET resources on Bloom’s Taxonomy and Types of Assessments.

### The science of test design

Test design is a complicated science. Selecting the most appropriate kind of test question required to elicit the information you need from students, and then writing the question itself, are challenging skills. Luckily, there are basic best practices to guide our test design, simplified in the chart below.

Table The science of test design

| **Question format** | **Skill used by student** | **Tips for using this format** |
| --- | --- | --- |
| **True/false** | • make categorical, either/or judgments• select between opposites• simulate job activities requiring binary decisions (yes/no; go/no-go; approve/disapprove) | • phrase questions in neutral terms to not give away the answer • vary correct answer so it’s sometimes false, sometimes true |
| **Choose one/Choose the one best answer** | • assign an item to a well-defined category• identify a member of a category• choose one right answer from a list | • include at least 4 alternatives, some nearly right• require thought, not process of elimination |
| **Choose all that apply** | • interpret sophisticated scenarios with more than one right answer• recognize multiple correct answers in a list• recognize characteristics that apply to an object/concept | • include nearly right answer choices |
| **Free response/Short answer/Essay/Composition** | • recall names, numbers, facts, and text• produce limited amount of free-form writing• create original explanation, story, sketch, etc. | • phrase question to limit number and form of correct answers• accept synonyms, grammatical variants, and some misspellings• ask only one, simple question per input box/response area• use a grading rubric to determine required elements in an open answer that will be awarded points |
| **Fill-in-the-blank (typically, one word or short phrase)** | • recall names, numbers, facts, and text• test detailed knowledge like terminology, syntax, and formulas• provide context or scaffolding for learners to get the missing answer | • decide if spelling counts and if synonyms will be allowed |
| **Matching** | • measure knowledge of relationships among concepts or objects like tools/uses or terms/definitions• identify associations between items in two lists | • keep both lists short so they fit in the same display area• when possible, use selection lists or drag-and-drop over having learners type in answers• include at least one item that has no match |
| **Sequence** | • identify order of items in a sequence | • use for chronological order or a ranking scheme |
| **Image-based** | • visually recognize an object, area, or subsystem | • make target areas of the image visually distinct and large enough• show the scene or image as closely as possible to how it would appear in the real world |

### Reflection prompts

As a final check of the questions you have written, consider the following reflection prompts. It can also be helpful to have a colleague or TA review, or even take, the test and provide you feedback.

1. **Which course learning objective does this question test or address?**
* **Remember:** Each test question makes it onto the test because it has a unique purpose tied to measuring a student’s skill related to at least one of the course learning objectives.
1. **Where during the course was the student taught (and led to practice) the skill this question tests or addresses?**
* **Remember:** The purpose of a test is not to trick, confuse, or introduce new material. Rather, a test simulates similar practice already done with the guidance of the instructor and classmates during the course, but now done alone by the student
1. **Can a student with subject knowledge but minimal reading skills still answer this question?**
* **Remember:** Test questions should not also be tests of reading comprehension or cultural comprehension, unless those two skills are actually course learning objectives. A student who knows the answer should not be unfairly hindered by unfamiliar or cumbersome language in the question. Similarly, students with different cultural backgrounds and experiences should not be put at a disadvantage due to unfamiliar or undefined references in the question.

Adapted from: Horton, W. (2012). Tests. In E-Learning by Design (pp. 215-284). San Francisco, CA: Pfeiffer.