

# Is This a Trick Question?

## **A Short Guide to Writing Effective Test Questions**

**This is an abbreviated version with only 4 chapters utilized.  
Specific subtopics chosen per chapter.**

# Is This a Trick Question?

## **A Short Guide to Writing Effective Test Questions**

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# Multiple Choice Test Items

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## Good for:

✎ Application, synthesis, analysis, and evaluation levels

## Types:

- ✎ Question/Right answer
- ✎ Incomplete statement
- ✎ Best answer

## Advantages:

- ✎ Very effective
- ✎ Versatile at all levels
- ✎ Minimum of writing for student
- ✎ Guessing reduced
- ✎ Can cover broad range of content

## Disadvantages:

- ✎ Difficult to construct good test items
- ✎ Difficult to come up with plausible distractors/alternative responses

***"...almost any well defined cognitive objective can be tested fairly in a multiple choice format."***

## Section Summary

The multiple choice item consists of the stem, which identifies the question or problem and the response alternatives or choices.

Usually, students are asked to select the one alternative that best completes a statement or answers a question. For example,

**Item Stem:** Which of the following is a chemical change?

### Response Alternatives:

- Evaporation of alcohol
- Freezing of water
- Burning of oil ✕
- Melting of wax

Multiple choice items are considered to be among the most versatile of all item types. They can be used to test factual recall as well as levels of understanding and ability to apply learning. As an

example, the multiple choice item below is testing not only information recall but also the ability to use judgment in analyzing and evaluating.

Multiple choice tests can be used to test the ability to:

1. recall memorized information
2. apply theory to routine cases
3. apply theory to novel situations
4. use judgment in analyzing and evaluating

- A. 1 only
- B. 1 and 2 only
- C. 1, 2 and 3 only
- D. 1, 2, 3 and 4

Multiple choice items can also provide an excellent basis for posttest discussion, especially if the discussion addresses why the incorrect responses were wrong as well as why the correct responses were right. Unfortunately, multiple choice items are difficult and time consuming to construct well. They may also appear too discriminating (picky) to students, especially when the alternatives are well constructed and are open to misinterpretation by students who read more into questions than is there.

## Test your knowledge of multiple choice

**tests** by taking the multiple choice test below...

Circle the Most Correct Answer

1. Multiple choice items provide highly reliable test scores because:

- A. they do not place a high degree of dependence on the students reading ability
- B. they place a high degree of dependence on a teacher's writing ability
- C. they are a subjective measurement of student achievement
- D. they allow a wide sampling of content and a reduced guessing factor

2. You should:

- A. always decide on an answer before reading the alternatives
- B. always review your marked exams
- C. never change an answer
- D. always do the multiple choice items on an exam first

3. The above multiple choice item is structurally undesirable because:

- A. a direct question is more desirable than an incomplete statement
- B. there is no explicit problem or information in the stem

- C. the alternatives are not all plausible
- D. all of the above
- E. A & B only
- F. B & C only
- G. A & C only
- H. none of the above

4. The above multiple choice item is undesirable because:

- A. it relies on an answer required in a previous item
- B. the stem does not supply enough information
- C. eight alternatives are too many and too confusing to the student
- D. more alternatives just encourage Guessing

5. The right answers in multiple choice questions tend to be:

- A. longer and more descriptive
- B. the same length as the wrong answers
- C. at least a paragraph long
- D. short

6. When guessing on a multiple choice question with numbers in the answer:

- A. always pick the most extreme
- B. pick the lowest number
- C. pick answers in the middle range
- D. always pick C

7. What is the process of elimination in a multiple choice question?

- A. skipping the entire question
- B. eliminating all answers with extreme modifiers
- C. just guessing
- D. eliminating the wrong answers

8. What should you not do when taking a multiple choice test:

- A. pay attention to patterns
- B. listen to last minute instructions
- C. read each question carefully
- D. read all choices

8. It is unlikely that a student who is unskilled in untangling negative statements

- will:
- A. quickly understand multiple choice items not written in this way
  - B. not quickly understand multiple choice items written in this way
  - C. quickly understand multiple choice items written in this way

D. not quickly understand multiple choice items not written on this way

*Answers:* 1-D, 2-B, 3-D, 4-C, 5-A, 6-C, 7-D, 8-C

# Suggestions For Writing Multiple Choice Test Items

**1. When possible, state the stem as a direct question rather than as an incomplete statement.**

*Undesirable:*

Alloys are ordinarily produced by...

*Desirable:*

How are alloys ordinarily produced?

**2. Present a definite, explicit and singular question or problem in the stem.**

*Undesirable:*

Psychology...

*Desirable:*

The science of mind and behavior is called...

