MATCHING ITEMS

Like multiple-choice items, matching items are a form of selection item. The matching item consists of two lists of elements. One list (usually the one on the left) is made up of premises, while the other contains responses. The learners' task is to match each premise with the appropriate response on the basis of a stated association or relationship between the two elements.

Uses of Matching Items

There are many kinds of associations or relationships that can be used as the basis for a matching item. Learners could be asked to match inventions with their inventors, tools or pieces of equipment with their uses, terms with their definitions, principles with examples of their application, and so on. Since you will probably want to test learners' knowledge of such associations or relationships in your own occupational area, you will find matching items to be useful.

Furthermore, matching items can be constructed using real objects or materials, pictures, drawings, or models. Instead of using words as your premises, you could use pictures for learners to match responses with. You could, for example, give horticulture learners pictures of different leaves to match with the names of the trees they come from.

Or, you could use one large, clear drawing or diagram of a radial arm saw, with arrows drawn to indicate different parts of the saw. Learners would then match each part indicated by an arrow with the correct name from the list of responses.

You can also construct matching items with three parts instead of two. You could use a three-part matching item for terminology in health care occupations. The list of premises could consist of Latin or Greek terminology. The first list of responses could be literal translations of the premises, and the second list of responses could be the actual definitions of the terms. It is not recommended that you attempt to use matching items with more than three parts (one premise and two responses).

Matching items are really only appropriate, however, for measuring learner achievement at the lowest cognitive level-knowledge. Experts in testing generally agree that matching items are not a valid measure of any of the higher cognitive levels.

Constructing Matching Items

While matching items may be familiar and popular, it is very important to take care in constructing them. When constructed carefully, matching items can be valid, reliable, and useful in evaluating learner knowledge. The following are guidelines for writing good matching items.

Use a reasonable number of both premises and responses. Neither of these two lists should be either too long or too short. If there are too few elements, it becomes easier for learners to guess correct answers—especially the last one-by process of elimination. (If there are only three items in each list, you can get them all right even if you only know two.) On the other hand, learners have to spend too much time reading the list over and over if there are
too many elements in the list.

Unfortunately, there is no single answer concerning how long the lists should be. Almost all the experts agree that five is the fewest number of elements you should put in a list. The maximum number recommended varies from ten to fifteen. It would appear safest to keep to the middle ground and have approximately ten elements in each list—certainly no fewer than five and no more than fifteen.

**All premises or responses in one list should be homogeneous.** Stated simply, this means that all the elements in a list, whether premises or responses, should be the same kind of thing. You might, for example, want learners to match two different sets of things: technical terms with their definitions, and tools with their uses. This would best be done by constructing two different matching items. In one, learners could match terms with definitions. In the other, they could match tools with uses.

**The whole matching item should be on a single page.** Learners should not have to flip back and forth from one page to the next to scan all the elements in either list. This would probably confuse learners and take too much time. If necessary, you should leave the bottom of one page blank and start your matching item at the top of a fresh page in order to fit it all on one page.

**List enough responses so that some are left over.** If you have exactly the same number of premises and responses, and each response is used only once, many learners will get the last one correct automatically, by process of elimination. This reduces the validity of the item, of course.

You can avoid this problem in one of three ways.

- The first is to use more responses than premises—for example, six premises and nine responses. Then learners still have four possible responses left when they get to the last premise. Listing two or three more responses than premises is sufficient.

- The second way to avoid the problem is to use a single response as the correct answer for more than one premise. You might, for example, have ten premises and ten responses, with one response being the correct answer for two premises and one response not used at all. If you do so, you must tell learners that a response can be used once, more than once, or not at all.

- One final variation is possible. You can state in your directions that a response can be used once, more than once, or not at all. However, you can then list the same number of responses as premises, with each response being used once.

