



Data Warehouse 202 Handbook Multidimensional Analysis

Professional Development for the Massachusetts Education Data Warehouse

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Massachusetts Department of Elementary and Secondary Education

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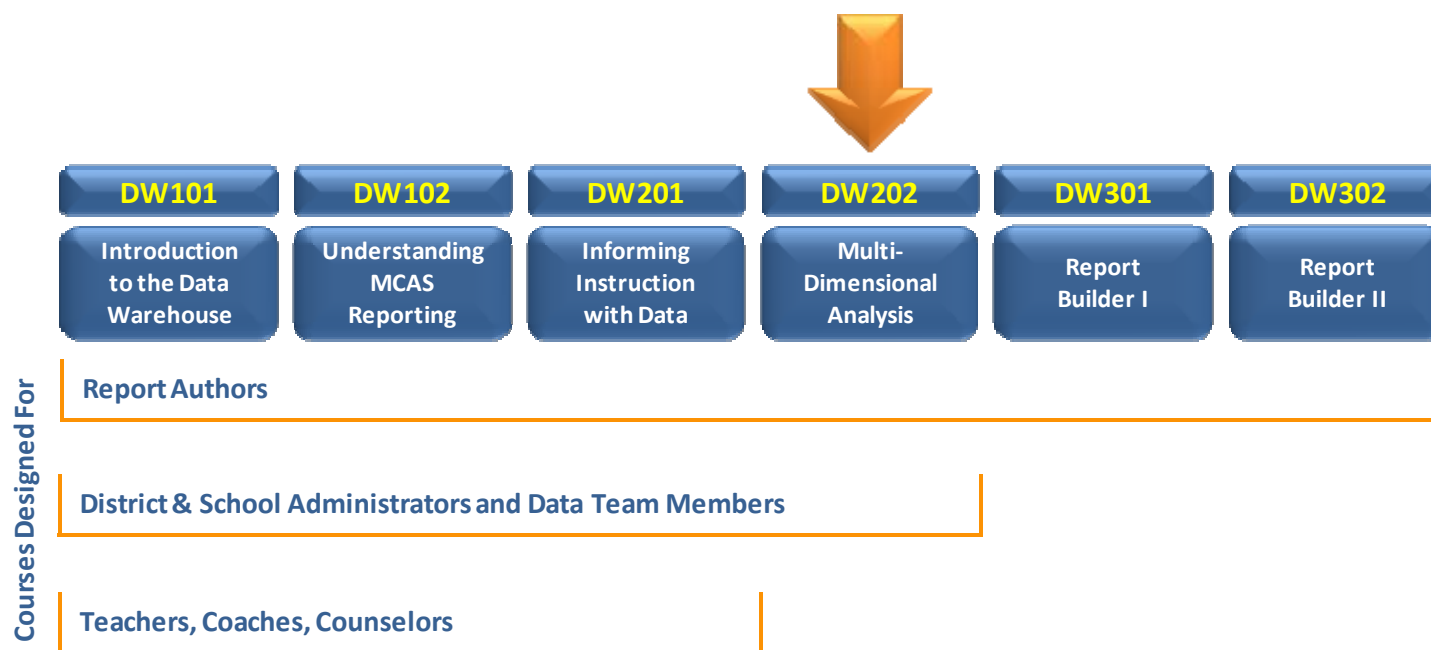
Where Are We Now?

Overview of Education Data Warehouse Professional Development Courses

The Education Data Warehouse is a collaborative effort of the Massachusetts Department of Elementary and Secondary Education and Massachusetts school districts to create a state-coordinated central data repository for K–12 educational performance data.

This series of six courses will introduce you to the tools of the Data Warehouse and allow you to access, interpret, and use data more effectively. Data Warehouse 202, Multidimensional Analysis (DW202) is the fourth course in this series and is designed to show you how to access and use the Cognos® PowerPlay tool to engage in multidimensional analysis through predefined cubes.

This handbook is designed to accompany the DW202 course, but it can also be used as a standalone resource.



In this section you will be introduced to “Cubes”—predefined data tables that make on-the-fly data manipulation possible. The course begins with an overview of cubes and the different kinds of data displays that can be created in Cognos PowerPlay. The course presents a step-by-step inquiry process for how to build a data display, as well as instructions about how to utilize all of the

Cognos PowerPlay features. Scenarios and examples are provided throughout the course to assist you in understanding the context and purpose of various features.

The goal of the course is to build your capacity to use Cognos PowerPlay to turn a focusing question into a data display that is engaging and informative. When you publish a data display that you have created within a cube, it may be used by others to make important programmatic or instructional decisions. As a result, it is important that the data displays you create appropriately convey the intended information and are not misleading. If you are taking this course, chances are that you have some knowledge about using data analytic tools and/or how to access and use data from a data warehouse, although you may not be entirely comfortable on both fronts. Still, your willingness to increase your knowledge about how to access and use MCAS data means that you are a valuable resource to your district and can support your school or district to more effectively use data.

Therefore, as you go through the course, think about what you are learning and who else needs to know this material. What are the key concepts being presented that you will want to share with others? What technical information would be helpful for others in your school or district to know? The research and practice literature is clear that a culture of data use is only developed, sustained, and maintained when there is distributed know-how and school or system-wide commitment to the importance of data-driven decision making. As a result of this course, you will have improved your capacity to engage in ad hoc analysis of data while being guided by focusing and clarifying questions. Think about how you will bring back this set of knowledge and skills to others, thereby enhancing the potential that data will be used systemically and productively to improve student learning and achievement.

Course Objectives

Upon completion of this course, you will be able to:

1. Understand the inquiry process and how the cycle of inquiry contributes to building data displays in Cubes.
2. Navigate within Cubes and perform basic functions.
3. Describe the various types of charts and graphs available in Cubes and the types of questions they answer.
4. Work with dimensions and measures within Cognos® PowerPlay.
5. Identify the elements that make up a well-designed and thorough data display.
6. Use PowerPlay to conduct basic analyses connected to focusing and clarifying questions.
7. Develop thoughtful focusing and clarifying questions.
8. Use a systematic process for designing useful and appropriate data displays.

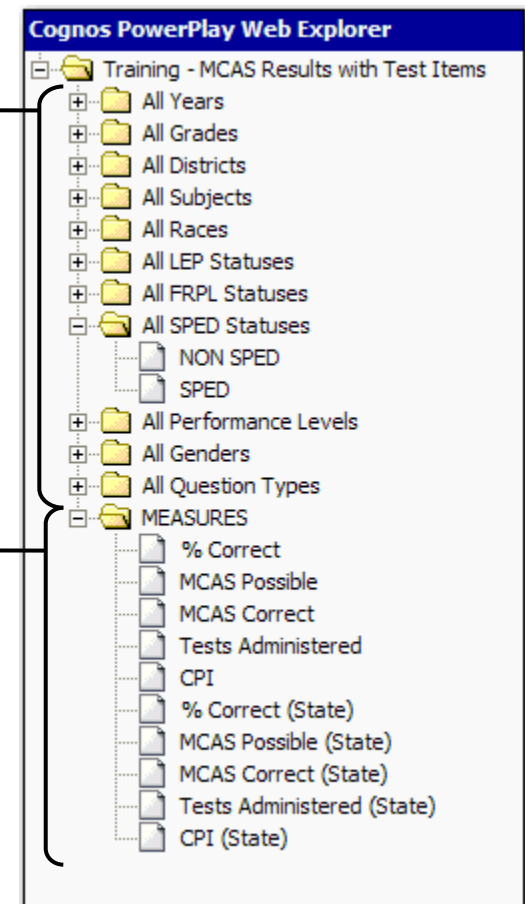
Components of Cubes

The cubes within Cognos PowerPlay are made up of two basic components: Dimensions and Measures.

1 Dimensions: Dimensions allow you to focus on a particular group of students and to compare them with a reference group (also known as disaggregation). For example, you might want to see how your special education students are performing relative to your regular education students. Thus, *All SPED Statuses* is a dimension, and *SPED* and *NON SPED* are categories within that dimension.

2 Measures: Measures are the yardstick by which performance is measured. Different measures taken together reveal a fuller picture of a student's or group of students' performance. For example, state assessments will show how a group of students performed at a particular point in time, as measured by state standards. Non-assessment measures, such as discipline and attendance rates can help you understand what other factors might be contributing to performance.

- **% Correct**—the percent of possible raw points earned by correct answers to the test items. This includes the percent of possible points earned on all question types (multiple choice, short answer, and open response).
- **MCAS Correct**—the raw points earned by correct answers to the test items.
- **MCAS Possible**—the possible raw points that can be earned by answering all questions correctly.
- **Tests Administered**—the total number of tests administered. Corresponds to the number of students tested when one year, grade, and subject are selected.
- **CPI (Composite Performance Index)**— A 100-point index combining the scores of students who take standard MCAS tests with the scores of those who take the MCAS-Alternate Assessment. The CPI is a measure of the extent to which students are progressing toward proficiency.



Different Types of Data Displays

The default data display in Cognos PowerPlay is the crosstab table, similar to a Microsoft® Excel pivot table. Crosstabs can be manipulated by “dragging and dropping” from the dimensions and measures. Crosstab tables can be easily converted into any of 10 different chart types. Each type of data display, whether chart or table, will provide you with a different lens through which to view the data. Each possible data display is shown below with the type of questions each is designed to answer.

Crosstab

The crosstab table is the most common view for data in reports. It lets you compare and contrast values between or across items and must include at least two dimensions and a measure. The crosstab can be used to answer questions such as:

How does performance on the MCAS differ across grade levels?

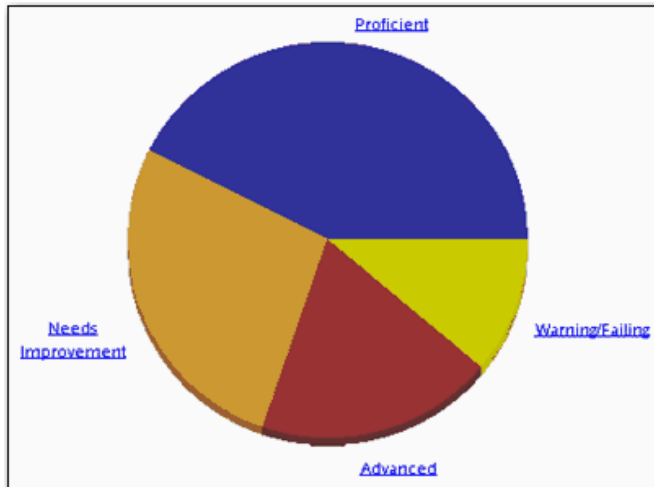
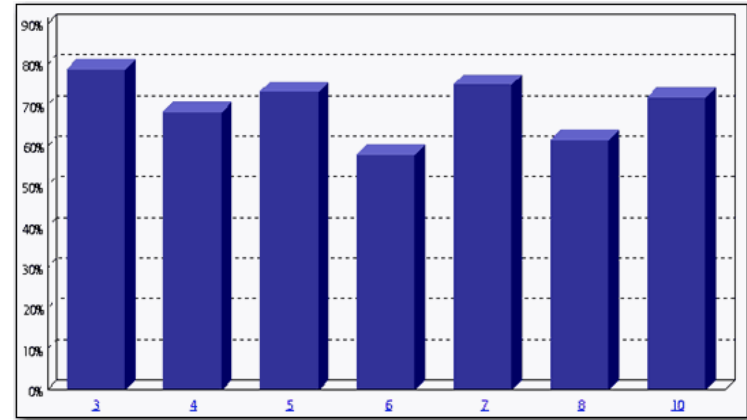
- Over multiple years?
- Between subpopulations and groups?

