

# Writing Multiple-Choice Questions

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## General guidelines for writing good multiple-choice questions:

- Present practical or real-world situations to the students.
- Present the student with a diagram of equipment and ask for application, analysis or evaluation.
- Present actual quotations taken from newspapers or other published sources and ask for the interpretation or evaluation of these quotations.
- Use pictorial materials that require students to apply principles and concepts.
- Use charts, tables or figures that require interpretation.
- Use either the *best answer* or the *correct answer* format.
- Avoid trick questions.

## Stem construction rules:

- State the stem as either a question (When did World War II begin?) or completion (World War II began in \_\_\_\_\_.)
- In completion questions, always place the blank at the end of the stem.
- Stem directions must clearly indicate exactly what is being asked.

### EXAMPLE

1. (Original-vague stem) World War II was:

- A. The result of the failure of the League of Nations.
- B. Horrible.
- C. Fought in Europe, Asia, and Africa.
- D. Fought during the period of 1939-1945.

1. (Revised) In which of these time periods was World War II fought?

- A. 1914-1917
- B. 1929-1934
- C. 1939-1945
- D. 1951-1955
- E. 1961-1969

- Use simple, direct language.
- Word the stem positively; avoid “not” or “except.” If this cannot be avoided, the negative words should always be highlighted by underlining or capitalization: Which of the following is NOT an example .....
- Include the central idea and most of the phrasing in the stem.
- Avoid giving unintended cues (e.g., ending the question stem with a specific article like "a" or "an").

## Option development rules:

- Include from three to five options for each question.
- Make sure that there is one and only one correct option.
- Place options in logical or numerical order.
- Use letters in front of options rather than numbers (A, B, C, etc).
- Avoid the phrase *all of the above*.
- Avoid the phrase *none of the above*.
- Do not use *never* and *always*.

- Keep options independent; options should not be overlapping.

EXAMPLE

1. (Original-non mutually exclusive options) During what age period is thumb-sucking likely to produce the greatest psychological trauma?

- A. Infancy
- B. Preschool period
- C. Before adolescence
- D. During adolescence
- E. After adolescence

2. (Revised) During what age period is thumb-sucking likely to produce the greatest psychological trauma?

- A. From birth to 2 years old
- B. From 2 years to 5 years old
- C. From 5 years to 12 years old
- D. From 12 years to 20 years old
- E. 20 years of age or older

- The greater the similarity among alternatives, the greater the difficulty.

EXAMPLE

1. (Easy) Who was the President of the U.S. during the War of 1812?

- A. Grover Cleveland
- B. Abraham Lincoln
- C. James Madison
- D. Harry Truman
- E. George Washington

2. (More difficult) Who was President of the U.S. during the War of 1812?

- A. John Q. Adams
- B. Andrew Jackson
- C. Thomas Jefferson
- D. James Madison
- E. George Washington

### Distractor (incorrect options) development rules:

- Use plausible distractors.
- Incorporate common errors of students in distractors.
- Use familiar yet incorrect phrases as distractors.
- Use true statements that do not correctly answer the question.
- Avoid the use of humor when developing options.
- Use statements that reveal common error patterns in students' understanding:

EXAMPLE

1. How is a plant able to grow larger?

|   | Answer Options                         | Error Pattern      | Analysis of Student Thinking                                                                                                             |
|---|----------------------------------------|--------------------|------------------------------------------------------------------------------------------------------------------------------------------|
| A | It gets its food from the soil         | Misconception      | Doesn't understand that nutrients are made internally by the plant                                                                       |
| B | It turns water and air into sugar      | Oversimplification | Understands that food is made internally but doesn't understand that water and CO <sub>2</sub> are used to make sugar and O <sub>2</sub> |
| C | It uses chlorophyll to produce food    | Overgeneralization | Does not understand that some parasitic plants do not contain chlorophyll                                                                |
| D | It adds biomass through photosynthesis | CORRECT            |                                                                                                                                          |