

STEP THREE: DEFINE STUDENT LEARNING OBJECTIVES



Facilitator: Revisit the steps of the PIM process and show the team where they will have the opportunity to discuss causes and Worksheet 0-D (Step 4) and solutions (Step 5).

In Step 3 the planning team will identify specific skills and knowledge that students have not mastered and define objectives for student learning based on those findings. The team will first examine the MCAS item analysis graphs prepared in Step 0, and look for patterns indicating the skills students may lack. As the team develops theories, it will also consider whether a lack of basic reading or literacy skills may have prevented students from engaging with the MCAS questions. Finally, the team will consult data from other assessments to confirm the skills and knowledge students have not mastered.

Note that the test items on item analysis graphs are arranged according to the scores of students statewide in order to help the team judge the relative difficulty of each question. The line representing the state percent correct should not be viewed as the standard the school is trying to meet, but rather as an indication of each question's difficulty.

Expectations for this step



- Team members will increase their familiarity with MCAS questions and the skills and knowledge required to answer them correctly.
- Team members will increase their understanding of students' performance on individual MCAS items relative to the difficulty of the question.
- Team members will become more familiar with the variety of data available to the school, including data from diagnostic reading assessments and the MEPA, and how to use it to expand on the information MCAS provides about students' skills and knowledge.
- The planning team will be able to reflect on whether the assessments the school conducts provide sufficient information on students' skills and knowledge.
- The planning team will create a set of student learning objectives outlining the skills and knowledge that most need to be addressed in order to raise students' performance.

Tool Kit

Worksheets

3-A Identification of MCAS items (Word)

3-B Analysis of MCAS questions (Word)

3-C Skills and knowledge students lack (Word)

3-D Student learning objectives (Word)

Other Materials and Equipment

Appendix A: Documenting the plan (School Improvement Plan Template, PIM Access Database, or an alternate format)

Appendix C: Assessing reading and literacy skills

Copies of completed item analysis graphs (prepared in Step 0) on transparency film

Copies of item analysis reports that include the percent of students giving each response

Released MCAS items from MA DOE Web site:
www.doe.mass.edu/mcas/testitems.html

Copies of the state Curriculum Frameworks for English language arts and mathematics from MA DOE Web site:
www.doe.mass.edu/frameworks/current.html

Data listed on Worksheet 0-A, overhead projector, and transparency markers

Resources

Anderson, L., and Krathwohl, D., Eds. (2001). *A taxonomy for learning, teaching, and assessing: a revision of Bloom's taxonomy of educational objectives*. New York: Addison Wesley Longman, Inc.

3.1 Identify MCAS items on which targeted student groups performed poorly

Guiding Question: On which items did students perform most poorly given the difficulty of the question?

The team will use the item analysis graphs generated in Step 0 to identify the test items on which targeted student groups performed poorly.

Facilitator: Why show data for subgroups such as special education students against data for all students statewide instead of students statewide in that subgroup? The statewide data is not meant to be viewed as a comparison group. It is only an indicator of the relative difficulty of the questions based on statewide results.

1. Select the item analysis graphs for targeted student groups

- Select the graphs for targeted student subgroups and the graphs for the students not in those subgroups.
- If targeting all students, the team may use the graph for the aggregate population, or, if the performance of the aggregate is close to the state average, it may be more informative to use the graph for all students who scored warning/failing and needs improvement, as this is the group whose performance needs to improve.
- Be aware of the number of students each group represents. Be cautious of drawing conclusions for groups of fewer than 20 students. Also, if the students in the warning/failing and needs improvement group is close to the number in the targeted subgroups, these graphs may represent the same students.

Facilitator: The team will repeat this step using an additional year of MCAS data. Consider having two teams perform the work in parallel, and then meet to discuss their findings.

2. **For each targeted student group, look at the appropriate item analysis graph. Identify eight to ten questions on which those students' scores are lowest relative to the difficulty of the question and circle them on the graph. Select questions based on the following:**
 - Questions where the school's percent correct is lowest relative to the state percent correct
 - Questions on which the state percent correct is relatively high and the school's students performance is significantly lower
 - Questions with the greatest distances between the performance of the target group and another student group at the school

STEP THREE: DEFINE STUDENT LEARNING OBJECTIVES ●
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group” column, the performance of the subgroup may account for the lower performance of the “All students” group.

Table 3.1: Identification of MCAS items (Worksheet 3-A)

Content area: Mathematics Grade: 6 MCAS administration year: 2005			
Item number	All students (Or W/F & NI)	Subgroup 1	
	Students scoring Warning/Failing and Needs Improvement in Mathematics	Special Education students	
	# in group:	# in group:	# not in group:
	98	32	185
7	✓	✓	✓
8		✓	
9	✓	✓	

6. If all students are targeted, the team should now have identified:

- a set of questions to analyze for all students, and
- a set of questions to analyze for each subgroup.

7. Using a copy of [Worksheet 3-B \(Analysis of MCAS questions\)](#) for each student group, list the questions identified for that group.