| CPI as values | <u>3</u> | <u>4</u> | <u>5</u> | <u>6</u> | <u>7</u> | <u>8</u> | <u>10</u> | <u>MAX</u> | All Grades |
|--------------------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|------------------|-------------------|-------------------|
| <u>2003</u> | 85.4 | 76.8 | 91.0 | 81.4 | 88.5 | 68.0 | 84.7 | 91.0 | 79.2 |
| <u>2004</u> | 84.4 | 73.8 | 84.2 | 74.3 | 88.0 | 71.8 | 87.3 | 88.0 | 80.2 |
| <u>2005</u> | 85.3 | 74.2 | 87.2 | 65.4 | 92.5 | 72.4 | 87.2 | 92.5 | 81.6 |
| <u>2006</u> | 81.8 | 73.9 | 82.1 | 77.0 | 78.6 | 79.8 | 90.1 | 90.1 | 82.0 |
| <u>2007</u> | 86.9 | 81.4 | 88.0 | 82.4 | 83.4 | 81.3 | 87.7 | 88.0 | 84.1 |
| All Years | 85.9 | 77.0 | 85.9 | 77.2 | 85.1 | 74.8 | 87.2 | 87.2 | 81.7 |

Simple Bar Chart

A simple bar chart shows a frequency distribution for a single variable (e.g., percent Proficient) on a specific measure for components within a single category (e.g., grade level, populations). Each bar displays the results for each individual category component (as opposed to relative distribution, as in a pie chart). A simple bar chart can answer questions such as:

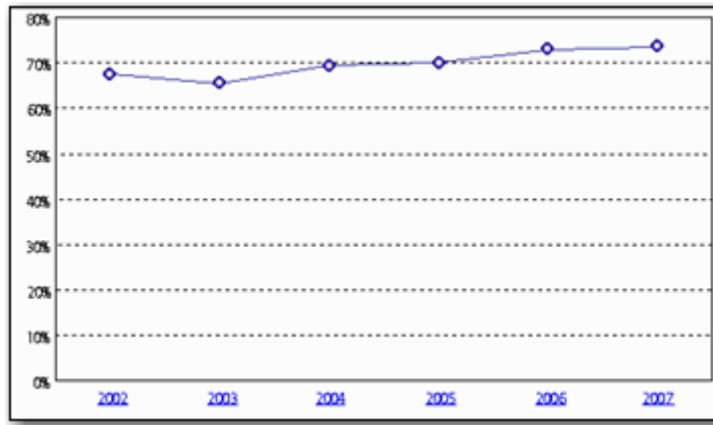
- What percent of students in each grade level achieved Proficiency for a particular school year?
- How do the results for one population subgroup compare to those of other subgroups?



Pie Chart

A pie chart shows part-to-whole relationships. Pie charts show the relative distribution of performance for a specific population across performance categories, which sum to 100%. Pie charts can answer questions such as:

- What was the relative distribution of student scores across performance levels for a specific subgroup?
- Which subgroup had the highest proportion of students achieving proficiency?

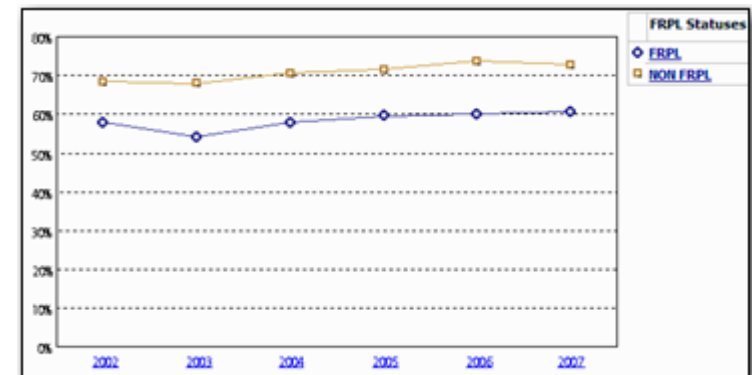


Simple Line Chart

A simple line chart is similar to a simple bar chart except the data are represented with a line rather than a bar. Some people like to use line charts when representing data across a time scale (as the example). Some prefer to use line charts only when the data represents the same group of students over time (a cohort) because the line suggests movement.

Multiline Chart

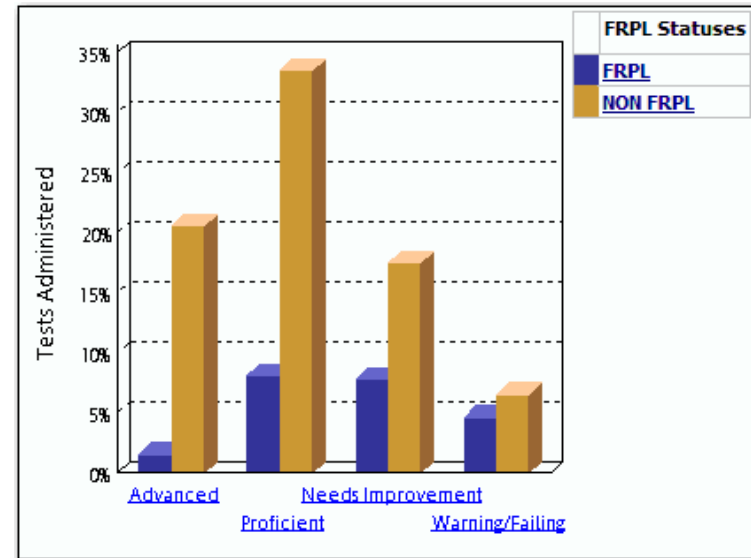
A multiline chart is similar to a clustered bar chart except that the data are represented with lines rather than bars. As with the single line chart, some people like to use multiline charts when representing data across a time scale (as the example).



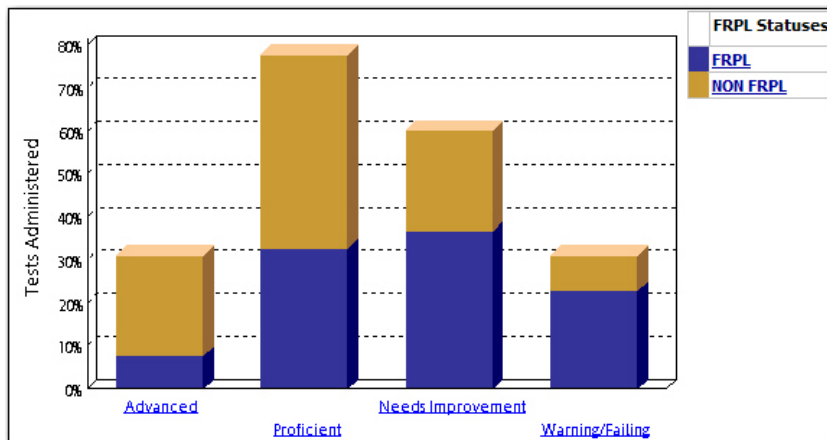
Clustered Bar Chart

A clustered bar chart allows you to disaggregate data by a category or subgroup. For example, you would use a clustered bar to look at performance across years, between subgroups of students (e.g., gender, lunch status), or across grades. A clustered bar chart can answer questions such as:

- How did students who are eligible for free- or reduced-price lunch (FRPL) perform compared to students who are not?
- Which grade level achieved the highest percentage of correct items? The lowest?
- What was the performance of our students across subject areas or strands?
- What subject or curriculum areas show the greatest need for improvement?

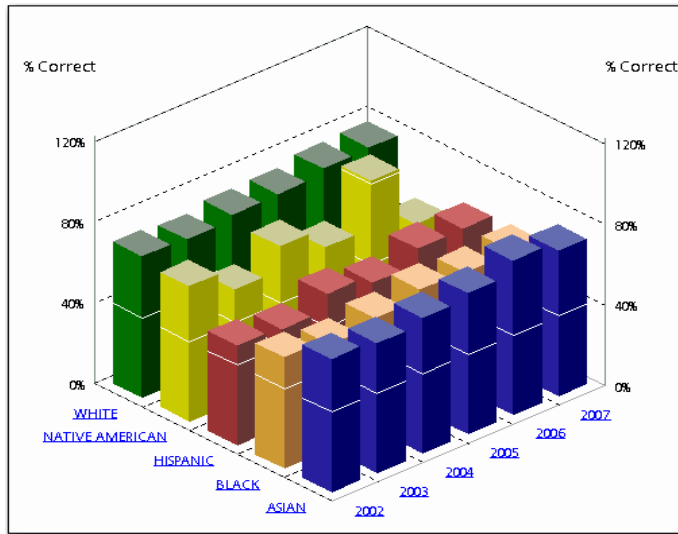


Stacked Bar Chart



A stacked bar chart allows you to see the trend across a given category (performance category in this example), and then within each category component. It allows you to see the relative distribution of results across another category (e.g., free- or reduced-price lunch). It allows you to answer questions such as:

- Which performance category has the highest concentration of students receiving free- or reduced-price lunch?
- Which grade level has the highest concentration of lower performing students?



3D Bar Chart

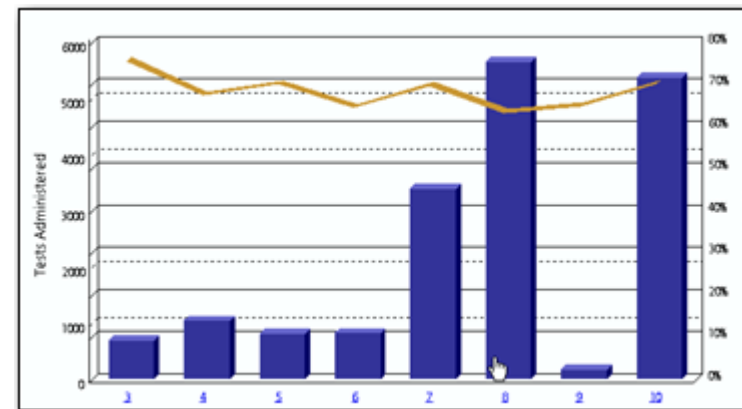
A 3D bar chart is helpful when you want to visually represent a data set across multiple categories. It allows you to see the relationships and trends in a data set across three dimensions. A 3D bar chart allows you to answer questions such as:

- Where are our greatest achievement gaps?
- What do year-to-year trends tell us about the learning needs of different subgroups of students?
- In which subject areas and grade levels do we have the greatest concentration of lower performing students?

Correlation Chart

A correlation chart allows you to examine the relationship between two different measures using two different Y axes. The first measure appears as a bar chart whose scale is on the left Y axis. The second measure appears as a line chart whose scale is on the right Y axis. A correlation chart allows you to answer questions such as:

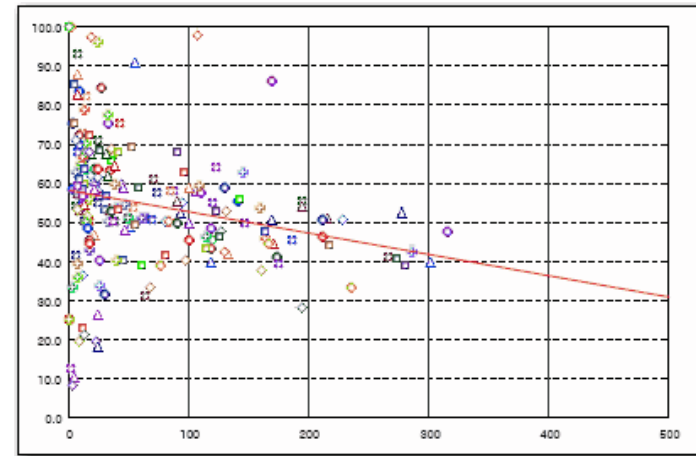
- What is the distribution of **% Correct** compared to the number of tests administered across grade levels?
- What is the relationship between the number of correct items and the number of possible items?