**3. Eliminate excessive verbiage or irrelevant information from the stem.**

*Undesirable:*

While ironing her formal, Jane burned her hand accidentally on the hot iron. This was due to a transfer of heat between...

*Desirable:*

Which of the following ways of heat transfer explains why Jane's hand was burned after she touched a hot iron?

**4. Include in the stem any word(s) that might otherwise be repeated in each alternative.**

*Undesirable:*

In national elections in the United States the President is officially:

- A. chosen by the people.
- B. chosen by members of Congress.
- C. chosen by the House of Representatives.
- D. chosen by the Electoral College. ✗

*Desirable:*

In national elections in the United States the President is officially chosen by

- A. the people.
- B. members of Congress.

- C. the House of Reps.
- D. the Electoral college. ✗

✎ Use at least four alternatives for each item to lower the probability of getting the item correct by guessing.

✎ Use capital letters (A, B, C, D) as response signs rather than lower case letters (“a” gets confused with “d” and “c” with “a” if the type or duplication is poor).

✎ Randomly distribute the correct response among the alternative positions throughout the test, having approximately the same proportion of alternatives A, B, C, and D as the correct response.

✎ Avoid irrelevant clues such as grammatical structure, well known verbal associations or simplistic connections between stem and answer.

✎ When possible, present alternatives in some logical order (e.g., chronological, most to least, alphabetical).

✎ Use the alternatives **none of the above** and **all of the above** sparingly. When used, such alternatives should occasionally be used as the correct response

### ***Remember...***

**5. Use negatively stated stems sparingly. When used, underline and/or capitalize the negative word.**

*Undesirable:*

Which of the following is not cited as an accomplishment of the Kennedy administration?

*Desirable:*

Which of the following is NOT cited as an accomplishment of the Kennedy administration?

**6. Make all alternatives plausible and attractive to the less knowledgeable or skillful student.**

*Undesirable:*

What process is most nearly the opposite of photosynthesis?

- A. Digestion
- B. Assimilation
- C. Respiration ✗
- D. Catabolism

*Desirable:*

What process is most nearly the opposite of photosynthesis?

- A. Digestion
- B. Relaxation
- C. Respiration ✗
- D. Exertion

**7. Make the alternatives mutually exclusive.**

*Undesirable:*

The daily minimum required amount of milk that a 10 year old child should drink is

- A. 1-2 glasses.
- B. 2-3 glasses. ✗
- C. 3-4 glasses. ✗
- D. at least 4 glasses.

*Desirable:*

What is the daily minimum required amount of milk a 10 year old child should drink?

- A. 1 glass.
- B. 2 glasses.
- C. 3 glasses. ✗
- D. 4 glasses.

**8. Make alternatives approximately equal in length.**

*Undesirable:*

The most general cause of low individual incomes in the United States is:

- A. lack of valuable productive services to sell. ✗
- B. unwillingness to work.
- C. automation.
- D. inflation.

*Desirable:*

What is the most general cause of low individual incomes in the United States?

- A. A lack of valuable productive services to sell. ✗
- B. The population's overall unwillingness to work
- C. The nation's increased reliance on automation.
- D. An increasing national level of inflation.

# Multiple Choice Test Items: Conclusion

## Why are these multiple choice questions crummy?

1. How frequently do you take a sick day from work?

- A. never
- B. once or twice a year
- C. 3 to 5 times a year
- D. 6 to 12 times a year
- E. at least once a month

2. Identify the issue that you believe is most critical to this country's future.

- A. the economy
- B. education
- C. integrity in government
- D. national defense
- E. some other issue

***"Understand that there is always one clearly best answer. My goal is not to trick students or require them to make difficult judgments about two options that are nearly equally correct. My goal is to design questions that students who understand will answer correctly and students who do not understand will answer incorrectly."***

*John A. Johnson  
Dept. of Psychology,  
Penn State University*

# Aim for Higher Levels of Learning

**Here are two examples of multiple choice test items designed for higher order thinking skills.**

A common goal of the Salt March in India, the Boxer Rebellion in China, and the Zulu resistance in southern Africa was to:

- A. overthrow totalitarian leaders
- B. force upper classes to carry out land reform programs
- C. remove foreign powers
- D. establish Communist parties to lead the Governments

In western Europe, which development caused the other three?

- A. decline of trade
- B. fall of Rome
- C. breakdown of central government
- D. rise in the power of the Roman Catholic Church

One way to write multiple choice questions that require more than recall is to develop questions that resemble miniature "cases" or situations. Provide a small collection of data, such as a description of a situation, a series of graphs, quotes, a paragraph, or any cluster of the kinds of raw information that might be appropriate material for the activities of your discipline.