STEP THREE: DEFINE STUDENT LEARNING OBJECTIVES ● ● ●

- the relevant standards (listed in the released questions).

2. Using the released MCAS items, read through each question on the list and brainstorm the skills and knowledge needed to answer each question. Ask:

- What do students need to know or be able to do to answer this question?
- What about this question might have made it difficult for students to answer correctly?
- Using the item analysis report, note whether a high percent of students chose a particular wrong answer. Why would students have chosen that response?
- Does the terminology regularly used during instruction match that which is used on the test items and in the standards?
- Consult the Curriculum Frameworks to better understand the skills and knowledge required to perform well on the question at that grade level.

Facilitator: Be sure to distinguish between early literacy skills (the foundation skills students need to be able to read and write) and early reading skills (techniques or strategies students use help them read and write better or more effectively).

6. **Consider whether a lack of literacy skills contributed to the low student performance on the questions identified. Ask:**
 - Is student performance for the targeted group generally low for all of the items on the test?
 - Does student performance seem to be lower on items that require more reading or higher-level reading?
7. **If the answer to either of these questions is yes, record “literacy skills” as a placeholder on [Worksheet 3-C](#). The team will have to perform further analysis with help from a literacy specialist to determine the specific literacy skills students lack. Consult [Appendix C \(Assessing reading and literacy skills\)](#) for guidance on incorporating this analysis into the PIM process.**

3.3 Consult other sources of data to verify theories about the skills and knowledge students lack

Facilitator: Involve people from outside the team with expertise in ELA and mathematics, reading, English language learners, special education, and other specialists as needed.

Guiding Question: Do other sources of data verify or refute the team’s conclusions that students have difficulty with the skills and knowledge identified?

Once the team has investigated students’ reading and literacy skills (if applicable), it will consult data to verify the other skills and knowledge students lack.

1. **For each skill or area of knowledge listed on [Worksheet 3-C \(Skills and knowledge students lack\)](#), look at any relevant data**

by MCAS data? If so, to what might the discrepancy be attributed?

3. Consider whether to include MCAS Retest data as an additional source of information for high schools.

High school planning teams should keep the following considerations in mind when examining data from MCAS Retests:

- Students are not required to take the retest; therefore, item analysis results may be negatively influenced by the inclusion of scores from blank test booklets.
- Students take retests for a variety of reasons. Some students take the retest because they transferred from out of state, while other students do so because they performed poorly on the standard spring test.
- Because retests are focused on the skills and knowledge needed to earn a Competency Determination, they do not contain items that allow students to score proficient or advanced. The highest score one can earn on a retest is a scaled score of 238.

If MCAS retest data is used to verify the skills and knowledge students lack, it is important to know which students took the test and why.

4. Record findings from more extensive data analysis on [Worksheet 3-C](#) in the space provided, along with any questions and any other data that should be considered before making a final statement about the gaps in students' skills and knowledge.

NOTE: The student learning objective may be tied to a specific learning standard, or it may represent a more specific skill. Where possible, the student learning objective should refer to specific language in the state Curriculum Frameworks.

IMPORTANT: Write a maximum of three student learning objectives for each student group. Prioritize those skills that serve as building blocks to others, such as early literacy skills.

4. Record student learning objectives on **Worksheet 3-D**. (See **Table 3.2 on page 88**.)

Table 3.2: Student learning objectives (Worksheet 3-D)

Student group	Grade level(s)	Content area	Expectations for students' skills and knowledge:	Standard or strand
All students	K-5	ELA	Read grade level text fluently and with comprehension.	7.10
Special Education Students	6-8	Math	Estimate and compute with fractions, including simplification of fractions.	8.N.10
Limited English Proficient Students	9-12	ELA	Organize ideas for writing with a thesis statement, introduction, paragraphs that build an argument, transition sentences that link paragraphs, and a conclusion.	W.1.10

Worksheet 3-A: Identification of MCAS items

Content area:

Grade:

MCAS administration year:

Item number	All students (Or W/F & NI)	Subgroup 1		Subgroup 2	
	# in group:	# in group:	# not in group:	# in group:	# not in group:
1					
2					
3					
4					
5					
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10					
11					
12					
13					
14					
15					
16					
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Worksheet 3-B: Analysis of MCAS questions

Guiding Question: On which questions did students perform most poorly given the difficulty of the question? What skills and knowledge do students need in order to answer these questions?

Student group: _____ Content area: _____ MCAS administration year(s): _____

Question # (From 3-A)	Question type	Standard	Skills and knowledge needed to answer questions

Worksheet 3-C: Skills and knowledge students lack

Guiding Question: Do other sources of data verify or refute your conclusions that students have difficulty with the skills and knowledge you have identified?

Student group:

Content area:

Skills / knowledge that seem difficult for students:	Additional supporting evidence and remaining questions:

Worksheet 3-D: Student learning objectives

Guiding Questions: Based on your analysis, what skills and knowledge do students need to acquire?

Student group	Grade level(s)	Content area	Expectations for students' skills and knowledge:	Standard or strand