Scatter Chart

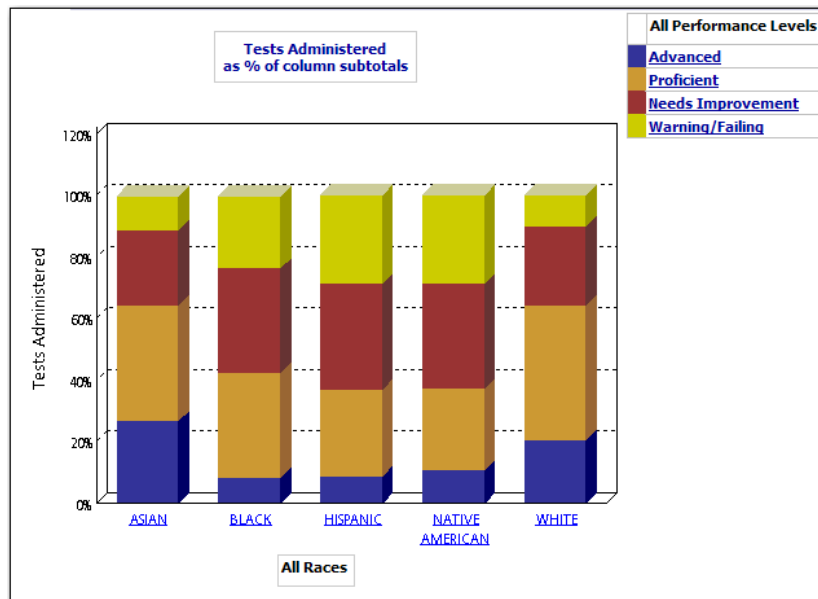
A scatter chart allows you to look at the relationship between two different measures in a cube using the X and Y axes. The first measure is represented on the Y axis, and the second measure is represented on the X axis. A scatter plot allows you to answer questions such as:

- What is the relationship between school size and performance?



Good Charts, Bad Charts

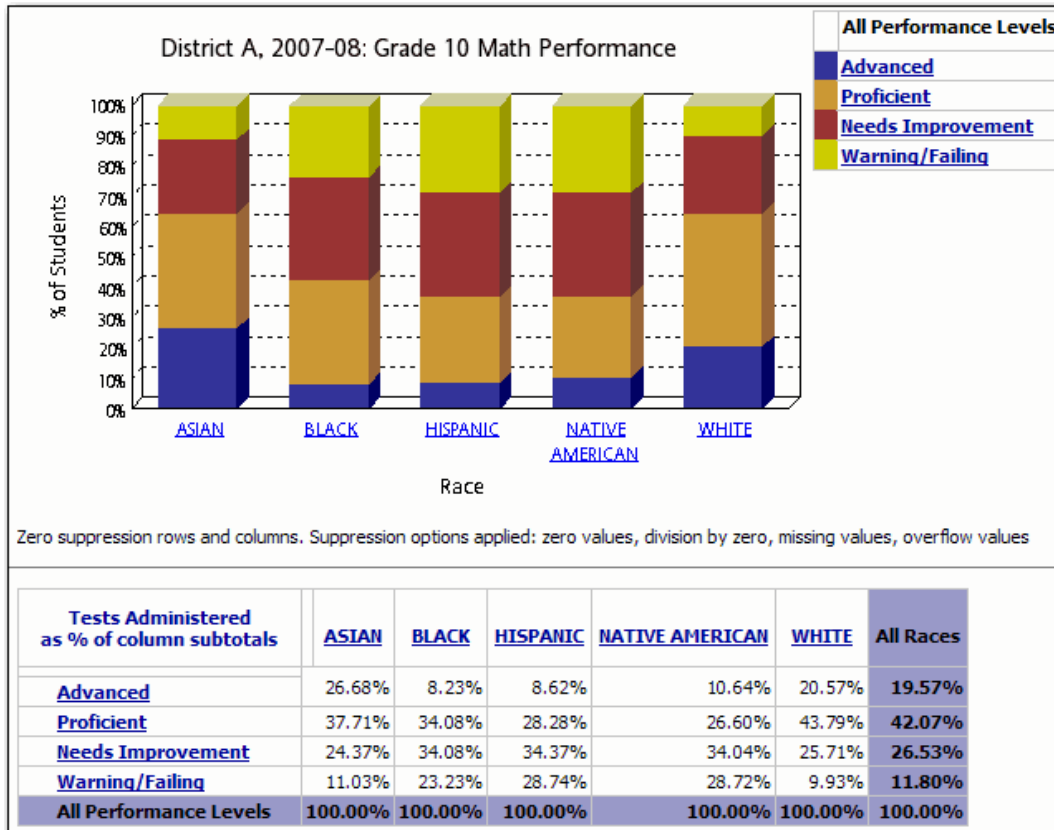
Not all charts are created equal. A good chart contains all of the information that is necessary to interpret the data. A bad chart leaves you wondering exactly what you are looking at. As you create charts in Cognos PowerPlay, it is important to include all of the elements of a good chart. An example of each is shown below.



Why is this a bad chart?

If you were presented this chart, would you know what you are looking at? What grade levels are included? What assessment is being represented? What school or district does the data represent? What does the percent represent? What do the colors mean? This chart is problematic:

- The chart title does not tell you what group of students you are looking at
- The Y axis scale is too large (120% rather than 100%)
- There are no data labels
- 3D adds no information and makes the chart more difficult to decipher



Why is this a good chart?

If you were presented with this chart, would you know what you are looking at?

- The chart title clearly shows the district, school year, and test—District A, 2007-08 school year, Grade 10 Math
- There are clear Y and X axis labels
- There is a legend
- The data table below the chart shows the data values represented in the chart

What are some ways that you could make this chart even better?

LOOK



PowerPlay will automatically insert some of the elements of a good chart, but in order to make sure that all elements are added to your chart, you must use the **Options** button. Refer to “The Toolbar—Changing the Display” section of this handbook for more information.

Building a Data Display

There are many ways to build a data display in a cube. Once you become comfortable with Cognos PowerPlay, you may be able to build data displays simply by exploring the data within the cube. However, it is recommended that as you learn cubes, you begin your exploration with a specific question in mind. In this section you walk through this process.

SCENARIO



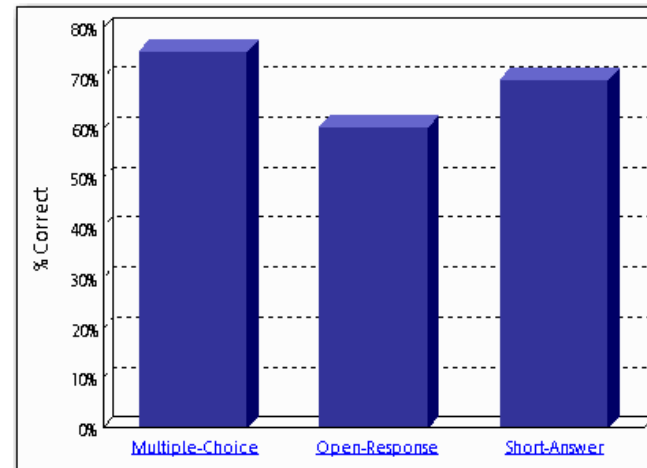
A head math teacher was asked by his principal to do an analysis of the most recent MCAS results to determine if there was a noticeable trend in the difficulty students have with answering different types of questions—multiple choice, short answer, and open response. The principal wished to use this information in an upcoming meeting with the school's instructional leaders.

The first step in building a data display is to frame your exploration in the context of a question. The scenario above, for example, might lead to the following focusing question:

Which type of assessment items are students having the most difficulty answering?

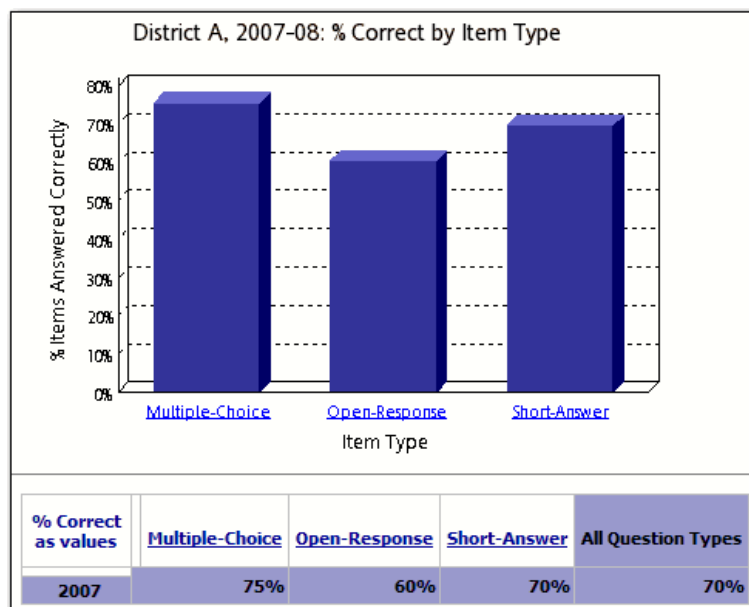
Your next step is to determine which measure will answer your question. In this example, the **% Correct** measure, which tells you the percent of correct responses, is the measure that will serve as the basis for your exploration. **% Correct** is a measure of how well a given group of students performed on the assessment. As your next step, you determine which dimension(s) to bring in as disaggregators of your data. In this example, you would choose **All Question Types** as a dimension in order to disaggregate your data by multiple choice, short answer, and open response.

The next step is to choose the type of data display that will best serve your purpose. In this example, you might choose a



simple bar chart, with **% Correct** as the Y axis and the question types as the category components in the X axis.

The default chart that Cognos PowerPlay displays still requires some additional work to add the chart elements that make up a “good chart.” Use the **Options** button in the toolbar at the bottom of the Cognos PowerPlay screen to add elements such as a chart title and axis labels.

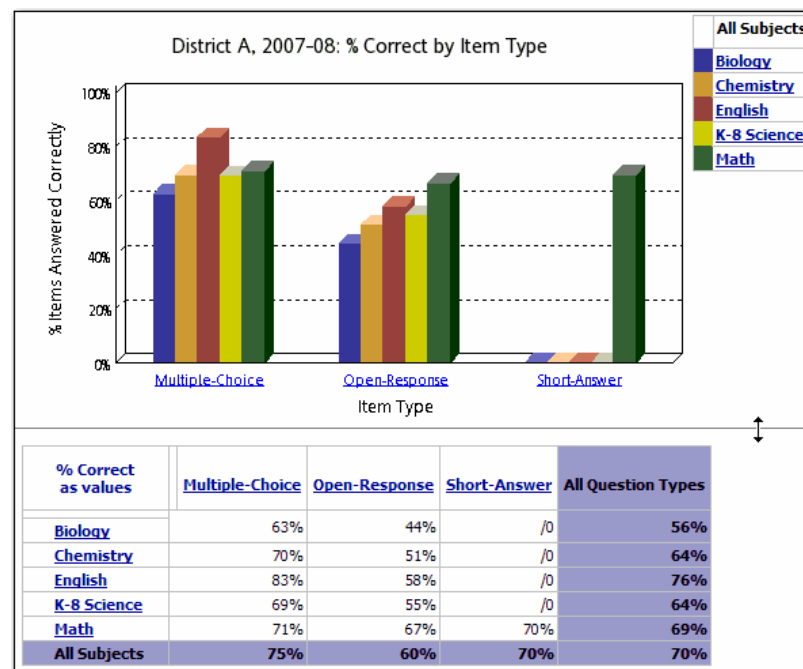


Now that you've created the chart, it's time to make sure that it answers the question that you posed. The chart shows that students in this district answered correctly approximately 75% of the multiple choice items, 60% of the open response items, and 70% of the short answer questions. It is clear that these students are having particular difficulty with open response questions.