Then develop a series of questions based on that material. These questions might require students to apply learned concepts to the case, to combine data, to make a prediction on the outcome of a process, to analyze a relationship between pieces of the information, or to synthesize pieces of information into a new concept.

# True-False Test Items

*There are many situations which call for either-or decisions, such as deciding whether a specific solution is right or wrong, whether to continue or to stop, whether to use a singular or plural construction, and so on. For such situations, the true-false item is an ideal measuring device.*

## Section Summary

### Good for:

- ✍ Knowledge level content
- ✍ Evaluating student understanding of popular misconceptions
- ✍ Concepts with two logical responses

### Advantages:

- ✍ Can test large amounts of content
- ✍ Students can answer 3-4 questions per minute

### Disadvantages:

- ✍ They are easy
- ✍ It is difficult to discriminate between students that know the material and students who do not
- ✍ Students have a 50-50 chance of getting the right answer by guessing
- ✍ Need a large number of items for high reliability

In the most basic format, true-false questions are those in which a statement is presented and the student indicates in some manner whether the statement is true or false. In other words, there are only two possible responses for each item, and the student chooses between them. True-false questions are well suited for testing student recall or comprehension. Students can generally respond to many questions, covering a lot of content, in a fairly short amount of time.

## Select or Supply?

True-false questions require the students to select a response (true or false) that shows recognition of correct or incorrect information that is presented to them. These are included among the items that are called **selection**, in contrast to **supply** items in which the student must supply the correct information.

## Forced Choice

Another term applied to true-false items is **forced choice** because the student must choose between two possible answers. Educational objectives that specify the student will *identify*, *select*, and *recognize* material are appropriately targeted to either forced choice questions or more complex matching or multiple choice questions.

## Much Maligned and Abused...

Many educators feel that true-false test items serve little or no measurement purposes because true-false items are subject to guessing. (But the likelihood of obtaining a substantially higher than chance score by guessing alone is very small). In general, individual true-false items are less discriminating than individual multiple choice items. There is a tendency to write trivial true-false items, which lead students to verbatim memorization. At the same time, no diagnostic information is available from incorrect responses to true-false items. Finally, true-false items are not amenable to concepts that cannot be formulated as propositions.

# Check Your Knowledge of True-False Test Items

## Summarizing the Argument for the Value of True-False Test Items

- ✎ The essence of educational achievement is the command of useful verbal knowledge.
- ✎ All verbal knowledge can be expressed in propositions.
- ✎ A proposition is any sentence that can be said to be true or false.
- ✎ The extent of students' command of a particular area of knowledge is indicated by their success in judging the truth or falsity of propositions related to it. Ebel and Frisbie (1991)

Since true-false questions tend to be either extremely easy or extremely difficult, they do not discriminate between students of varying ability as well as other types of questions do.

1. Is it recommended to take statements directly from the text to make good true-false questions?  
A. Yes  
B. No

2. Two ideas can be included in a true-false statement if the purpose is to show cause and effect.

- A. Yes
- B. No

3. When a true-false statement is an opinion, it should be attributed to someone in the statement.

- A. Yes
- B. No

4. Underlining or circling answers is preferable to having the student write them.

- A. Yes
- B. No

**Circle "Good" if it describes a good practice in true-false questions, circle "Poor" if it characterizes a poor practice.**

5. Complex statements are used to measure higher order thinking. **Good Poor**

6. If negatives, such as "not," are used, they should be highlighted in some way. **Good Poor**

7. True and false statements should be approximately the same length. **Good Poor**

8. There should be a recognizable pattern in the answers, such as TFTFTFTF. **Good Poor**

9. The following are examples of words that should be avoided: "all," "none," "never," "sometimes," "generally," and "often." **Good Poor**

 Versatility—True-false items *Directions: For each question below, circle A or B.* are adaptable to the measurement of a wide variety of learning outcomes.

 Scoring accuracy and economy—Scoring keys can be economically applied by machine or clerical assistants.

 Reliability—True-false tests that are highly reliable can be constructed.

 Amenable to item analysis—True-false items are amenable to item analysis, by means of which they can be improved.

 Efficiency—More test responses can be obtained from a given amount of written material and in a given amount of time than from other forms

 True-false items are useful in

testing misconceptions.

✍ True-false items can be expressed in few words, making them less dependent on reading ability.

## Making the Case for True-False Items

*Answers:* 1-B, 2-A, 3-A, 4-A, 5-Poor, 6-Good, 7-Good, 8-Poor, 9-Good

# Suggestions for Writing True-False Test Items

## 1. Base true-false items upon statements that are absolutely true or false, without qualifications or exceptions.

*Undesirable:*

Nearsightedness is hereditary in origin.

