

2.4.10.3 Example to Explain Enhanced Matching type Item

To understand this Enhanced Matching type item better, let us consider a real world example.

In the following example, we have the names of major cities around the world as Tokens.

There are multiple Targets to accommodate city names and Labels representing countries, encompassing the Target city shape labels. Thus, Label "India" contains two Target city shape labels "India City 1" and "India City 2", "China" has three Target city shape labels, and so on.

The screenshot displays the 'Write Question' interface for an Enhanced Matching question. The interface includes a navigation bar at the top with tabs for 'Develop Questions', 'Prepare Assets', 'Create Exam Form', 'Manage', 'Observe', 'Manage Item Bank', and 'View Item Bank'. Below this is a sub-navigation bar with 'Write Item', 'Review', 'Validate', and 'Cases'. The user is identified as 'demouser2f' with a last login of '04/06/17 10:49 PM'. The project is 'Demo_Project1'.

The question is titled 'Write Question' and is of type 'Enhanced Matching'. The question number is 'Unsaved' and the language is 'English'. The question stem is: 'Identify the major cities of the world and match them with their countries.' Below the stem is a 'Check Spelling' link.

The 'Matching Pairs' section is titled 'Define matching pairs of tokens and targets using the Editor below:'. It includes buttons for 'Add Token', 'Add Target', 'Add Label', 'Delete', 'Select/Upload Image', 'Properties', 'Templates', 'Scoring', and 'Grid'. There are also checkboxes for 'Single Use Tokens' (checked) and 'Toggle Idents'.

The matching pairs are organized into three columns:

- Left Column (Tokens):** A vertical list of city names: Auckland, Beijing, Canberra, Chicago, Hong Kong, Los Angeles, Manchuria, Manipur, Melbourne, Montreal, Mumbai, New Delhi, New York City, Nishapur, Ottawa, Quebec, Shanghai, Sydney, Taipei, Washington, D.C., and Wellington.
- Middle Column (Targets):** A vertical list of country labels: India, USA, China, and Australia.
- Right Column (Targets):** A vertical list of city labels: India City 1, India City 2, USA City 1, USA City 2, USA City 3, USA City 4, China City 1, China City 2, China City 3, Australia City 1, Australia City 2, and Australia City 3.

The **Response Option** tab of the **Scoring** page for this item is as shown below.

Response Target	Compatible Token(s)	Correct Token(s) (Key)
China City 1	Taipei Beijing Hong Kong Manchuria Shanghai	Beijing Hong Kong Shanghai
Australia City 2	Wellington Auckland Canberra Melbourne Sydney	Canberra Melbourne Sydney
India City 1	Manipur Mumbai New Delhi Nishapur	Mumbai New Delhi

The names of all the cities in the item are listed below the **Compatible Token(s)**. We have selected only the cities with geographical proximity under **Compatible Token(s)**.

All the **Compatible Token(s)** are listed below the **Correct Token(s) (Key)**. Of these, only a few of the answers are correct and they are selected under **Correct Token(s)**.

The **Scoring Rules** tab of the **Scoring** page for this item is as shown below.

Basic Scoring (default) - All must be matched correctly
 Advanced

Select a set of drop targets that will mark the item correct if matched correctly by the candidate.

Rule No	Combination	Item Score
1	China City 1 China City 2 China City 3	1
2	Australia City 1 Australia City 2 Australia City 3	1
3	India City 1 India City 2	1
	USA City 1 USA City 2	

If we select **Basic Scoring**, then the scoring is straightforward as in a Matching type item. Thus, the candidate scores 1 if all the targets and tokens match correctly, but scores 0 even if one target-token pair doesn't match correctly.

We have chosen **Advanced** to explain the more complex scoring method.

In the above example, the candidate scores **1** if he correctly matches all the Targets selected in a rule with their correct Tokens. Thus, the maximum score for an item with **Advanced** scoring is equal to the sum of individual scores of all the rules.