

Projecting Risk and Identifying Intervention Groups

Using Galileo K-12 Online Technology

The *Aggregate Multi-Test Report* in Galileo K-12 Online provides an estimate of each student's risk of not meeting the standards on the next statewide assessment. By running the *Aggregate Multi-Test Report* with Display Risk Levels selected, teachers and district administrators can now sort students into groups according to their degree of risk of not meeting the standards on the statewide assessment. ATI encourages the use of these risk level groups as intervention groups and, to that end, Galileo provides a list of performance objectives that are tailored for each risk-level group and on which intervention efforts can be focused. The selection of objectives for each group is based on an analysis of the performance of those students who have taken the Galileo benchmark assessments. The objectives associated with a given risk-reduction level identify skills that, if mastered, will provide the greatest available risk reduction for the group of students at that risk level.

Understanding the Risk Assessment Report in Galileo K-12 Online

In the Galileo K-12 Online *Risk Assessment Report*, a student's level of risk of not passing the statewide assessment is determined by where his or her Development Level (DL) score falls relative to a *cut score* on each ATI benchmark assessment taken. A DL score that is below the cut score puts the student at risk. Teachers and administrators can view cut scores for benchmark assessments in the Galileo K-12 *Aggregate Multi-Test Report*. Cut scores are displayed when the report is run with Display Risk Levels selected. In the following screen shot, the arrow points to the cut score which in this example was a score of 881 for all three math assessments.

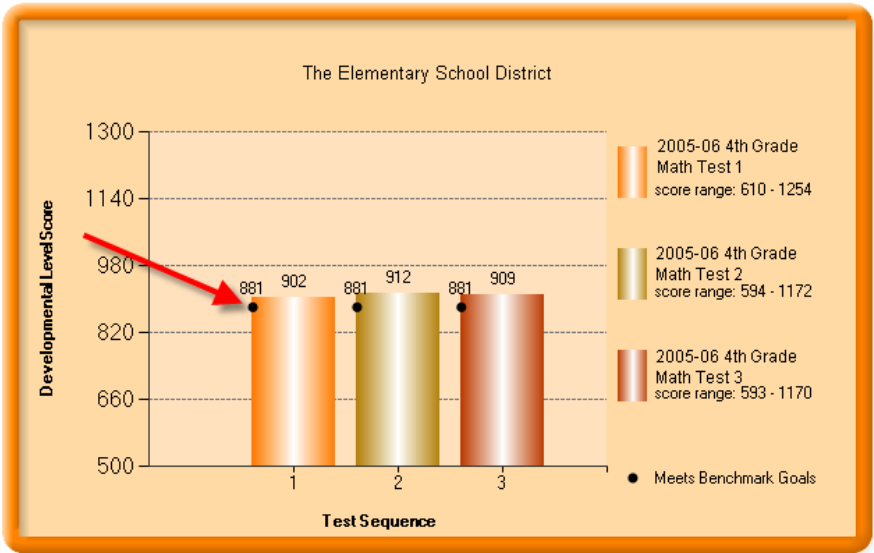
All Reports | Student Sets

Aggregate Multi-Test Report

District: The Elementary School District
School: none
Class: none

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[View Detail](#) |
 [View Report](#)

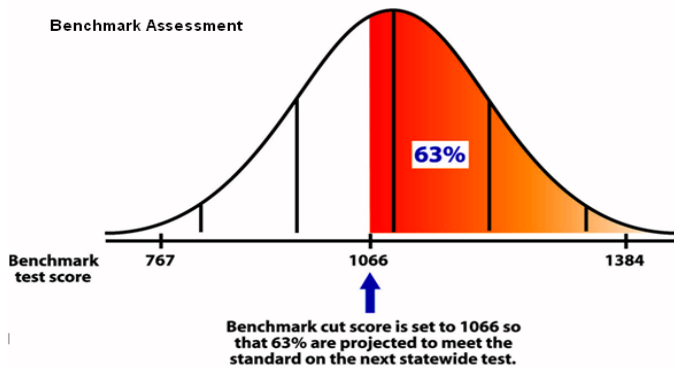


This table shows the count and percentage of students at each risk level.