*Desirable:*

Geneticists and eye specialists believe that the predisposition to nearsightedness is hereditary.

✍ Keep language as simple and clear as possible.

✍ Use a relatively large number of items (75 or more when the entire test is T/F).

✍ Be aware that extremely long or complicated statements will test reading skill rather than content knowledge.

✍ Require students to circle or underline a typed "T" or "F" rather than to fill in a "T" or "F" next to the statement, thus avoiding having to interpret confusing handwriting.

✍ If a proposition expresses a relationship, such as cause and effect or premise and conclusion, present the correct part of the statement first and vary the truth or falsity of the second part.

✍ Make true and false items of approximately equal average length throughout the test.

✍ Randomize the sequence of true and false statements.

✍ Make use of popular misconceptions/ beliefs as false statements.

✎ Write items so that the incorrect response is more plausible or attractive to those without the specialized knowledge being tested.

## **Remember...**

### **2. Express the item statement as simply and as clearly as possible.**

*Undesirable:*

When you see a highway with a marker that reads, "Interstate 80" you know that the construction and upkeep of that road is maintained by the state and federal government.

*Desirable:*

The construction and maintenance of interstate highways are provided by both state and federal governments.

### **3. Express a single idea in each test item.**

*Undesirable:*

Water will boil at a higher temperature if the atmospheric pressure on its surface is increased and more heat is applied to the container.

*Desirable:*

Water will boil at a higher temperature if the atmospheric pressure on its surface is increased.

### **4. Include enough background information and qualifications so that the ability to respond correctly to the item does not depend on some special, uncommon knowledge.**

*Undesirable:*

The second principle of education is that the individual gathers knowledge.

*Desirable:*

According to John Dewey, the second principle of education is that the individual gathers knowledge.

## **Extreme Modifiers:**

all none  
always never  
only nobody  
invariably no one

best absolutely  
worst absolutely not  
everybody certainly  
everyone certainly not

## Qualifiers:

usually frequently  
often sometimes  
some seldom  
many much  
probably a majority  
apt to most  
might a few  
may unlikely

### 5. Avoid the use of extreme modifiers or qualifiers.

*Undesirable:*

—**All** sessions of Congress are called by the President. (F)

—The Supreme Court **frequently** rules on the constitutionality of law. (T)

—An objective test is **generally** easier to score than an essay test. (T)

*Desirable:*

—The sum of the angles of a triangle is **always** 180°. (T)

—The galvanometer is the instrument **usually** used for the metering of electrical energy used in a home. (F)

### 6. Avoid lifting statements from the text, lecture or other materials so that memory alone will not permit a correct answer.

*Undesirable:*

For every action there is an opposite and equal reaction.

*Desirable:*

If you were to stand in a canoe and throw a life jacket forward to another canoe, chances are your canoe would jerk backward.

### 7. Avoid using negatively stated item statements.

*Undesirable:*

The Supreme Court is not composed of nine justices.

*Desirable:*

The Supreme is composed of nine justices.

## 8. Avoid the use of unfamiliar vocabulary.

### *Undesirable:*

According to some politicians, the raison d'être for capital punishment is retribution.

### *Desirable:*

According to some politicians, justification for capital punishment is retribution.

## Remember...

✍ Determine that the questions are appropriately answered by "True" or "False" rather than by some other type of response, such as "Yes" or "No."

✍ Arrange the statements so that there is no discernible pattern of answers (such as T, F, T, F, T, F and T, T, F, F, T, T, F, F) for True and False statements.

✍ Avoid the tendency to add details in true statements to make them more precise. The answers should not be obvious to students who do not know the material.

✍ Be sure to include directions that tell students how and where to mark their responses.

### Writing Hint...

One method for developing true-false items is to write a set of true statements that cover the content, then convert approximately half of them to false statements. **Remember:** When changing items to false (as well as in writing the true statements initially), state the items positively, avoiding negatives or double negatives.

# Variations in Writing True-False Test Items

## The True-False-Correction Question...

In this variation, true-false statements are presented with a key word or brief phrase that is underlined. It is not enough that a student correctly identify a statement as being false. To receive credit for a statement labeled false, the student must also supply the correct word or phrase which, when used to replace the underlined part of the statement, makes the statement a true one.

This type of item is more thorough in determining whether students actually know the information that is presented in the false statements. While a student might correctly guess that a statement is false, no credit would be given unless the student could change the statement to a true one by writing word/words to replace underlined word(s).

The teacher decides what word/phrase can be changed in the sentence; if students were instructed only to make the statement a true statement, they would have the liberty of completely rewriting the statement so that the teacher might not be able to determine whether or not the student understood what was wrong with the original statement.