This display generates further clarifying questions. For example, you might ask:

How do these results compare across subject areas?

To explore this new line of inquiry, you add "Subjects" as a second disaggregating dimension and change the data display from a simple bar to a clustered bar.



You can see that by adding subjects as a new disaggregator, you are able to determine which subjects have the lowest percentage of open response items correctly answered. In this example, biology and chemistry are the subjects in which students had the most difficulty answering the open response items.

Following this inquiry process will help you produce data displays that will lead to meaningful and collaborative discussion. This inquiry process is shown graphically on the next page.

Inquiry Process

| Focusing Question | Measures | Dimensions | Data Displays | Elements | Clarifying Question |
|---|--|--|---|--|---|
| Formulate a focusing question that encompasses the issue that you are trying to explore | Determine which data measure will serve as the basis for answering your question | Determine dimension(s) by which to disaggregate your data to best answer your question | Choose a data display that best represents the measure and dimension(s) | Add additional elements to your data display (axis titles, conditional formatting, etc.) | Formulate a new question from the data display and repeat the process |

Introduction

In the pages that follow, you will find instructions on how to use Cognos PowerPlay. The instructions in this handbook are designed to get you started using cubes to analyze your data. Each set of instructions starts with a focusing question to help set the context.

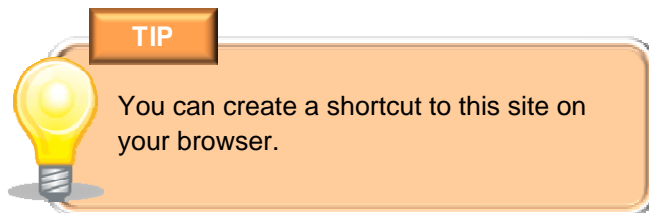
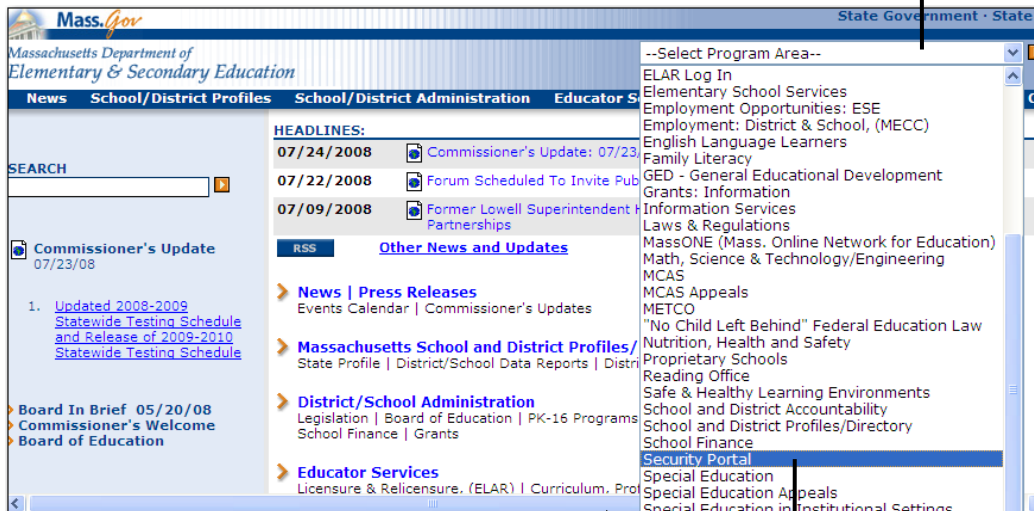
Open your Web browser and go to the MA ESE homepage:

<http://www.doe.mass.edu>

- 1 Go to the navigation menu at the upper right corner. Click on the **--Select Program Area--** dropdown menu.

- 2 Select **Security Portal**.

- 3 Click the orange arrow button to continue. 



- 1 From the ESE Security Portal screen, type in your Username and Password.
- 2 Click the **Log In** button.
- 3 Click the Data Warehouse link.



The login screen features a blue header with a padlock icon. Below the header, there are two input fields: 'User Name (case sensitive)' and 'Password (case sensitive)'. A blue 'Log In' button is positioned below the password field. To the right of the 'Log In' button, there are two links: 'Create ELAR Profile' and 'Forgot User Name/Password'. Below these links, a paragraph states: 'Login allows access to secure Department of Elementary and Secondary Education applications such as ELAR and MDCS. [More about the ESE Security Portal...](#)'

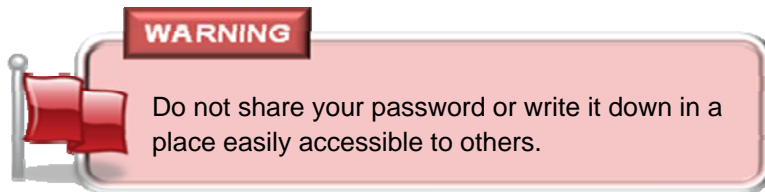
1 points to the User Name input field.

2 points to the Log In button.



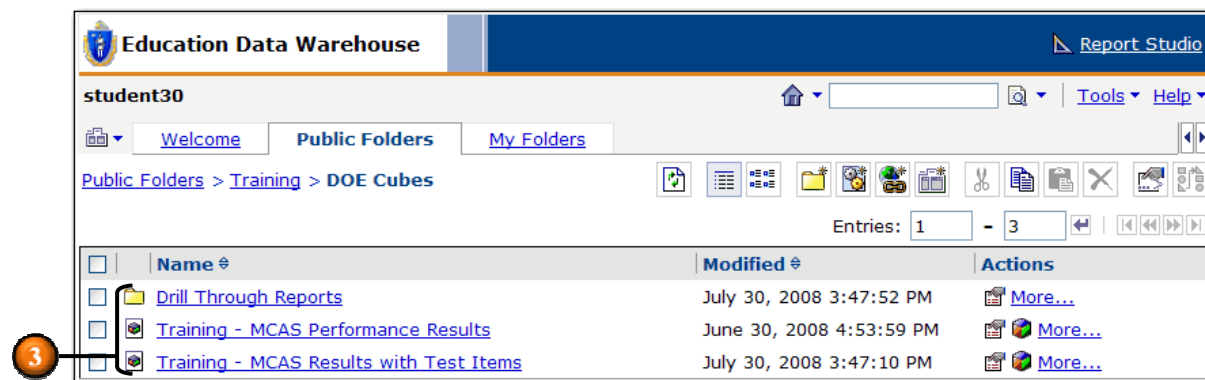
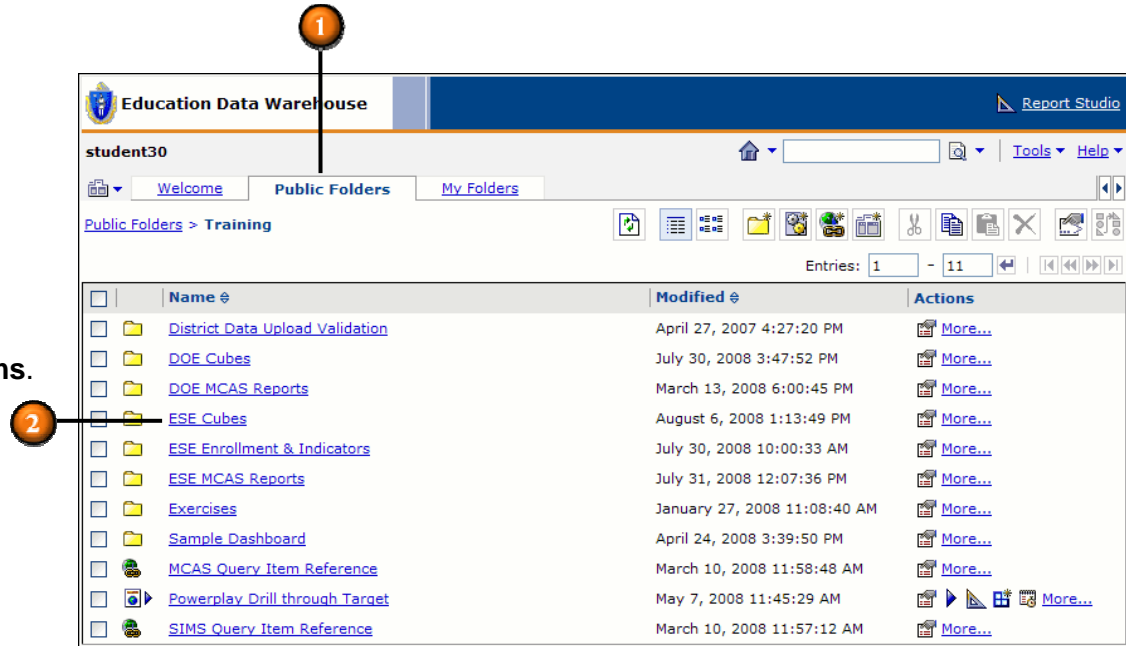
The screen displays a list of links under the heading 'Data Warehouse'. The links are: 'Data Warehouse', 'Educator Services', and 'ELAR Welcome Page'. Each link is preceded by a right-pointing arrow.

3 points to the 'Data Warehouse' link.



Opening a Cube

- 1 Click on the **Public Folders** tab, then the **Training** link.
- 2 Click on **ESE Cubes**.
- 3 Click on the name of the analysis cube you wish to open. In this example, select **Training – MCAS Results with Test Items**.



Navigating the Cube

- 1 Dimension Viewer:** The dimension viewer in the left panel displays a list of dimensions and measures available in the current cube. The dimension viewer is used to modify the rows, columns, and measures displayed on the report.

Training - MCAS Results

All Years ▾ All Grades ▾ All Districts ▾ All Subjects ▾ All Races ▾

| % Correct as values | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | All Grades |
|----------------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|
| 2002 | 78% | 69% | /0 | 66% | 66% | 58% | /0 | 69% | 66% |
| 2003 | 77% | 69% | 79% | 67% | 70% | 57% | /0 | 67% | 65% |
| 2004 | 71% | 64% | 77% | 69% | 69% | 61% | /0 | 74% | 68% |
| 2005 | 79% | 69% | 74% | 58% | 75% | 61% | /0 | 72% | 68% |
| 2006 | 75% | 68% | 68% | 66% | 69% | 70% | /0 | 73% | 70% |
| 2007 | 79% | 69% | 71% | 69% | 73% | 70% | 66% | 70% | 70% |
| All Years | 77% | 68% | 73% | 66% | 70% | 64% | 66% | 71% | 68% |

- 2 Dimension Line:** The dimensions are also displayed in the blue menu bar at the top of the screen. This menu bar is called the **Dimension Line**. The **Dimension Line** reflects the values shown in the rows, columns, and cells of the report. The **Dimension Line** is used to drill down or drill up through cubes.
- 3 Tool Bar:** The tool bar at the bottom of the window provides additional tools for formatting the report.
- 4 Workspace:** The workspace is where your data is displayed. The default table that appears in the workspace is a table that displays **% Correct** for all grade levels, all years, and all subjects.

Dimension Viewer – Drag and Drop

FOCUSING QUESTION

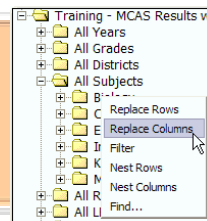
How does performance in all areas vary across school years and grade levels?

- 1 Nesting Dimensions and Categories:** To create a nested dimension, click dimension and categories folder in the *dimension viewer* and drag it into the table. A shaded box will appear where the dimension will be inserted. When you drag a dimension folder into the table, all subfolders will appear in the table as nested dimensions (e.g., All Math categories in the example appear as nested categories in the table).

The column where we want to nest the data is highlighted. This is where you must drag and drop the dimension or category in order to nest it in the cross tab. In the example, the **All Subjects** dimension is being nested in the **All Years** dimension.