	High Risk	Moderate Risk	Low Risk	On Course (minimal risk)
Number of Students (681)	143	106	108	324
Percentage	21.00 %	15.57 %	15.86 %	47.58 %

- How Cut Scores on Benchmark Assessments are Established**

In order to assess student risk of not meeting the standards on the statewide test, the cut score on the benchmark assessment must correspond to the cut score that the state uses to reflect standards mastery on the statewide test. One way to achieve the needed correspondence is to set the cut score on the benchmark assessment to match the cut score on the statewide test. If, for example, 63 percent of the students in the district met the standard on the statewide test, then the cut score for that district's benchmark assessments for the following year will be set at the 63rd percentile. That means that 63 percent of the students will achieve a score equal to or higher than the cut score. The following image illustrates this state of affairs.



In the example above, the process of setting a cut score on the benchmark assessment assumes that the scores on both the benchmark assessment and the statewide assessment are normally distributed. However, it is not necessary to assume a normal distribution to set cut scores in the manner illustrated here.

- **How Student Risk Levels are Assigned**

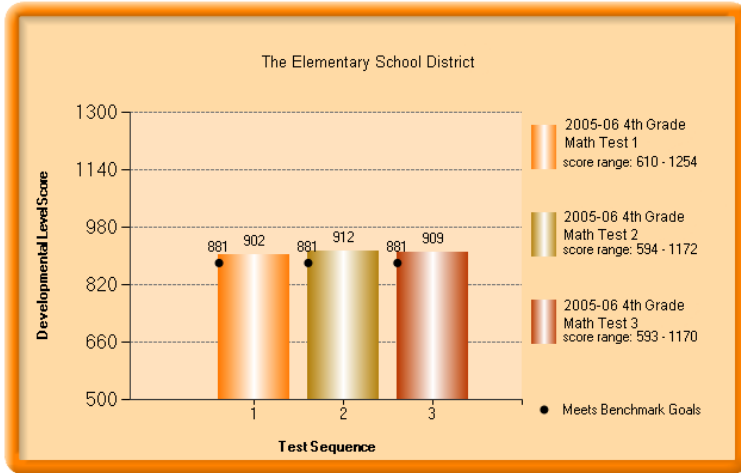
A student's *Risk Level* is an assessment of the likelihood that he or she will *not* meet the standard on the next statewide test. There are four risk levels: *On Course (minimal risk)*, *Low*, *Moderate*, and *High*. A student who is performing very well on the benchmark assessments would most likely be classified as *On Course*. A student who is doing poorly on the benchmark assessments would be classified as *Moderate* or *High Risk*.

Risk-level classifications are based on the student's performance on one or more benchmark assessments. Accuracy in risk assessment improves as more benchmark assessments are taken. If a student scores below the cut score on one benchmark assessment, there is some cause for concern that he or she might not meet the standard on the statewide test. But if he or she scores below the cut score on three out of three benchmark assessments, there is generally a *very strong likelihood* that he or she will not meet the standard on the statewide test. The risk level that is assigned to a student, then, depends in part on how many benchmark assessments were taken. The following table indicates how risk level classifications are assigned, depending on how many benchmark assessments were taken and, of those, how many times the student scored at or above the cut score.

Table 1. Risk Level Classification based on the numbers of benchmark assessments on which the student scored at or above the cut score.

Number of benchmark scores at or above the cut point	Number of benchmark assessments taken		
	1	2	3
0	Moderate	Moderate	High
1	On Course	Low	Moderate
2	--	On Course	Low
3	--	--	On Course

The *Risk Assessment Report* indicates the number of students that fall within each risk level classification.



This table shows the count and percentage of students at each risk level.