If, however, the underlined word/phrase is one that can be changed to its opposite it loses the advantage over the simpler true-false question because all the student has to know is that the statement is false and change **is** to **is not**.

### **The Yes-No Variation...**

In the yes-no variation, the student responds to each item by writing, circling or indicating yes-no rather than true-false. An example follows:

*What reasons are given by students for taking evening classes? In the list below, circle **Yes** if that is one of the reasons given by students for enrolling in evening classes; circle **No** if that is not a reason given by students.*

**Yes No** They are employed during the day.

**Yes No** They are working toward a degree.

**Yes No** They like going to school.

**Yes No** There are no good television shows to watch.

**Yes No** Parking is more plentiful at night.

### **The A-B Variation...**

The example below shows a question for which the same two answers apply. The answers are categories of content rather than true-false or yes-no. This is another form of forced choice question because for each item the student must choose between **A** and **B**.

*Indicate whether each type of question below is a selection type or supply type by circling **A** if it is selection, **B** if it is supply.*

#### **Select Supply**

**A B** Multiple choice

**A B** True-False

**A B** Essay

**A B** Matching

**A B** Short Answer

While true-false and other forced choice questions are generally used to measure knowledge and understanding, they could also be used at higher levels. Students could be provided with a set of information new to them, perhaps a portfolio, set of data, or a written work of some type, then asked various forced choice questions related to the content or the presence/absence of certain characteristics in the work.

### ***In the final analysis...***

The true-false test is probably the best known of the various types of objective test items. It is the easiest to construct and at the same time the most abused. The students learn the weaknesses that are inherent in many such items and are able to obtain high scores by noting the grammatical construction, the choice of words or other clues.

The true-false test can be used effectively as an instructional test to promote interest and introduce points for discussion. This perhaps

is the most important use for the plain true-false item. It is a valuable type of test to use in giving short, daily quizzes that may be used to motivate the students for a new assignment, to review a previous lesson, to locate points to be retaught or to introduce controversial points for class discussion.

## True-False Test Items: Conclusion

### Why are these true-false questions crummy?

1. There is no advantage for not using specific determiners in true-false items. **T F**
2. Test validity is a function of test reliability, which can be improved by using fewer items. **T F**
3. A nickel is larger than a dime. **T F**
4. An eagle's range of sight is precisely 1,000 ft. **T F**
5. The telephone was invented a long time ago. **T F**

## Aim for Higher Levels of Learning

"A major distinction between the true-false test item and items in a multiple choice format, is that the true-false statement contains no criterion for answering the question. Each examinee must ask the question: *True or false with respect to what?* Each true-false item must be unequivocally true or unequivocally false. It is imperative that proper wording and the elimination of extraneous clues are more crucial with the true-false item than with any other test format."

Writing Test Items, na, Michigan State University

# Matching Test Items

## Section Summary

### Good for:

- ✎ Knowledge level
- ✎ Some comprehension level, if appropriately constructed

### Types:

- ✎ Terms with definitions
- ✎ Phrases with other phrases
- ✎ Causes with effects
- ✎ Parts with larger units
- ✎ Problems with solutions

### Advantages:

- ✎ Maximum coverage at knowledge level in a minimum amount of space/prep time
- ✎ Valuable in content areas that have a lot of facts

### Disadvantages:

- ✎ Time consuming for students
- ✎ May not be appropriate for higher levels of learning

A simple matching item consists of two columns: one column of **stems** or problems to be answered, and another column of **responses** from which the answers are to be chosen. Traditionally, the column of stems is placed on the left and the column of responses is placed on the right. An example is given below.

**Directions:** On the line next to each children's book in Column A print the letter of the animal or insect in Column B that is a main character in that book. Each animal or insect in Column B can be used only once.

### Column A Column B

- |                          |               |
|--------------------------|---------------|
| _____ 1. Charlotte's Web | A. Bear       |
| _____ 2. Winnie the Pooh | B. Chimpanzee |
| _____ 3. Black Beauty    | C. Cricket    |
| _____ 4. Tarzan          | D. Deer       |
| _____ 5. Pinocchio       | E. Horse      |
| _____ 6. Bambi           | F. Pig        |

The student reads a stem (Column A) and finds the correct response from among those in Column B. The student then prints the letter of the correct response in the blank beside the stem in Column A. An alternative is to have the student draw a line from the correct response to the stem, but this is more time consuming to score. In the above example notice that the stems in Column A are assigned numbers (1, 2, 3, etc.). The items in Column B are designated by capital letters. Capital letters are used rather than lower case letters in case some students have reading problems. Also

there are apt to be fewer problems in scoring the student's handwritten responses if capital letters are used.