TIP

You can also **right click** the folder in the dimension viewer and choose to replace or nest.



Cognos PowerPlay Web Explorer Training - MCAS Results with Test Items

Navigation: All Years ▾ All Grades ▾ All Districts ▾ All Subjects ▾

| CPI as values | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | All Grades |
|---------------|------|------|------|------|------|------|------|------|------------|
| 2002 | 91.2 | 81.1 | /0 | 78.9 | 85.6 | 70.6 | /0 | 86.1 | 82.2 |
| 2003 | 85.4 | 76.8 | 91.0 | 81.4 | 88.5 | 68.0 | /0 | 84.7 | 79.2 |
| 2004 | 84.4 | 73.8 | 84.2 | 74.3 | 88.0 | 71.8 | /0 | 87.3 | 80.2 |
| 2005 | 85.3 | 74.2 | 87.2 | 65.4 | 92.5 | 72.4 | /0 | 87.2 | 81.6 |
| 2006 | 81.8 | 73.9 | 82.1 | 77.0 | 78.6 | 79.8 | /0 | 90.1 | 82.0 |
| 2007 | 86.9 | 81.4 | 88.0 | 82.4 | 83.4 | 81.3 | 83.7 | 87.7 | 84.1 |
| All Years | 85.9 | 77.0 | 85.9 | 77.2 | 85.1 | 74.8 | 83.7 | 87.2 | 81.7 |

Cognos PowerPlay Web Explorer Training - MCAS Results with Test Items

Navigation: All Years ▾ All Grades ▾ All Districts ▾ All Subjects ▾ All Races ▾

| CPI as values | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | All Grades |
|---------------|----------------------|------|------|----|------|------|------|----|------------|
| 2002 | Biology | /0 | /0 | /0 | /0 | /0 | /0 | /0 | /0 |
| | Chemistry | /0 | /0 | /0 | /0 | /0 | /0 | /0 | /0 |
| | English | 91.2 | 83.9 | /0 | /0 | 85.6 | /0 | /0 | 89.2 |
| | Introductory Physics | /0 | /0 | /0 | /0 | /0 | /0 | /0 | /0 |
| | K-8 Science | /0 | /0 | /0 | /0 | /0 | /0 | /0 | /0 |
| | Math | /0 | 78.2 | /0 | 78.9 | /0 | 70.6 | /0 | 83.0 |
| | All Subjects | 91.2 | 81.1 | /0 | 78.9 | 85.6 | 70.6 | /0 | 86.1 |
| 2003 | Biology | /0 | /0 | /0 | /0 | /0 | /0 | /0 | /0 |
| | Chemistry | /0 | /0 | /0 | /0 | /0 | /0 | /0 | /0 |

FOCUSING QUESTION

How does performance for one school year vary across grade levels?

- 2 Replacing Dimensions & Measures:** If you want to replace a dimension or measure in a table, simply drag the dimension folder or measure you wish to use into the table until the dimension or measure you wish to replace is shaded. Pay close attention to which column is highlighted in the example—this is where the dimension or measure that you've selected will be placed.

In the example, the **All Year** dimension is replaced by the **All Subject** dimension.

Cognos PowerPlay Web Explorer

Training - MCAS Results with Test Items

COGNOS

Training - MCAS Results with Test Items

All Years All Grades All Districts All Subjects

| CPI as values | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | All Grades |
|---------------|------|------|------|------|------|------|------|------|------------|
| 2002 | 91.2 | 81.1 | /0 | 78.9 | 85.6 | 70.6 | /0 | 86.1 | 82.2 |
| 2003 | 85.4 | 76.8 | 91.0 | 81.4 | 88.5 | 68.0 | /0 | 84.7 | 79.2 |
| 2004 | 84.4 | 73.8 | 84.2 | 74.3 | 88.0 | 71.8 | /0 | 87.3 | 80.2 |
| 2005 | 85.3 | 74.2 | 87.2 | 65.4 | 92.5 | 72.4 | /0 | 87.2 | 81.6 |
| 2006 | 81.8 | 73.9 | 82.1 | 77.0 | 78.6 | 79.8 | /0 | 90.1 | 82.0 |
| 2007 | 86.9 | 81.4 | 88.0 | 82.4 | 83.4 | 81.3 | 83.7 | 87.7 | 84.1 |
| All Years | 85.9 | 77.0 | 85.9 | 77.2 | 85.1 | 74.8 | 83.7 | 87.2 | 81.7 |

Cognos PowerPlay Web Explorer

Training - MCAS Results with Test Items

COGNOS

Training - MCAS Results with Test Items

All Years All Grades All Districts All Subjects

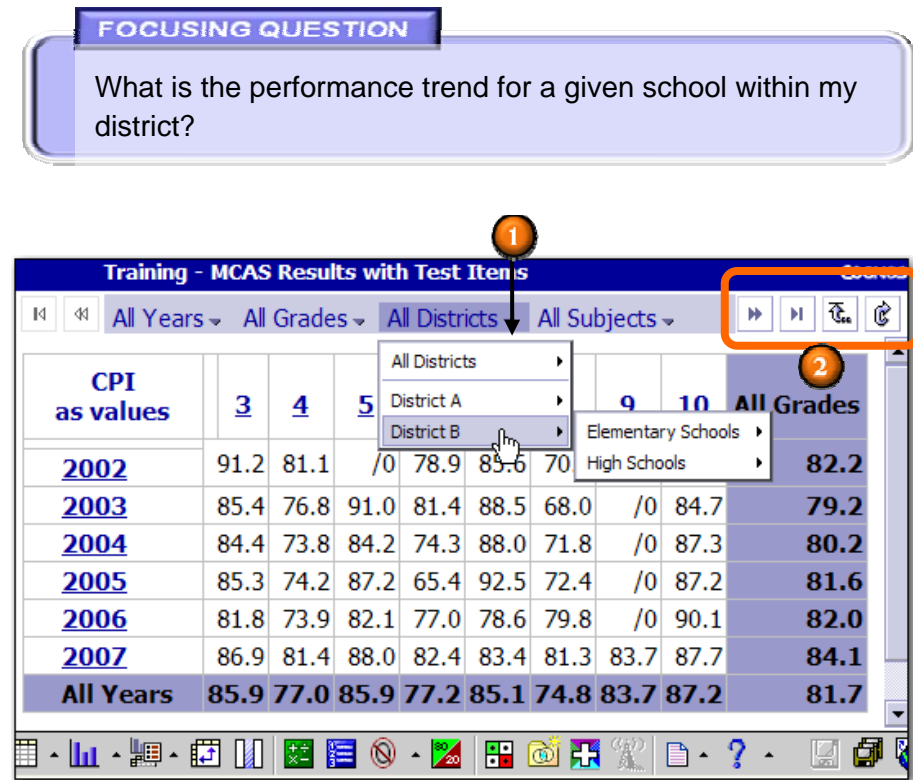
| CPI as values | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | All Grades |
|----------------------|------|------|------|------|------|------|------|------|------------|
| Biology | /0 | /0 | /0 | /0 | /0 | /0 | 81.6 | 64.2 | 73.5 |
| Chemistry | /0 | /0 | /0 | /0 | /0 | /0 | 97.6 | 67.9 | 79.0 |
| English | 87.1 | 79.3 | 87.4 | 86.6 | 88.6 | 93.3 | /0 | 89.9 | 88.9 |
| Introductory Physics | /0 | /0 | /0 | /0 | /0 | /0 | /0 | /0 | /0 |
| K-8 Science | /0 | /0 | 88.0 | /0 | /0 | 71.4 | /0 | /0 | 74.0 |
| Math | 81.4 | 74.7 | 78.1 | 75.0 | 73.0 | 72.1 | /0 | 85.8 | 77.7 |
| All Subjects | 85.9 | 77.0 | 85.9 | 77.2 | 85.1 | 74.8 | 83.7 | 87.2 | 81.7 |

Dimension Line – Filtering Your Data

- 1 You can use the **dimension line** to filter your data by school, year, subject, and grade level.

To filter to a specific school, click on **All Districts** in the **Dimension Line**. A pull down menu displays, as in the figure to your right, and you can select from the various schools that appear.

- Similarly, click on **All Years**, **All Subjects**, **All Grades**, etc. to further narrow the focus of the reports.
- Alternately, you can filter by clicking on a row or column header.
- If at any point you would like remove your filters, you can use the **Dimension Line** to do so.
- You can also click the **reset** button to reset all of the dimensions in the **Dimension Line**.





- 2 The **Next** button shows an arrow that will scroll right to the next dimension on the **Dimension Line**. If you cannot see a dimension on the **Dimension Line**, click this button to check the other available dimensions that are not visible.
- The **Last** button will scroll the **Dimension Line** to the final dimension listed at the right end of the line. The left side of the **dimension line** has a left side scroll arrow and “first” button also, to allow you to scroll in that direction as well.
- The **Reset** button will restore all of the dimensions on the dimension line to the highest level of aggregation.
- The **Wrap** button will wrap all of the dimensions on the **Dimension Line** to the size of the line, making it possible to see all of the dimensions at the same time regardless of your screen size. This function does not work in the current version of Firefox.

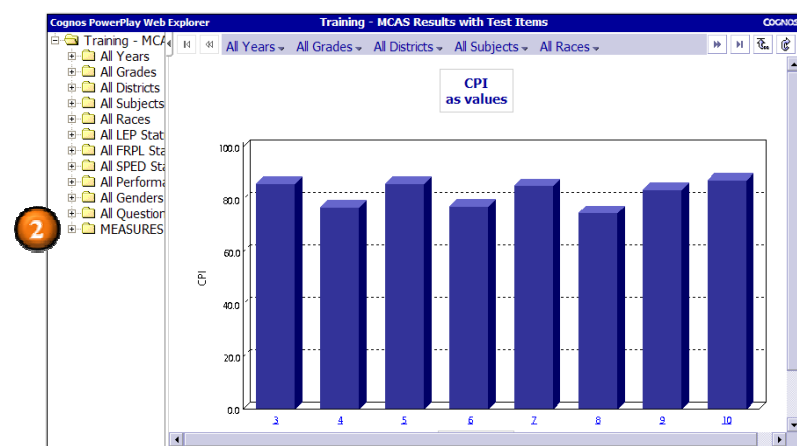
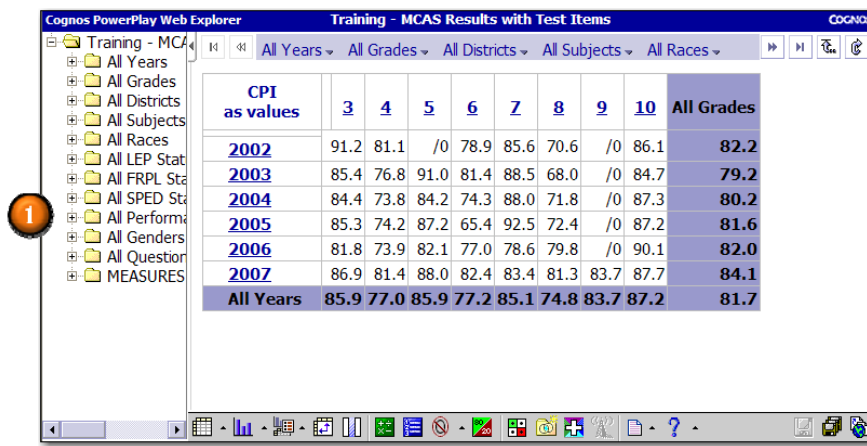
The Tool Bar – Changing the Display



FOCUSING QUESTION

What does a graph tell us about the performance of our students across grade levels?

- 1  The **Crosstab** button will display the data in the default crosstab view.
- 2  While the default crosstab view shows you the data, the **Chart** button will take the data that was displayed in the crosstab and render it into a chart.