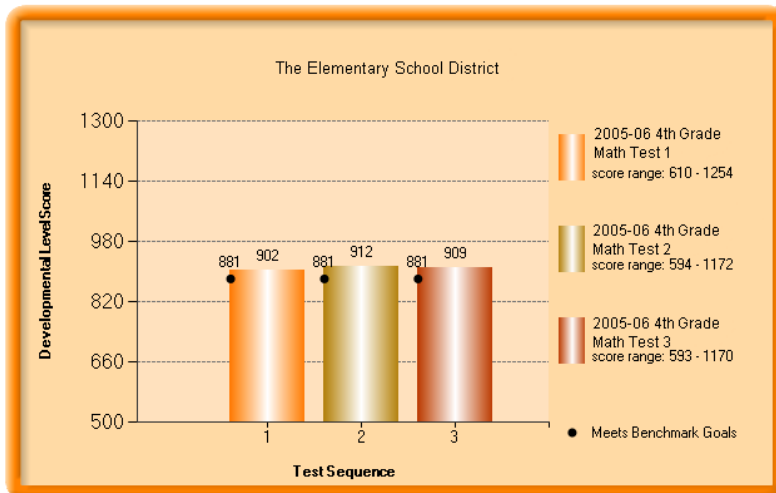
	High Risk	Moderate Risk	Low Risk	On Course (minimal risk)
Number of Students (681)	143	106	108	324
Percentage	21.00 %	15.57 %	15.86 %	47.58 %

How to Use the *Risk Assessment Report*


Access of the *Risk Assessment Report* begins by generating the *Aggregate Multi-Test Report* with Display Risk Levels selected. This report can be generated at the district, school, or class level. The examples presented here will illustrate the report run at the district level, but individual teachers can obtain the same information for their students by running the report at the class level.

Once the *Aggregate Multi-Test Report* is generated with Display Risk Levels selected, clicking on “View Detail” above the bar graph will bring the user to a more detailed view of how many students fall into each risk category.

[View Detail](#) [View Report](#)



If the report was generated at the district level, then clicking on “*View Detail*” will provide a list of the schools within the district, and a breakdown of how many students fall into each risk category at each school. The following screen shot illustrates this view.



District: The Elementary School District
School: none
Class: none

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District: The Elementary School District
 (679 students have taken all tests listed below.)

Results From:

- 2005-06 4th Grade Math Test 1
- 2005-06 4th Grade Math Test 2
- 2005-06 4th Grade Math Test 3


You can click on a school to view the detail for each class or click the count to view the detail for each class at the corresponding risk level. Use the browser's Back button to return to the previous level.

View Students	High Risk	Moderate Risk	Low Risk	On Course (minimal risk)
River School (81)	8	12	10	51
	9.88 %	14.81 %	12.35 %	62.96 %
Willow School (85)	14	20	21	30
	16.47 %	23.53 %	24.71 %	35.29 %

From here the user has several options, which will be described in what follows. Any of these choices will allow the user to eventually drill down to the individual student level as will be illustrated later in this document. The three options described here provide the user with different ways of grouping the data, including by looking at particular risk levels, particular schools and classes, or a combination of the two.

- 1. Obtain a list of all students in the district, school or class who are at a particular risk level. You may use the list to create an intervention group.**

Click on the heading for the risk level category you want to view. If, for example, you want to see all Moderate Risk students within the district, click on the words Moderate Risk at the top of the column.



View Students	High Risk	Moderate Risk	Low Risk	On Course (minimal risk)
River School (81)	8	12	10	51
	9.88 %	14.81 %	12.35 %	62.96 %
Willow School (85)	14	20	21	30
	16.47 %	23.53 %	24.71 %	35.29 %

This will provide a list of all students in the district who have been classified as being at *Moderate Risk* of not meeting the standard on the statewide assessment.

Moderate Risk (205)
Stephanie Adano
Tracy Bishop
Leonard Cady
Gerald Dahl

In order to generate the list of performance objectives to use with this risk level group for intervention purposes, click on the heading of the list that identifies the level of risk. In this case, the heading says Moderate Risk (205), indicating that there are 205 students at this risk level.