Also in the above example, the student only has to know five of the six answers to get them all correct. Since each animal in Column B can be used only once, the one remaining after the five known answers have been recorded is the answer for the sixth premise. One way to reduce the possibility of guessing correct answers is to list a larger number of responses than premises.

## Test Your Knowledge of Matching Test Items

1.Problem: Faulty directions.

**Directions:** "Place the letter of the term in the right hand column on the line to the left of the definition column."

Circle the letter(s) that describe the best way to revise these directions:

- A. Add: "Match the following"
- B. Add: "Each term may not be used more than once"
- C. Change the order of the directions provided
- D.No changes needed

2.Problem: Unrelated topics.

- \_\_\_\_ 1.Year in which WWII began A. Joseph Stalin
- \_\_\_\_ 2.British Prime Minister in WWII B. Franklin D. Roosevelt
- \_\_\_\_ 3.U.S. President during WWII C. 1939
- \_\_\_\_ 4.German dictator in WWII D. Winston Churchill
- E. Adolf Hitler

Circle the letter(s) that describe the best way to revise this matching test.

- A. Change one of the descriptions to read: "Russian dictator in WWI"
- B. Add an item to the left hand column
- C. Add a description that reads: "Year in which WWI began"
- D.Remove option C. from the right hand column
- E. Remove all stimuli and responses that do not concern leaders in WWII

3.Problem: Mixing matching with completion.

**Directions:** On the line to the left of each statement write the letter of the atomic particles from the right hand column that the statement describes. Use each particle only once.

- \_\_\_\_ 1.An \_\_\_\_ orbits the nucleus. A. Electron
- \_\_\_\_ 2.Positively charged particles are called \_\_\_\_\_. B. Neutron
- \_\_\_\_ 3.A \_\_\_\_\_ has no charge. C. Protons
- \_\_\_\_ 4.The \_\_\_\_\_ is located in the center of an atom. D. Nucleus
- E. Ion

Circle the letter(s) that describe the best way to revise this matching test.

- A. Edit all the stimuli on the left to be complete statements.
  - B. Remove all the blanks from the stimuli on the left.
  - C. Change the order of the responses on the right.
  - D.Edit the stimuli to be grammatically unbiased (i.e. singular/plural)
- Answers:** 1-C, 2-E, 3-A, B & D

# Test Your Knowledge of Matching Test Items

**4.Directions:** The four statements presented below refer to the structure of the matching test, specifically what elements should be in Column A and what elements should be in Column B. At the left of each statement are the letters **A** and **B**. Circle **A** if Column A is the best choice; circle **B** if Column B is the best choice.

A B 1. When presenting words and their definitions, which column should contain the definitions, which are longer than the words?

A B 2. Items arranged in chronological order would be found in which column?

A B 3. Premise is the term applied to the items in which column?

A B 4. Items are designated by numbers in which column?

**5.Directions:** For the four learning objectives listed below, decide whether a matching exercise would be an appropriate method of assessment (Assume that you can construct a list of 6-8 items for the matching question.) Circle **YES** if appropriate; circle **NO** if not appropriate.

**YES NO** A. The student will be able to recognize the cities in/near which the major battles in the American Revolution took place.

**YES NO** B. The student will be able to differentiate between words that are spelled correctly and those spelled incorrectly.

**YES NO** C. The student will be able to identify the elements with their symbols from the periodic table.

**YES NO** D. The student will be able to identify the English words for various fruits that are represented by their Spanish language counterparts.

**6.Directions:** On the lines following this matching question supply four recommendations to improve this question.

Hitler A. Year in which WWII began

Mulroney B. A Canadian Prime Minister

Tank C. A German dictator during the WWII

1939 D. An armored vehicle used originally to break the trench war stalemate in WWI

**Recommendations:**

1. \_\_\_\_\_
2. \_\_\_\_\_
3. \_\_\_\_\_
4. \_\_\_\_\_

**Answers:** 4-A, B, A, A; 5-Yes, No, Yes, Yes; 6-Examples: Need directions, reverse Column A and Column B, make items similar, increase the number of responses

# Suggestions For Writing Matching Test Items

 Review your teaching objectives to make sure that a matching component is appropriate.

 Keep matching items brief, limiting the list of stimuli to 10 - 15.

- ✎ When possible, reduce the amount of reading time by including only short phrases or single words in the response list.
- ✎ Use the more involved expressions in the stem and keep the responses short and simple.
- ✎ Arrange the list of responses in some systematic order if possible (chronological, alphabetical).
- ✎ Make sure that there are never multiple correct responses for one stem (although a response may be used as the correct answer for more than one stem).
- ✎ Avoid breaking a set of items (stems and responses) over two pages. (Students go nuts flipping pages.)