3



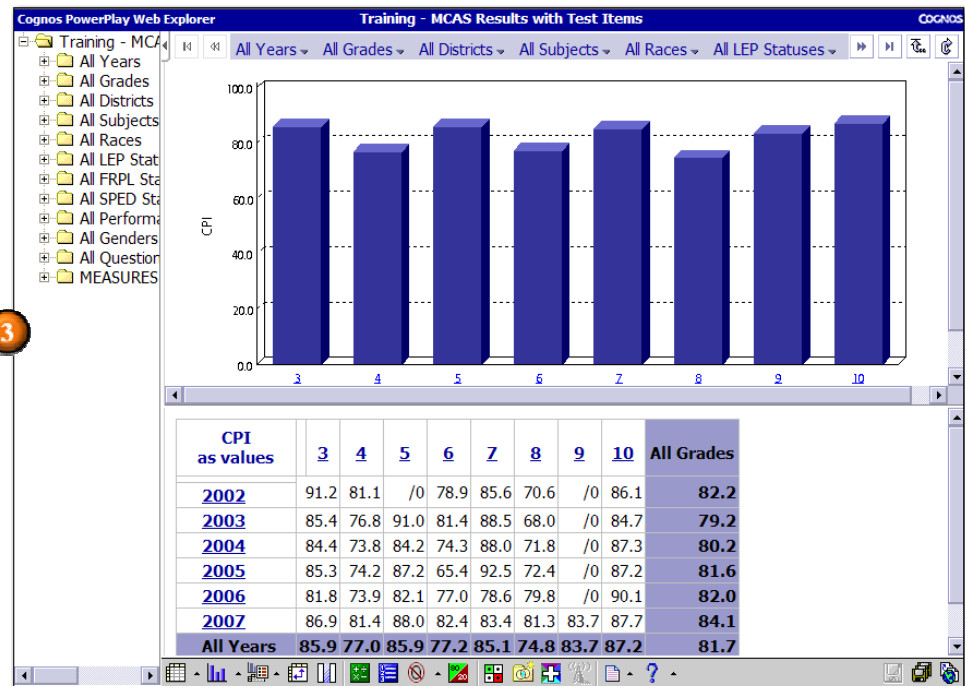
If you are going to publish a chart, you should always include a data table. The **Display Options** button will allow you to display data in crosstab and chart in a split screen view.



If you want only certain rows or columns in your display, you can use the **Hide/Show** button to hide or show specific rows and columns. These changes will also be reflected in corresponding charts.



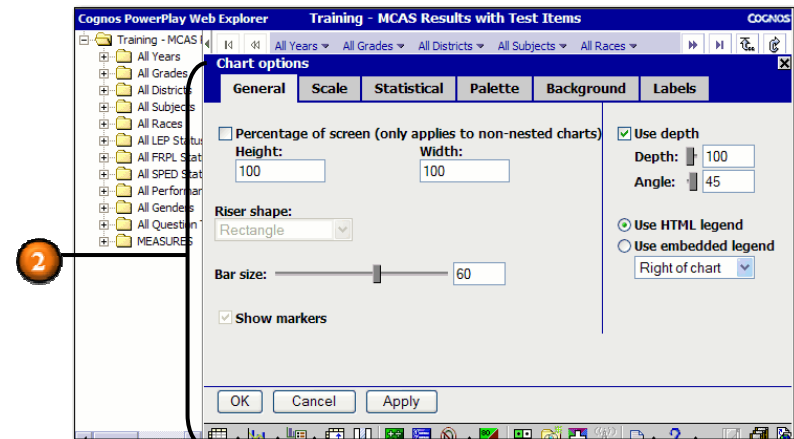
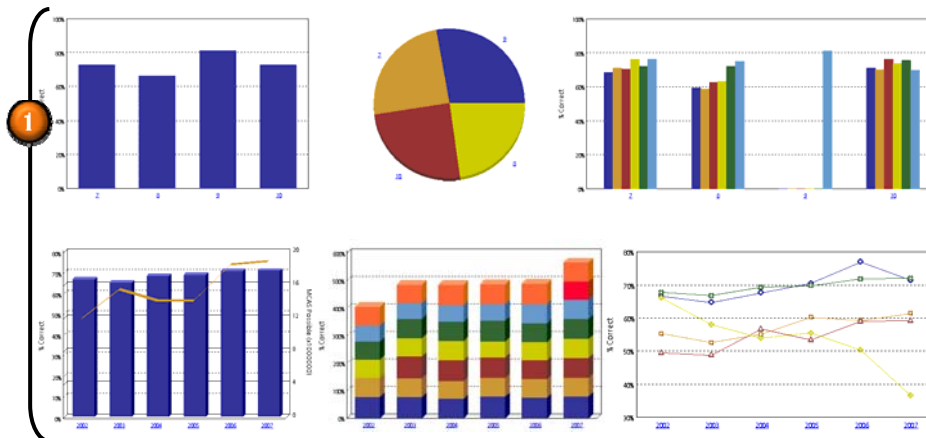
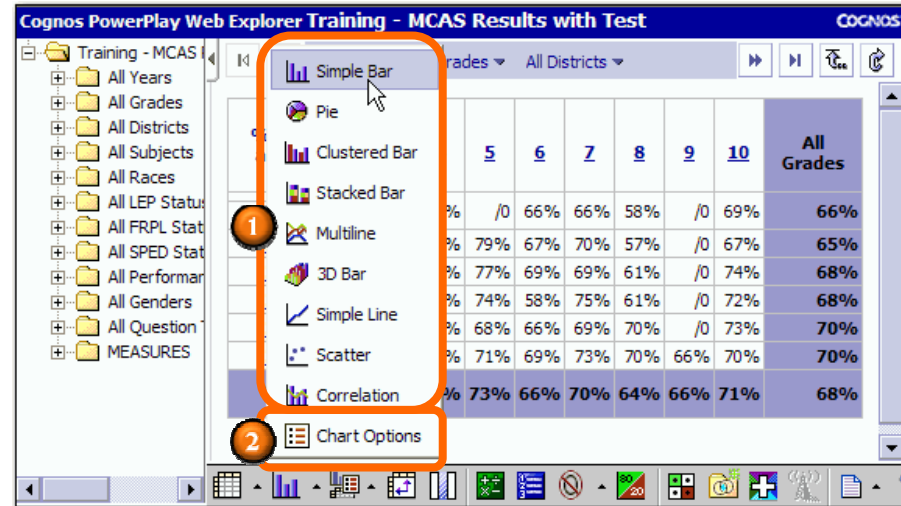
Sometimes it's helpful to look at your data with a slightly different lens. The **Swap** button will switch the data in the rows and columns. These changes will also be reflected in corresponding charts.



The Tool Bar – Chart Options



- 1 Each type of chart answers different types of questions, as described in the Data Analysis Framework section of this handbook. The **Chart** button will give you the option to select from nine different charts with which to display your data. Examples of some of these charts are displayed in the bottom right of the page.
- 2 The default chart that appears does not include any axis titles or labels. Additionally, you may want to modify your chart by adjusting the scale or changing colors. The **Chart Options** button will give you the opportunity to manipulate the properties of the chart, including making adjustments to the scale, adding statistical lines, changing colors, changing the background, and adding labels.



The Tool Bar – Modifying the Data



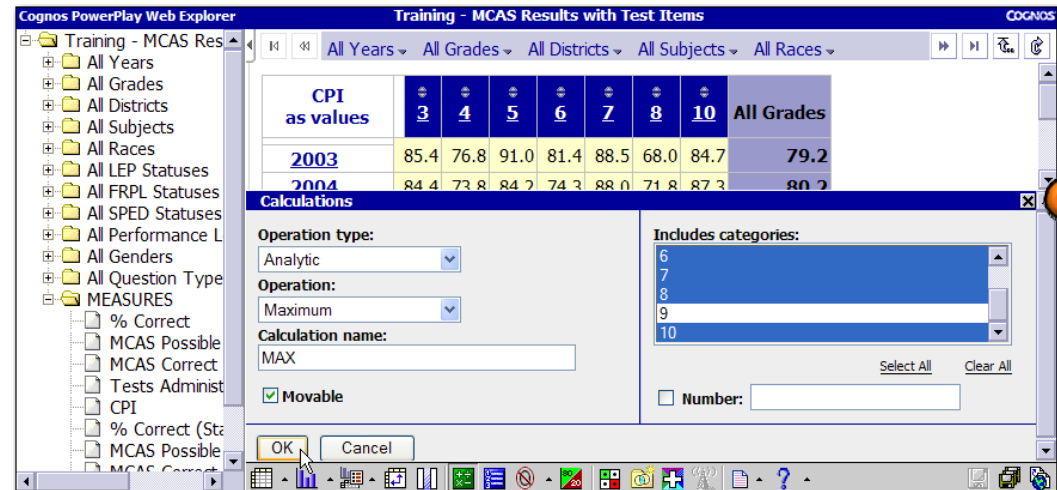
FOCUSING QUESTION

Which year had the greatest CPI across grade levels?



The **Calculation** button allows you to include additional calculated dimensions.

- 1 Before you create a calculation, you need to select a column first or you will get an error message. Upon clicking the **Calculation** button the calculations window will display. First, you select the categories to which you wish to apply the calculations. Then you pick the operation you wish to perform and the name that you want displayed in your crosstab or graph.
- 2 When you are finished, click **OK** and the new calculated row or column will be displayed in your crosstab and chart.



| CPI as values | 3 | 4 | 5 | 6 | 7 | 8 | 10 | MAX | All Grades |
|---------------|------|------|------|------|------|------|------|------|------------|
| 2003 | 85.4 | 76.8 | 91.0 | 81.4 | 88.5 | 68.0 | 84.7 | 91.0 | 79.2 |
| 2004 | 84.4 | 73.8 | 84.2 | 74.3 | 88.0 | 71.8 | 87.3 | 88.0 | 80.2 |
| 2005 | 85.3 | 74.2 | 87.2 | 65.4 | 92.5 | 72.4 | 87.3 | 92.5 | 81.6 |
| 2006 | 81.8 | 73.9 | 82.1 | 77.0 | 78.6 | 79.8 | 90.1 | 90.1 | 82.0 |
| 2007 | 86.9 | 81.4 | 88.0 | 82.4 | 83.4 | 81.3 | 87.3 | 88.0 | 84.1 |
| All Years | 85.9 | 77.0 | 85.9 | 77.2 | 85.1 | 74.8 | 87.2 | 87.2 | 81.7 |



The **Rank** button will sort the data by ranking one of your dimensions. You can define the dimension to be ranked, how many ordinals are counted, and in which order the data will be sorted. When finished click **OK**.

