TOOL 8.1

Types of data available

Use the framework below to identify the types of data available in your school.

STUDENT LEARNING DATA	DEMOGRAPHIC DATA
•	•
•	•
•	•
•	•
•	•
•	•
•	•
•	•
•	•
PERCEPTION DATA	**SCHOOL PROCESS DATA**
•	•
•	•
•	•
•	•
•	•
•	•
•	•
•	•
•	•

TOOL 8.3

Data analysis protocol (informal)

What is being measured in these data?

Who is represented in the data pool?

What jumps out in the data on first glance?

Surprises

Expected

What conclusions can we draw at this point?

What other data have we looked at recently that have suggested similar findings?

What other data might we consider to confirm or disprove these conclusions?

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TOOL 8.4

Data analysis protocol (formal)

What are we looking at here?

What is being measured in each assessment?

Which students are assessed?

What areas of student performance are meeting or exceeding expectations?

What areas of student performance are below expectations?

Do patterns exist in the data?

How did various populations of students perform? (Consider factors such as gender, race, and socioeconomic status.)

What are other data telling us about student performance?

How are the data similar or different in various grade levels, content areas, and individual classes?

What surprises us?

What confirms what we already know?
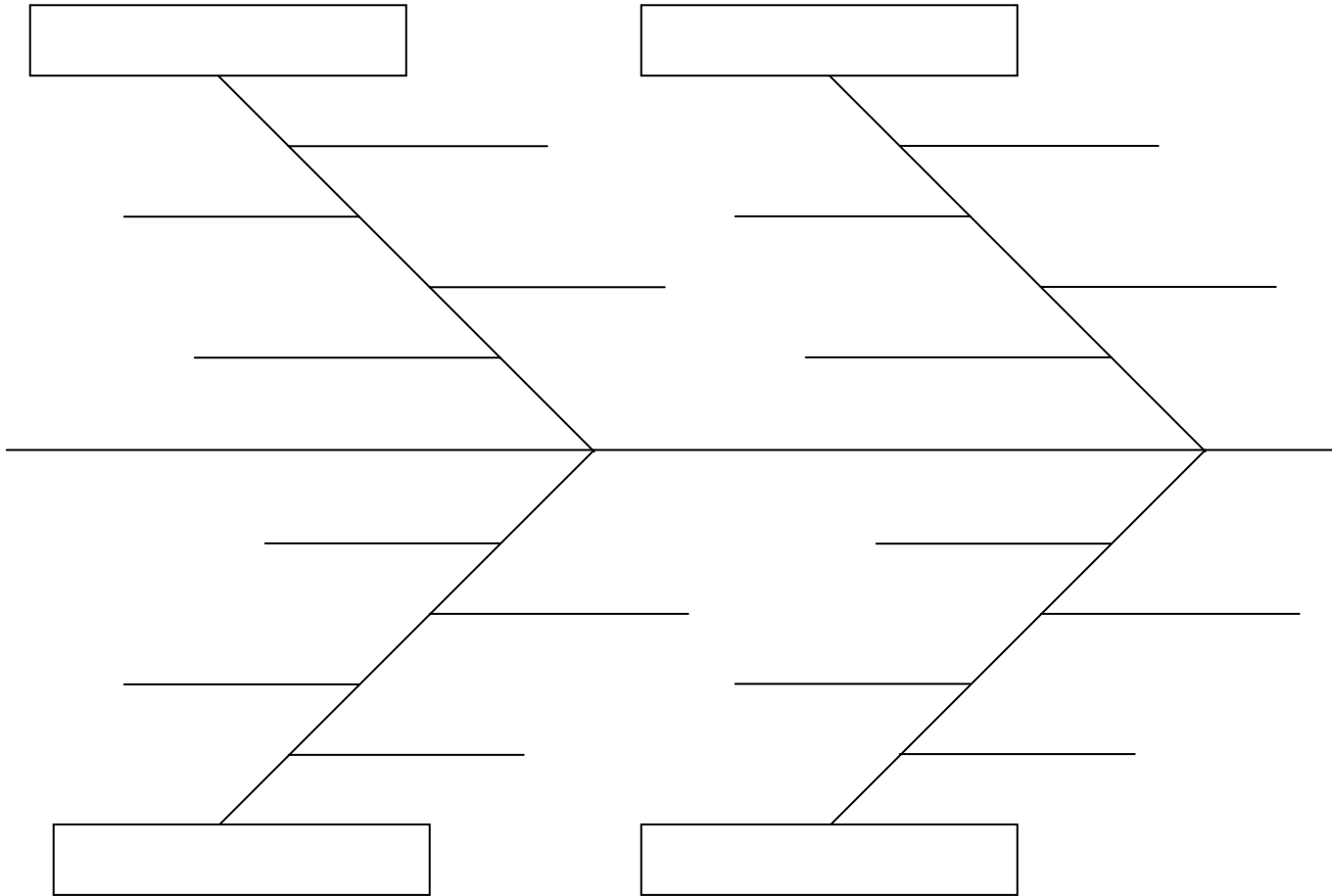
TOOL 8.6

Fishbone diagram

This quality management tool was developed by Kaoru Ishikawa and is sometimes called the Ishikawa Diagram or the Cause-Effect Diagram. It is designed to help take results from data analysis and to identify possible root causes for identified problems. Data identify the problems. They do not identify the cause of the findings until further analysis is conducted. It is through analyzing the probable root causes that teams will find their leverage point.

To use the Fishbone Diagram to identify possible causes of an identified problem, write the problem or current state, in specific terms, in the head of the fish. On the big bones of the fish list major factors that might contribute to the current situation. For example, 65% of the male students are reading two or more grades below level. Some of the major factors related to this problem might be instruction, availability of reading materials, learning styles, and curriculum. It is possible to consider other areas such as demographics, parent involvement, etc.; however, spending time working in these areas may not yield actions that school staff can take to address the identified problem. It is important to note that there are external areas of concern, such as the number of male students who live in households headed by females. Yet, this area is not one teachers can change. While it is possible to influence it in some way, identifying this as the root cause leaves teachers little room to act. It is helpful, therefore, to focus the bulk of the root cause analysis on areas of influence, those areas school staff can directly impact through their actions and interactions with students each day at school.

On the small bones of the fish, the team identifies specific areas related to the major factors. For example, availability of reading materials, teachers might write classroom and library reading materials of interest to male students. After identifying as many specific factors as possible, team members circle or mark those factors they believe have the greatest impact on the current state. In essence, they are formulating hypotheses about what might be causing the current state. For example, a hypothesis might sound like this: In classrooms where there are reading materials on topics of interest to males and where students have easy access to these materials, male students' reading scores are higher than in classrooms where this type of resource is not readily available.

Teams then examine additional data to confirm or disprove their hypotheses until they find one or two that hold up. It is from these hypotheses that they begin their action planning. If in fact the above hypothesis was confirmed, their actions would center on how to make more high-interest reading materials easily accessible to male students.

The next page has a blank fishbone diagram template for teams to use with their own problems.

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TOOL 8.7

Hypothesis-testing record keeping sheet

Use this form to record hypotheses about root causes, other data sources to check to confirm or disprove each hypothesis, and to indicate if this hypothesis is confirmed or disproved.

Hypotheses about root causes	Data sources to check	Confirm	Disprove

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