This is a legitimate variation, since it does fit your directions for using responses. It can be effective in eliminating guessing by process of elimination under one condition—that your matching tests do use a single response more than once often enough that learners know that this is a real possibility. If you simply recite the formula for every matching item but never really use responses that way, learners will soon learn that you don't really mean it.

**List your responses in some logical order.** If responses are listed in a logical order, learners can find the response they are looking for more easily and quickly. If the responses are dates, they could be listed in chronological order. If they are names or terms, they could be in alphabetical order. Other possible logical orders might be increasing or decreasing size or importance.
**The premises can be long, but the responses should be short.** When learners are actually taking the test, they usually read one premise and then scan the list of responses looking for the correct one. As a result, they end up reading and rereading the list of responses. To save time, the responses that they will be reading over and over should be short.

**Avoid matching patterns.** It is surprisingly easy to place your responses so that they form a pattern in relation to your premises. You might do this without realizing it. For example, you might automatically put a response in the bottom half of the list when its premise is in the top half. Or, if the premise is toward the middle you might tend to put the appropriate response in the middle also. Other patterns are also possible, and all should be avoided. Otherwise, some learners will notice your patterns and find clues to correct responses.

One way to avoid matching patterns is to review the entire matching item after you have finished writing it. Look for patterns in the way elements match. If you find such patterns, you should use a procedure to randomize the order of the responses. You might roll dice, pick numbered slips of paper out of a hat, number the sides of a pencil and roll it, or perhaps use the randomization function of a calculator. Listing your responses in some logical order, as described earlier, may also serve to randomize them.

**Provide clear, simple, and complete directions.** You should not assume that your learners would understand what to do with a matching item as soon as they see it. Nor should you assume that learners will automatically know what the association or relationship between the premises and responses is. Learners should also be told how to mark their answers.

Thus, in your directions, you should tell learners what the relationship in the item is—for example, that they are to match breeds of swine with their identifying characteristics—and exactly how they should mark their answers. Sample 4 presents a matching item with directions for its use.

**Prepare a scoring key.** A scoring key always makes the job of scoring easier and helps to eliminate errors in scoring. You can just write the numbers and letters of the premises and the correct responses down the side of a piece of paper. Then, for quick and accurate scoring, you can lay this key next to the blanks in which learners mark their responses.
Sample

Matching Item and Directions

Matching Test:
The Typewriter Keyboard

Directions: The list on the left describes the functions of different keys on the typewriter keyboard. The list on the right contains the names of different keys. Match the names of the keys with their current functions by writing the letter of the correct response in the blank to the left of each function. Use each response only once, the first item is completed as an example.

<table>
<thead>
<tr>
<th>Functions</th>
<th>Keys</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.</td>
<td>a. Back space</td>
</tr>
<tr>
<td>1.</td>
<td>b. Correction key</td>
</tr>
<tr>
<td>2.</td>
<td>c. Margin release</td>
</tr>
<tr>
<td>3.</td>
<td>d. Return</td>
</tr>
<tr>
<td>4.</td>
<td>e. Shift</td>
</tr>
<tr>
<td>5.</td>
<td>f. Shift lock</td>
</tr>
<tr>
<td>6.</td>
<td>g. Space bar</td>
</tr>
<tr>
<td>7.</td>
<td>h. Tab</td>
</tr>
</tbody>
</table>

Matching Checklist

The matching items meet the following criteria:

1. Only homogeneous premises and responses are grouped within the item.
2. There are not less than 5 and not more than 15 responses in the item.
3. Premises are arranged for maximum clarity and convenience for the student.
4. The responses are logically (e.g., alphabetically, chronologically) arranged.
5. The directions clearly indicate the basis for matching and the method for marking answers.
6. Real materials, pictures, drawings, or models are used when practical.
7. Perfect one-to-one matching in the arrangement of premises and responses is avoided.
8. All the premises and responses are on one page.
9. There are more responses than premises, or single responses can be matched with more than one premise.
10. Correct answers are randomly distributed.
11. Responses are shorter than premises.
12. An appropriate scoring key is provided.