## Remember...

### 1. Include directions which clearly state the basis for matching the stimuli with the responses.

*Undesirable:*

**Directions:** Match the following.

*Desirable:*

**Directions:** On the line to the left of each identifying location and characteristics in Column I, write the letter of the country in Column II that is best defined. Each country in Column II may be used more than once.

Explain whether or not a response can be used more than once and indicate where to write the answer.

### 2. Use only items that share the same foundation of information.

*Undesirable:*

**Directions:** Match the following.

1. Water A. NaCl
2. Discovered Radium B. Fermi
3. Salt C. NH<sub>3</sub>
4. Ammonia D. 1942
5. Year of the first E. H<sub>2</sub>O  
Nuclear Fission F. Curie
- G. 1957

*Desirable:*

**Directions:** On the line to the left of each compound in Column I, write the letter of the compound's formula presented in Column II. Use each formula only once.

#### Column I Column II

- \_\_\_\_ 1. Water A. H<sub>2</sub>SO<sub>4</sub>
- \_\_\_\_ 2. Salt B. HCl
- \_\_\_\_ 3. Ammonia C. NaCl
- \_\_\_\_ 4. Sulfuric Acid D. H<sub>2</sub>O

E. H<sub>2</sub>HCl

Unrelated topics included in the same matching item may allow for obvious matches and mismatches.

### 3. Avoid grammatical or other clues to the correct response.

*Undesirable:*

**Directions:** Match the following in order to complete the sentences on the left.

- \_\_\_ 1. Plato insisted that government was A. The Prince.
- \_\_\_ 2. Machiavelli wrote about achieving political B. desirable and inevitable unity in C. a science requiring experts.
- \_\_\_ 3. Hobbes argued that human nature made D. organized along industrial lines. absolute monarchy E. Communism.
- \_\_\_ 4. Marx was a German philosopher and economist who founded

*Desirable:*

**Directions:** On the line to the left of each statement write the letter of the philosopher from the right hand column that the statement describes. Use each philosopher once.

- \_\_\_ 1. Thought government was a science requiring experts. A. Hobbes
- \_\_\_ 2. Described methods of achieving political unity. B. Marx
- \_\_\_ 3. Founded Communism. C. Machiavelli
- \_\_\_ 4. Believed that human nature made absolute D. Durkheim monarchy desirable and inevitable E. Plato

### 4. The column of stimuli on the left should set the question clearly.

*Undesirable:*

**Directions:** Match the following.

- \_\_\_ 1. City dwellers A. Wild animals
- \_\_\_ 2. Hunter-gatherers B. Farm
- \_\_\_ 3. Pastoral nomads C. Apartment buildings
- D. Graze animals

*Desirable:*

**Directions:** On the line to the left of each definition, write the letter of the term in the right hand column that is defined. Use each term only once.

- \_\_\_ 1. Live in areas of high population density. A. Pastoral nomads
- \_\_\_ 2. Move from one place to another in search of wild animals. B. Ranchers
- \_\_\_ 3. Move from one place to another with grazing animals. C. Hunter-gatherers
- \_\_\_ 4. Till land for cash crops. D. City dwellers
- E. Farmers

# Completion or Fill-in-the-Blank Test Items

## No-Hint Test Construction

Completion items are especially useful in assessing mastery of factual information when a specific word or phrase is important to know. They preclude the kind of guessing that is possible on limited-choice items since they require a definite response rather than simple recognition of the correct answer. Because only a short answer is required, their use on a test can enable a wide sampling of content.

A completion item requires the student to answer a question or to finish an incomplete statement by filling in a blank with the correct word or phrase. For example,

**According to Freud, personality is made up of three major systems, the \_\_\_\_\_, the \_\_\_\_\_ and the \_\_\_\_\_.**

## **What About Synthesis and Evaluation?**

Completion items tend to test only rote, repetitive responses and may encourage a fragmented study style since memorization of bits and pieces will result in higher scores. They are more difficult to score than forced-choice items and scoring often must be done by the test writer since more than one answer may have to be considered correct.

## **Is Short Answer the Same Thing?**

A distinction should be made between completion—often referred to as fill-in-the-blank—and short answer questions. With completion questions the response is usually one or two words that fit on a line provided by the tester. Short answer questions may require one sentence or even a paragraph to fully answer the question. Short answer questions are appropriate in measuring a student's understanding of principles or the ability to solve problems or apply principles. Short answer questions go beyond simple recall or recognition. They require students to consider various factors and to arrive at solutions, whether they deal with mathematical or other situations.