Cognos PowerPlay Web Explorer Training - MCAS Results with Test Items

Training - MCAS Results with Test Items

Rank

Rank the columns by the following row:
2007

Show ordinals:
Top 10

Start the ordinals from:
Highest

Sorting order:
Descending

OK Cancel

Rank name:
Best of 2007

| CPI as values | 3 | 4 | 5 | 6 | 7 | 8 | 10 | All Grades |
|---------------|------|------|------|------|------|------|------|------------|
| 2003 | 85.4 | 76.8 | 91.0 | 81.4 | 88.5 | 68.0 | 84.7 | 79.2 |
| 2004 | 84.4 | 73.8 | 84.2 | 74.3 | 88.0 | 71.8 | 87.3 | 80.2 |
| 2005 | 85.3 | 74.2 | 87.2 | 65.4 | 92.5 | 72.4 | 87.2 | 81.6 |
| 2006 | 81.8 | 73.9 | 82.1 | 77.0 | 78.6 | 79.8 | 90.1 | 82.0 |
| 2007 | 86.9 | 81.4 | 88.0 | 82.4 | 83.4 | 81.3 | 87.7 | 84.1 |
| All Years | 85.9 | 77.0 | 85.9 | 77.2 | 85.1 | 74.8 | 87.2 | 81.7 |

| CPI as values | 5 | 10 | 3 | 7 | 6 | 4 | 8 | All Grades |
|---------------|------|------|------|------|------|------|------|------------|
| 2003 | 91.0 | 84.7 | 85.4 | 88.5 | 81.4 | 76.8 | 68.0 | 79.2 |
| 2004 | 84.2 | 87.3 | 84.4 | 88.0 | 74.3 | 73.8 | 71.8 | 80.2 |
| 2005 | 87.2 | 87.2 | 85.3 | 92.5 | 65.4 | 74.2 | 72.4 | 81.6 |
| 2006 | 82.1 | 90.1 | 81.8 | 78.6 | 77.0 | 73.9 | 79.8 | 82.0 |
| 2007 | 88.0 | 87.7 | 86.9 | 83.4 | 82.4 | 81.4 | 81.3 | 84.1 |
| Best of 2007 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | NA |
| All Years | 85.9 | 87.2 | 85.9 | 85.1 | 77.2 | 77.0 | 74.8 | 81.7 |

Best of 2007 displays top 10 ordinals.

The Tool Bar – Data Suppression

A quick way to remove columns or rows that contain no data is to use **Zero Suppression**.



FOCUSING QUESTION

What does the data tell me about achievement gaps across races when I look only at the 9th and 10th grade?



The **Zero Suppression** button allows you to hide any row or column that contains all zeros (0) or missing values (/0). This is useful one of the categories displaying contains all missing values. When zero suppression is in effect, a message displays on the chart or crosstab to inform the user that some categories may be hidden.



The **80/20 Suppression** button allows you to suppress “outlier” data (the highest and lowest 20% of results). Typically this function is not appropriate when viewing student assessment results. When 80/20 suppression is in effect, a message displays on the chart or crosstab to inform the user that some results may be excluded.

| CPI as values | Hammonton Regional High | | | | | | | Hammonton Regional High |
|------------------|-------------------------|-------|----------|------|--------------------|-------|--------------|-------------------------------|
| | ASIAN | BLACK | HISPANIC | N.A. | NATIVE AMERICAN | WHITE | All Races | |
| 3 | /0 | /0 | /0 | /0 | /0 | /0 | /0 | /0 |
| 4 | /0 | /0 | /0 | /0 | /0 | /0 | /0 | /0 |
| 5 | /0 | /0 | /0 | /0 | /0 | /0 | /0 | /0 |
| 6 | /0 | /0 | /0 | /0 | /0 | /0 | /0 | /0 |
| 7 | /0 | /0 | /0 | /0 | /0 | /0 | /0 | /0 |
| 8 | /0 | /0 | /0 | /0 | /0 | /0 | /0 | /0 |
| 9 | 100.0 | 50.0 | 62.5 | /0 | /0 | 100.0 | 98.1 | 98.1 |
| 10 | 85.6 | 74.9 | 71.7 | 85.8 | 83.9 | 92.9 | 89.1 | 89.1 |
| All Grades | 85.8 | 74.8 | 71.6 | 85.8 | 83.9 | 93.0 | 89.2 | 89.2 |



| CPI as values | Hammonton Regional High | | | | | | | Hammonton Regional High |
|------------------|-------------------------|-------|----------|------|--------------------|-------|--------------|-------------------------------|
| | ASIAN | BLACK | HISPANIC | N.A. | NATIVE AMERICAN | WHITE | All Races | |
| 9 | 100.0 | 50.0 | 62.5 | /0 | /0 | 100.0 | 98.1 | 98.1 |
| 10 | 85.6 | 74.9 | 71.7 | 85.8 | 83.9 | 92.9 | 89.1 | 89.1 |
| All Grades | 85.8 | 74.8 | 71.6 | 85.8 | 83.9 | 93.0 | 89.2 | 89.2 |

Zero suppression rows and columns. Suppression options applied: zero values, division by zero, missing values, overflow values

The Tool Bar – Adding Conditional Formatting



FOCUSING QUESTION

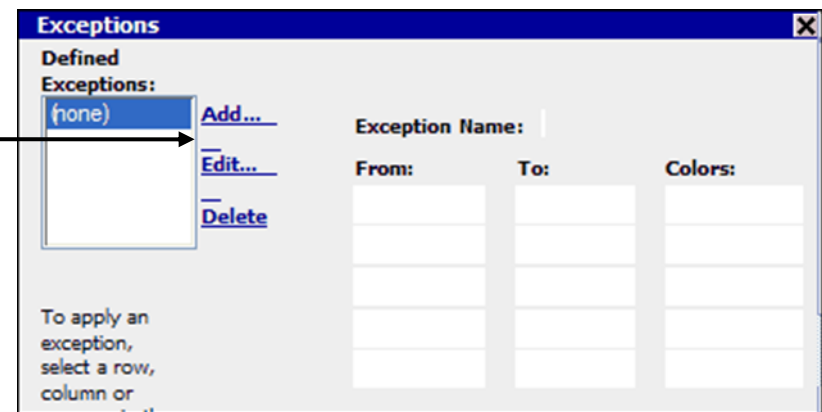
Where are the achievement gaps across all races and all grades?



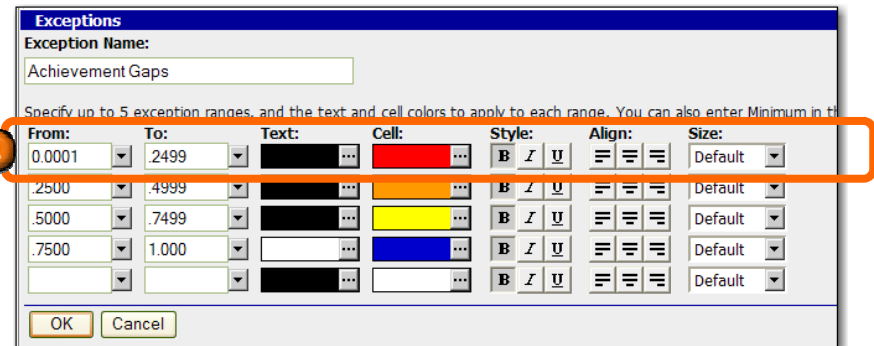
The **Custom Exceptions Highlight** button allows you to define a range of data and change the color or font of that data when it is displayed in your crosstabs.

- 1 When you click on the button an exceptions window pops up. Click **Add** in order to define a new range of data.
- 2 When the next pop-up window appears, name the exception, define the range of data, and choose the font and color properties that will be applied to the data in that range. Once you are finished click **OK**. Remember to use decimals when working with percentages. Also remember that many percentages may be rounded from three decimal places. This means that to gather all numbers that read 68%, you may need to put your “**From:**” value at .675 (maximum five decimal places).

1



2



- 3 Once you have defined the exception you must now select the rows and columns to which you would like to apply the filter. Select the columns or rows (select multiple columns/rows by holding down the **CTRL** key, or you can select all rows and columns by clicking on the crosstab corner). Then select the “Achievement Gaps” exception and click **Apply**.

| % Correct as values | ASIAN | BLACK | HISPANIC | N.A. | NATIVE AMERICAN | WHITE | All Races |
|---------------------|-------|-------|----------|------|-----------------|-------|-----------|
| 3 | 88% | 74% | 76% | 72% | 46% | 76% | 76% |
| 4 | 95% | 65% | 53% | 53% | 58% | 68% | 68% |
| 5 | 53% | 72% | 54% | /0 | 36% | 72% | 71% |
| 6 | 56% | 44% | 51% | 49% | 38% | 66% | 65% |
| 7 | 74% | 62% | 59% | 79% | 61% | 72% | 70% |
| 8 | 66% | 53% | 51% | 72% | 47% | 66% | 64% |
| 9 | 77% | 38% | 41% | /0 | /0 | 66% | 66% |
| 10 | 72% | 59% | 58% | 64% | 66% | 73% | 71% |
| All Grades | 70% | 58% | 55% | 70% | 55% | 70% | 68% |

| % Correct as values | ASIAN | BLACK | HISPANIC | N.A. | NATIVE AMERICAN | WHITE | All Races |
|---------------------|-------|-------|----------|------|-----------------|-------|-----------|
| 3 | 88% | 74% | 76% | 72% | 46% | 76% | 76% |
| 4 | 95% | 65% | 53% | 53% | 58% | 68% | 68% |
| 5 | 53% | 72% | 54% | /0 | 36% | 72% | 71% |
| 6 | 56% | 44% | 51% | 49% | 38% | 66% | 65% |
| 7 | 74% | 62% | 59% | 79% | 61% | 72% | 70% |
| 8 | 66% | 53% | 51% | 72% | 47% | 66% | 64% |
| 9 | 77% | 38% | 41% | /0 | /0 | 66% | 66% |
| 10 | 72% | 59% | 58% | 64% | 66% | 73% | 71% |
| All Grades | 70% | 58% | 55% | 70% | 55% | 70% | 68% |

Exceptions
 Defined Exceptions:
 (none)
 Achievement Gaps

Add...
 Edit...
 Delete

Exception Name: Achievement Gaps
 From: 0.0001 To: 0.2499 Colors: 12345
 0.25 0.4999 12345
 0.5 0.7499 12345
 0.75 1 12345

To apply an exception, select a row, column or measure in the crosstab.
 OK Cancel Apply

| % Correct as values | ASIAN | BLACK | HISPANIC | N.A. | NATIVE AMERICAN | WHITE | All Races |
|---------------------|-------|-------|----------|------|-----------------|-------|-----------|
| 3 | 88% | 74% | 76% | 72% | 46% | 76% | 76% |
| 4 | 95% | 65% | 53% | 53% | 58% | 68% | 68% |
| 5 | 53% | 72% | 54% | /0 | 36% | 72% | 71% |
| 6 | 56% | 44% | 51% | 49% | 38% | 66% | 65% |
| 7 | 74% | 62% | 59% | 79% | 61% | 72% | 70% |
| 8 | 66% | 53% | 51% | 72% | 47% | 66% | 64% |
| 9 | 77% | 38% | 41% | /0 | /0 | 66% | 66% |
| 10 | 72% | 59% | 58% | 64% | 66% | 73% | 71% |
| All Grades | 70% | 58% | 55% | 70% | 55% | 70% | 68% |

The Tool Bar – Creating Dimension Subsets



FOCUSING QUESTION

Which subgroup of students has the lowest performance?



The **Custom Subsets** button allows a user to define a special category subset, for example a select group of schools, by specifying the categories to select. The **Custom Subset** setup window includes windows for typing in the name of the custom subset, the selected **Dimension** you want to focus on, and a choice of three different methods by which you can create the subset. The three methods include 1) a subset that is a **static list of categories**, or a dynamic subset that is based on a rule. The dynamic subsets may be based on either 2) a **rule defined by search criteria** or 3) a **rule defined by measure value**.

Create a Custom Subset that is a static list of categories:

☒ Select Categories

Create a dynamic Custom Subset that is based on a rule:

☐ Define Rule by Search Criteria

☐ Define Rule by Measure Value

Select Categories—allows you to create a subset that filters data by a combination of predefined categories, such as low performing Asian students.

Define Rule by Search Criteria— allows you to filter data by a certain character contained in the data, such as a name or zip code.

Define Rule by Measure Value— allows you to filter data by a measure, such as high performing students whose score falls above 270.

To begin creating a custom subset, click on the **Custom Subsets** button.