Moderate Risk (205)
Stephanie Adano
Tracy Bishop

Clicking on the risk level heading will generate the *Teaching Strategy Report*. A sample follows.

Note: Mastery Probabilities is the likelihood that a student with the average DL score has mastered the performance objective.

Teaching Strategy					
	Performance Objective - Steps to standards mastery	Mastery Probabilities	Total Questions	Avg Earned Points	Avg Percent Correct
Step 1 Move <input type="checkbox"/> Moderate Risk students to <input checked="" type="checkbox"/> On Course (minimal risk)					
1.	M04-S4C4-09. Determine area of squares and rectangles.	5.02%	1	0.06	5.85%
2.	M04-S2C1-03. Interpret graphical representations and data displays including single-bar graphs, circle graphs, two-set Venn diagrams, and line graphs that display continuous data.	10.38%	1	0.14	14.15%
3.	M04-S3C3-01. Evaluate expressions involving the four basic operations by substituting given whole numbers for the variable.	14.62%	1	0.09	9.27%
4.	M04-S1C3-02. Use estimation to verify the reasonableness of a calculation. (e.g., Is $3284 \times 343 = 1200$ reasonable?)	21.09%	1	0.19	19.02%
5.	M04-S4C3-01. Name the coordinates of a point plotted in the first quadrant.	24.98%	1	0.15	14.63%
Step 2 <input checked="" type="checkbox"/> On Course (minimal risk) - Continue teaching to further reduce risk					
1.	M04-S1C2-08. Demonstrate the associative property of multiplication.	25.34%	1	0.22	21.95%
2.	M04-S4C1-03. Draw points, lines, line segments (open or closed endpoints), rays or angles.	29.37%	1	0.19	19.02%



Information presented on the Teaching Strategy Report

The *Teaching Strategy Report* provides teachers with a list of performance objectives to focus on in their intervention efforts with a particular risk-level group. The order in which the performance objectives are listed is determined by their mastery probabilities. The *mastery probability* for a performance objective is the probability that a student at that risk level has mastered the objective. Mastery probabilities are generated using Item Response Theory (IRT). IRT estimates the probability of mastering an item based on the ability of the student and item characteristics such as the difficulty of the item and the ability of the item to discriminate between students of differing ability levels. The mastery probability for a performance objective, then, is the average probability of mastering the items measuring the objective. Performance objectives are listed in ascending order of mastery probability so that attention is drawn to the objectives that will provide the greatest available risk reduction for the group first. Teachers are free, of course, to address the performance objectives in whatever order they wish.


The ordered list of performance objectives on the *Teaching Strategy Report* is broken down into several steps toward mastery. If a student were to demonstrate mastery of all of the objectives listed under Step 1 of the teaching strategy, he or she would theoretically have earned enough points to move up to the next risk level category. The current example was generated for a Moderate Risk group based on only one assessment. Under this circumstance, a student in that group who mastered the Step 1 objectives would theoretically move to the On Course (minimal risk) level (refer to the Risk Level Classifications table presented earlier in this document for a reminder of how risk levels are determined for varying numbers of benchmark assessments). If the report had been generated for a High Risk group, then mastery of Step 1 objectives would move students to the Moderate Risk level, identified as Step 2. Mastery of the Step 2 objectives would then move the students up to the Low Risk level, and mastery of those objectives would move the student up to the Minimal Risk (on course) level. Although the objectives listed at the On Course level are those that the students are most likely to have mastered, they are included in the report for the sake of completeness and can be targeted for further enrichment work with students if desired.

The *Teaching Strategy Report* includes three columns of information in addition to the mastery probabilities. These are the total questions, average earned points, and average percent correct for each objective. The total questions column indicates how many questions were on the benchmark assessment(s) for the objective. If the report is generated with several benchmark assessments selected, this number indicates the total number of questions across all assessments. The average earned points indicates the total number of points earned for that objective by the students included in the risk group, divided by the number of students in that risk group. In the presented example, very few students answered the question for M04-S4C4-09 correctly, because out of the total possible number of points (one in this case, since there was only one question), the average points earned when divided across the number of students in the group only worked out to be 0.06. Finally, the average percent correct is simply the average earned points divided by the total number of questions (with allowances for rounding).

