Exercise 7: Identify Performance Patterns and Root Causes of Science Performance

**Objective(s) for participants:**

Agree on a prioritized list of patterns that characterize science performance in the state.

* Agree on root causes for these patterns and/or on plans to investigate them further.

**Instructions:**

Find or prepare one or more sets of analyses comparing historical data from the measures agreed to in Step 1. These may include bar graphs, scatterplots, motion charts or other visual representations of the state’s past and present performance on the identified metrics.

Individually or in pairs, review the data and identify one key performance pattern in the data. Record that on the flipchart template.

For each performance pattern, record the data to support that pattern, a potential root cause of that pattern and how to investigate that root cause.

* Discuss the identified patterns and root causes in the full group.

**Materials needed:**

Data sets

Flipcharts

* Markers

**Exercise notes:**

Performance patterns should be quantitative outcome measures. Examples include:

* + Trends over time (e.g., steady growth or steady decline);
	+ Dips or spikes in particular years; and
	+ Comparisons (e.g., growth in one subgroup/district but decline in another).

Root causes should be more qualitative and take into account the inputs that may have led to the performance pattern. Examples include:

* + A new professional development program provided to teachers that caused improved instruction and therefore improved student results;
	+ Changes in curriculum or instructional practice;
	+ Changes in state policies (rules, regulations, etc.); and
	+ A focus on certain districts or certain subgroups.
* Root causes for now are just hypotheses about what may have caused the performance pattern. In the final column, identify how you would investigate those hypotheses further.

**Template for Exercise 7**

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| **Performance Pattern** | **Supporting Data** | **Potential Root Cause** | **Plan for Investigating the Root Cause** |
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