## **Section Summary**

### **Good for:**

- ✎ Knowledge levels
- ✎ Recall and memorization of facts

### **Advantages:**

- ✎ Good for **who, what, where, when** content
- ✎ Minimizes guessing

Encourages more intensive study.  
Student must know the answer vs. recognizing the answer.

✍ Can usually provide an objective measure of student achievement or ability

**Disadvantages:**

✍ Difficult to assess higher levels of learning because the answers to completion items are usually limited to a few words

✍ Difficult to construct so that the desired response is clearly indicated

✍ May overemphasize memorization of facts

✍ Questions may have more than one correct answer

# Test Your Knowledge of Completion Items

Strategies for developing short answer questions are similar to those concerning completion but have an added dimension requiring strategies appropriate for essay questions. As an example, scoring completion questions can be more *objective* than scoring short answer questions which require a subjective *interpretation* on the teachers part. The information contained in this section primarily focuses on **completion** or **fill-in-the-blank** questions.

1. A fill-in-the-blank question asks students to supply rather than \_\_\_\_\_ the answer.
2. The main problem in constructing completion items is to limit the number of possible \_\_\_\_\_.
3. Put blanks at the \_\_\_\_\_ of the statement rather than the \_\_\_\_\_.
4. Completion items are faster to answer than \_\_\_\_\_ items because there are no alternatives to consider.
5. Make the \_\_\_\_\_ of equal length.
6. A direct \_\_\_\_\_ is often more desirable than an incomplete \_\_\_\_\_.
7. When doing fill-in-the-blank test items, read the \_\_\_\_\_ with the intent to give an answer that is \_\_\_\_\_ correct.
8. Always concentrate on the \_\_\_\_\_ of blanks to fill in.
9. When you do not know the exact \_\_\_\_\_, provide a descriptive answer. \_\_\_\_\_ supplies the response.

**Directions: Fill in the blanks.**

***On the whole, completion test items have little advantage over other item types unless the need for specific recall is essential.***

**Answers:** 1-select; 2-answer; 3-end, beginning; 4-multiple choice; 5-blanks; 6-question, sentence; 7-question, grammatically; 8-number; 9-response;

## Suggestions For Writing Completion Test Items

✍ When possible, provide explicit directions as to what amount of variation will be accepted in the answers.

✍ Give much more credit for completions than for true-false or matching items.

✍ Avoid using a long quote with multiple blanks to complete.

✍ When working with definitions, supply the term, not the definition, for a better judge of student knowledge.

✍ For numbers, indicate the degree of precision/units expected.

### ***Remember...***

#### **1. Omit only significant words from the statement.**

**Undesirable:**

Every atom has a central \_\_\_\_\_ called a nucleus.

**Desirable:**

Every atom has a central core called a(n) \_\_\_\_\_.

#### **2. Do not omit so many words from the statement that the intended meaning is lost.**

**Undesirable:**

The \_\_\_\_\_ were to Egypt as the \_\_\_\_\_ were to Persia and as \_\_\_\_\_ were to the early tribes of Israel.

**Desirable:**

The Pharaohs were to Egypt as the \_\_\_\_\_ were to Persia and as \_\_\_\_\_ were to the early tribes of Israel.

#### **3. Avoid obvious clues to the correct response.**

**Undesirable:**

Most of the United States' libraries are organized according to the \_\_\_\_\_ decimal system.

**Desirable:**

Which organizational system is used by most of the United States' libraries? \_\_\_\_\_.

#### **4. Be sure there is only one correct response.**

**Undesirable:**

Trees which shed their leaves annually are \_\_\_\_\_.

**Desirable:**

Trees which shed their leaves annually are called \_\_\_\_\_.

**Suggestion...**

It is difficult to write completion items so that there is only one correct answer. When preparing a scores key, list the correct answer and any other acceptable alternatives. Be consistent in using the key; it would not be fair to accept an answer as right on one paper and not accept it on others.

**5. Avoid grammatical clues to the correct response.**

If the indefinite article is required before a blank, use **a(n)** so that the student does not know if the correct answer begins with a vowel or a consonant.

*Desirable:*

A subatomic particle with a negative electric charge is called a(n) \_\_\_\_\_.

**6. If possible, put the blank at the end of a statement rather than at the beginning.**

*Undesirable:*

\_\_\_\_\_ is the measure of central tendency that is most affected by extremely high or low scores.

*Desirable:*

The measure of central tendency that is most affected by extremely high or low scores is the \_\_\_\_\_.

*Undesirable:*

A subatomic particle with a negative electric charge is called an \_\_\_\_\_.

Asking for a response before the student understands the intent of the statement can be confusing and may require more reading time.