It should be noted that the figures under the average earned points and average percent correct columns are based on straight counts of correct and incorrect responses. In the typical case, mastery probabilities computed using IRT will be based on a larger amount of data than the figures based on straight counts. For example, average earned points for a given school will be based on data from the students in that school. By contrast, the corresponding mastery probabilities will be based on responses from all students in the standardization samples for the tests involved in the risk assessment.

2. Drill-down to the school level, to get a breakdown of risk levels for each class within the school.

Return to the starting point of running the *Aggregate Multi-Test Report* at the district level with Display Risk Levels selected, and then clicking on “View Detail” in order to generate the screen illustrated in the following screen shot. By clicking on the name of one of the schools listed in the district, the user can see a breakdown of the classes at each risk level within that school.



View Students	High Risk	Moderate Risk	Low Risk	On Course (minimal risk)
River School (81)	8	12	10	51
	9.88 %	14.81 %	12.35 %	62.96 %
Willow School (85)	14	20	21	30
	16.47 %	23.53 %	24.71 %	35.29 %

View Students	High Risk	Moderate Risk	Low Risk	On Course (minimal risk)
HOMEROOM 4TH: Felicia Broyer (22)	1	4	2	15
	4.55 %	18.18 %	9.09 %	68.18 %
HOMEROOM 4TH: Ina Hamilton (23)	0	1	1	21
	0.00 %	4.35 %	4.35 %	91.30 %
HOMEROOM 4TH: Eugene Moore (21)	3	4	4	10
	14.29 %	19.05 %	19.05 %	47.62 %
HOMEROOM 4TH: Valerie Wise (15)	4	3	3	5
	26.67 %	20.00 %	20.00 %	33.33 %

3. See how many students are at a particular risk level in each school in the district.

Click on the number that indicates how many students are at the risk level you are interested in within the school you are interested in.



View Students	High Risk	Moderate Risk	Low Risk	On Course (minimal risk)
River School (81)	8	12	10	51
	9.88 %	14.81 %	12.35 %	62.96 %
Willow School (85)	14	20	21	30
	16.47 %	23.53 %	24.71 %	35.29 %

This will generate a list of the classes within the school, and how many students fall into that particular risk category in each class.

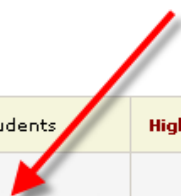
		High Risk
HOMEROOM 4TH:	Felicia Broyer (1)	1
HOMEROOM 4TH:	Ina Hamilton (0)	0
HOMEROOM 4TH:	Eugene Moore (3)	3
HOMEROOM 4TH:	Valerie Wise (4)	4

Drilling-Down to Individual Students

Whether you generate the *Risk Assessment Report* at the district, school, or class level, you can drill-down to individual students to see their risk level as well as the specific state standards they need to work on in order to improve their performance on future benchmark assessments and on the statewide test. We will illustrate this process by beginning at the district level.

Begin by running the *Aggregate Multi-Test Report* with Display Risk Levels selected, as described above.

Click on “*View Detail*,” and then select the school you are interested in.



View Students	High Risk	Moderate Risk	Low Risk	On Course (minimal risk)
River School (81)	8	12	10	51
	9.88 %	14.81 %	12.35 %	62.96 %
Willow School (85)	14	20	21	30
	16.47 %	23.53 %	24.71 %	35.29 %

Select the class you are interested in.

