# Essential Element, Linkage Levels, and Mini-Map

## Math: Grade 8

### M.EE.8.F.1-3

<table>
<thead>
<tr>
<th>Grade-Level Standard</th>
<th>DLM Essential Element</th>
<th>Linkage Levels</th>
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</table>
| **M.8.F.1** Understand that a function is a rule that assigns to each input exactly one output. The graph of a function is the set of ordered pairs consisting of an input and the corresponding output; | **M.EE.8.F.1-3** Given a function table containing at least 2 complete ordered pairs, identify a missing number that completes another ordered pair (limited to linear functions) | **Initial Precursor**  
- Arrange objects in pairs  
- Order objects |
| **M.8.F.2** Compare properties of two functions each represented in a different way (algebraically, graphically, numerically in tables, or by verbal descriptions); | | **Distal Precursor**  
- Recognize growing patterns  
- Recognize shrinking patterns |
| **M.8.F.3** Interpret the equation $y = mx + b$ as defining a linear function, whose graph is a straight line; give examples of functions that are not linear | | **Proximal Precursor**  
- Extend a symbolic pattern by applying the rule  
- Explain coordinate pairs (ordered pairs) |
| | | **Target**  
- Generate ordered pairs from 2 distinct numerical patterns |
| | | **Successor**  
- Recognize covariation  
- Recognize correspondence (function) |

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<table>
<thead>
<tr>
<th>How is the Initial Precursor related to the Target?</th>
<th>How is the Distal Precursor related to the Target?</th>
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<tbody>
<tr>
<td><strong>Initial Precursor:</strong> In order to understand and work with function tables, students begin by learning to notice what is new. The educator draws the students' attention to new objects or stimuli, labels them (e.g., “this set has all red objects; this set has all blue,” “these fidgets are big; these fidgets are small”) and the student observes, feels, or otherwise interacts with them. Educators encourage students to begin placing like objects together, drawing attention to the characteristics that make an item the same or different.</td>
<td><strong>Distal Precursor:</strong> Building on arranging and ordering objects, educators can use some of the other mathematical concepts like working with sets or recognizing a whole and parts to help students identify “same” and “different.” For instance, students may create a set and then create a second set that has the same amount. Then, they can change one of the sets to make it different. As students are learning to create and identify sets that are same and different, educators can draw student attention to the various attributes of a set to teach students to order, classify, and contrast the sets. These understandings will then lead to students having the attentional skills to recognize growing and shrinking patterns.</td>
</tr>
</tbody>
</table>

A diagram showing the relationship of nodes in the mini-map appears below.

*Key to map codes in upper right corner of node boxes:*

- **IP** Initial Precursor
- **SP** Supporting
- **DP** Distal Precursor
- **S** Successor
- **PP** Proximal Precursor
- **UN** Untested
- **T** Target
M.EE.8.F.1-3 Given a function table containing at least 2 complete ordered pairs, identify a missing number that completes another ordered pair (limited to linear functions).