View Students	High Risk	Moderate Risk	Low Risk	On Course (minimal risk)
HOMEROOM 4TH: Felicia Broyer (22)	1	4	2	15
	4.55 %	18.18 %	9.09 %	68.18 %
HOMEROOM 4TH: Ina Hamilton (23)	0	1	1	21
	0.00 %	4.35 %	4.35 %	91.30 %
HOMEROOM 4TH: Eugene Moore (21)	3	4	4	10
	14.29 %	19.05 %	19.05 %	47.62 %
HOMEROOM 4TH: Valerie Wise (15)	4	3	3	5
	26.67 %	20.00 %	20.00 %	33.33 %

Select the student you are interested in.

	High Risk	Moderate Risk	Low Risk	On Course (minimal risk)
Michael Abbott	--	--	--	✓
Stephanie Adano	✓	--	--	--
Elizabeth Bustamante	--	--	--	✓
Angel Correo	--	--	--	✓
Jennifer Davis	--	--	✓	--

A Student Benchmark Profile for that student will now be displayed. A sample student benchmark profile follows.

Setup Assessment Curriculum Grades Student/Family Staff Reports

All Reports Student Sets

Student Benchmark Profile

District: The Elementary School District
 Year: 2005 - 2006
 School: River School
 Class: HOMEROOM 4TH: Felicia Broyer (22)

| Settings | Password | Help | Tech Support | Site Map | Logout

Student Risk Level

High
 Moderate
 Low
 Minimal

Adano, Stephanie

	4th Grade Math Benchmark 1	4th Grade Math Benchmark 2	4th Grade Math Benchmark 3
DI Score	853	862	838
Cutoff	881	881	881

Note: Mastery Probabilities is the likelihood that the student has mastered the performance objective based on the DI Scores.

Teaching Strategy

Performance Objective - Steps to standards mastery	Mastery Probabilities	Total Questions	Avg Earned Points	Avg Percent Correct
Step 1 Move High Risk students to Moderate Risk				
1. M04-04C4-09. Determine area of squares and rectangles.	5.02%	1	0	0.00%
2. M04-01C3-02. Use estimation to verify the reasonableness of a calculation. (e.g., Is 3284 × 343 = 1200 reasonable?)	21.16%	1	0	0.00%
Step 2 Move Moderate Risk students to Low Risk				
1. M04-01C2-08. Demonstrate the associative property of multiplication.	25.62%	1	0	0.00%
2. M04-02C1-03. Interpret graphical representations and data displays including single-bar graphs, circle graphs, two-set Venn diagrams, and line graphs that display continuous data.	25.89%	2	0	0.00%
3. M04-04C3-01. Name the coordinates of a point plotted in the first quadrant.	26.79%	1	0	0.00%
4. M04-04C4-05. Compare units of measure to determine more or less relationships including: length; yards and miles, meters and kilometers and weight; pounds and tons, grams and kilograms.	27.76%	1	0	0.00%
5. M04-02C4-03. Color maps with the least number of colors so that no common edges share the same color (increased complexity throughout grade levels).	30.71%	1	0	0.00%
6. M04-04C4-10. Differentiate between perimeter and area of quadrilaterals.	33.04%	1	0	0.00%
7. M04-01C1-15. Compare two decimals.	33.66%	1	0	0.00%
Step 3 Move Low Risk students to On Course (minimal risk)				
1. M04-02C2-03. Predict the outcome of a grade level appropriate probability experiment.	35.06%	1	0	0.00%



The above screen shot depicts a *Student Benchmark Profile* for a student named Stephanie Adano, who is at High Risk of not meeting the standards on the statewide assessment. Her *Development Level Scores* for each of the benchmark assessments are indicated, as well as the cutoff score for the assessments.

The *Student Benchmark Profile* presents the same information that is presented for a group of students in the *Teaching Strategy Report* described earlier in this document, but in this case the information is tailored for an individual student. The order of goals presented for Stephanie in her individual *Student Benchmark Profile* is based on her performance on the benchmark assessments and may differ from those presented in a group-level report.

The *Student Benchmark Profile* can also be generated from an individual student's *Assessment History*, by clicking on the risk level heading (e.g. Moderate Risk) next to each subject heading (Math, Reading).