- 1 In the **Create Custom Subset** window enter a name for your **subset**. Then, choose the dimension that includes the categories by which you would like to filter data. For the example, choose **All Performance Levels** because this dimension includes categories that can be used to define low performance. Choose **Select Categories** to choose the categories in the **All Performance Levels** Dimension. Click **Next**.
- 2 The **Create Custom Subset By Selecting Categories** window allows you to choose the categories by which your custom subset will filter data. Select the categories **Needs Improvement** and **Warning/Failing**. Click **Finish**.
- 3 In the example, the subset is applied to Hammonton Regional High biology students. To follow the example, use the **Dimension Line** to filter your data in the appropriate dimensions. Click **Finish**.

The example demonstrates that the sum of numbers in the categories of *Needs Improvement* and *Warning/Failing*, equals the sum of our newly created custom subset: *Low performing students (NI and Failing level)*. You can now use this subset when they are looking at any group of students to filter for number of total number of low-performing students.

Training - MCAS Results with Test Items

2007 ▾ All Grades ▾ Hammonton Regional High ▾ Biology ▾ All Races ▾
 All LEP Statuses ▾ All FRPL Statuses ▾ All SPED Statuses ▾
 Low performing students (NI and Failing ...) ▾ All Genders ▾ All Question Types ▾
 Tests Administered ▾

| Tests Administered as values | | 9 | 10 | All Grades |
|--|-------------------|---|----|------------|
| Hammonton Regional High | Needs Improvement | 1 | 43 | 22 |
| | Warning/Failing | 1 | 35 | 18 |
| Low performing students (NI and Failing level) | | 2 | 78 | 40 |
| Hammonton Regional High | | 2 | 78 | 40 |

Zero suppression rows and columns. Suppression options applied: zero values, division by zero, missing values,

The Tool Bar – Drill Through



FOCUSING QUESTION

What are the actual assessment items in the strands that gave our students the most difficulty?



Analysis cubes have been set up to **Drill Through** to a student detail report run. To use this feature, narrow your analysis to a subset of students in your district (by using the **dimension line**), and then click the **Drill Through** button. The report will contain only those student records you are authorized to view.

- 1 Notice the crosstab has been narrowed to a single high school (Hammonton), in a single year (2007), with a specific subject (Biology).
- 2 If there are reports to drill through for the narrowed analysis that you have selected, when you click the **Drill Through** button you will be presented with options.

2007 ▾ All Grades ▾ Hammonton Regional High ▾ Biology ▾ All Races ▾ All LEP Status ▾
All SPED Statuses ▾ All Performance Levels ▾ All Genders ▾ All Question Types ▾ MEASUR

| | | % Correct as values | 9 | 10 | All Grades |
|-------------------------|------|----------------------------|-----|-----|------------|
| Hammonton Regional High | 2007 | Anatomy and Physiology | 81% | 40% | 53% |
| | | Cell Biology | 77% | 41% | 52% |
| | | Chemistry of Life | 84% | 59% | 67% |
| | | Ecology | 81% | 56% | 64% |
| | | Evolution and Biodiversity | 83% | 54% | 63% |
| | | Genetics | 79% | 45% | 56% |
| | | Biology | 80% | 48% | 58% |
| Hammonton Regional High | | | 80% | 48% | 58% |



Drill Through Help

Select a drill through target:

2 **MCAS Question List**
List of MCAS questions on which the selected measure was calculated. This report performs best when District and Subject are selected. *Subject is a required field - if not selected please select it on the next screen.

Student List
List of students whose results contributed to the selected measure. This report performs best when Year, Subject, Grade and District are selected.

Cancel OK

- 3 Shown here is the **MCAS Test Questions List**, which allows you to view the biology test questions answered by the students at Hammondon Regional High in 2007. By clicking on the item number, you can drill through to an image of the item.

The screenshot displays the 'MCAS Question List' interface. At the top left is the Massachusetts Department of Elementary & Secondary Education logo. The title 'MCAS Question List' is centered at the top. Below the title, the filters 'Year: 2007' and 'Grade: 9' are shown. A table lists questions with columns: Subject Name, Strand Name, Standard Name, Question Type, and Item No. The first row shows 'Biology' under 'Anatomy and Physiology' with 'None' as the standard name, 'Multiple-Choice' as the question type, and item numbers 2, 18, 31, 41, 44. The second row shows 'Cell Biology' under 'None' with 'Open-Response' and 'Multiple-Choice' as question types, and item numbers 39, 10, 13. An arrow points from the item number '2' in the first row to a detailed view of the question on the right.

| Subject Name | Strand Name | Standard Name | Question Type | Item No |
|--------------|------------------------|---------------|----------------------------------|---------------------------|
| Biology | Anatomy and Physiology | None | Multiple-Choice | 2 18 31 41 44 |
| Cell Biology | None | | Open-Response Multiple-Choice | 39 10 13 |

2007, Biology - High School
Question 2: Multiple-Choice
Reporting Category: Anatomy and Physiology
Objective(s): Anatomy and Physiology - B 4.1

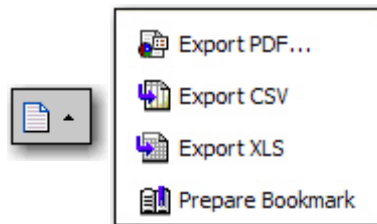
What is the **primary** function of the large intestine?

- A. to digest proteins
- B. to absorb nutrients
- C. to break down complex carbohydrates
- ✓ D. to remove water from undigested waste

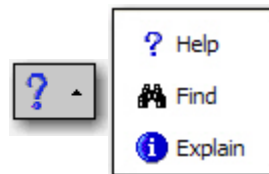
The Tool Bar – Exporting and Help



It is often not enough to just create a report within Cognos PowerPlay. If you are looking to do additional analysis, you may want to export the report to Excel. Or if you want to distribute the report, you may want to export it to PDF or save it in a folder.



The **File** button allows you to export your report in several different formats, including PDF (Adobe Acrobat) and XLS (Microsoft Excel). It also gives you the option to bookmark this report.



The **Help** button provides you with general help with using Cognos PowerPlay 7.4. The **Help** button will provide you with an index of topics from which to choose. The **Find** button will allow you to find numbers or phrases in your report. The **Explain** button will give you all of the general administrative information about your report.



The **Save As** button allows you to save your cube report so that you can reuse it in the future and share it with others. After you have saved your report once, the **Save** button will become available to resave your report. Once you save a cube report to the portal, you can use Set Properties to specify that your report will open in Adobe rather than PowerPlay. This feature is useful when you want to share a report with users who are not trained in PowerPlay



The **Return to Source** button exits the cube and returns you to its source folder. This button is useful when restarting with a cube from scratch instead of attempting to clear all the additional rows and columns manually.

Displaying Multiple Measures Together

Putting multiple measures in the same cross tab table allows you to see a more complete picture of the data and make comparisons between measures.

- 1 First drag and drop the **MEASURES** folder from the dimension viewer to the column header of your cross tab.

This will replace the dimension that is currently in the columns with measures.

Cognos PowerPlay Web Explorer

Training - MCAS Results with Test Items

2007 All Grades District B Math All Races

| % Correct as values | 3 | 4 | 5 | 6 | 7 | 8 | 10 | All Grades |
|---------------------|-----|-----|-----|-----|-----|-----|-----|------------|
| ASIAN | /0 | /0 | 52% | 94% | 46% | 67% | 23% | 56% |
| BLACK | 68% | 33% | 69% | 59% | /0 | 49% | /0 | 56% |
| HISPANIC | /0 | 56% | 52% | /0 | 49% | /0 | 42% | 49% |
| N.A. | 58% | 43% | /0 | 52% | 33% | 21% | /0 | 37% |
| NATIVE AMERICAN | /0 | 30% | /0 | 13% | /0 | /0 | /0 | 19% |
| WHITE | 79% | 72% | 74% | 70% | 57% | 51% | 66% | 64% |
| All Races | 78% | 70% | 72% | 68% | 56% | 51% | 65% | 63% |

Zero suppression rows and columns. Suppression options applied: zero values, division by zero, missing values, overflow values

Cognos PowerPlay Web Explorer

Training - MCAS Results with Test Items

2007 All Grades District B Math All Races All LEP Statuses All FRPL Statuses

| MEASURES as values | % Correct | MCAS Possible | MCAS Correct | Tests Administered | CPI | % Correct (State) | MCAS Possible (State) | MCAS Correct (State) | Tests Administered (State) | CPI (State) | MEASURES |
|--------------------|-----------|---------------|--------------|--------------------|------|-------------------|-----------------------|----------------------|----------------------------|-------------|----------|
| ASIAN | 56% | 276 | 154 | 1 | 55.0 | 75% | 3642 | 2742 | 13 | 87.7 | NA |
| BLACK | 56% | 418 | 232 | 1 | 62.5 | 57% | 4240 | 2418 | 11 | 65.9 | NA |
| HISPANIC | 49% | 444 | 217 | 2 | 50.0 | 57% | 4722 | 2695 | 17 | 67.1 | NA |
| N.A. | 37% | 310 | 115 | 1 | 29.2 | 72% | 2782 | 1992 | 9 | 85.0 | NA |
| NATIVE AMERICAN | 19% | 162 | 30 | 1 | 50.0 | 31% | 276 | 86 | 1 | 55.0 | NA |
| WHITE | 64% | 27586 | 17753 | 74 | 74.5 | 71% | 60850 | 43370 | 161 | 83.0 | NA |
| All Races | 63% | 29196 | 18501 | 79 | 73.2 | 70% | 76512 | 53303 | 203 | 81.3 | NA |

Zero suppression rows and columns. Suppression options applied: zero values, division by zero, missing values, overflow values

- 2 You may only want to look at certain measures instead all of the available measures. By holding down the **CTRL** key, choose the column headings that you do not want to see displayed. In the example below, every column is selected except for **% Correct**, **Tests Administered**, and **CPI**. Be sure to click on the column heading without clicking on the title of the specific column, which will drill down into that column instead of merely selecting it.
- 3 Right click on one of the selected column headers and select **Hide Selection** from the pop-up menu. You will now only see the measures that you left unselected.

2

| MEASURES as values | % Correct | MCAS Possible | MCAS Correct | Tests Administered | CPI | % Correct (State) | MCAS Possible (State) | MCAS Correct (State) | Tests Administered (State) | CPI (State) | MEASURES |
|--------------------|-----------|---------------|--------------|--------------------|------|-------------------|-----------------------|----------------------|----------------------------|-------------|----------|
| ASIAN | 56% | 276 | 154 | 1 | 55.0 | 75% | 3642 | 2742 | 13 | 87.7 | NA |
| BLACK | 56% | 418 | 232 | 1 | 62.5 | 57% | 4240 | 2418 | 11 | 65.9 | NA |
| HISPANIC | 49% | 444 | 217 | 2 | 50.0 | 57% | 4722 | 2695 | 17 | 67.1 | NA |
| N.A. | 37% | 310 | 115 | 1 | 29.2 | 72% | 2782 | 1992 | 9 | 85.0 | NA |
| NATIVE AMERICAN | 19% | 162 | 30 | 1 | 50.0 | 31% | 276 | 86 | 1 | 55.0 | NA |
| WHITE | 64% | 27586 | 17753 | 74 | 74.5 | 74% | 27586 | 17753 | 74 | 74.5 | NA |
| All Races | 63% | 29196 | 18501 | 79 | 73.2 | 74% | 29196 | 18501 | 79 | 73.2 | NA |

3

Insert Calculation...
 Insert Rank...
 Hide Selection
 Hide/Show...
 Create Custom Subset
 Agent
 Explain

Cognos PowerPlay Web Explorer

Training - MCAS Results with Test Items

2007 All Grades District B Math All Races

| MEASURES as values | % Correct | Tests Administered | CPI | MEASURES |
|--------------------|-----------|--------------------|------|----------|
| ASIAN | 56% | 1 | 55.0 | NA |
| BLACK | 56% | 1 | 62.5 | NA |
| HISPANIC | 49% | 2 | 50.0 | NA |
| N.A. | 37% | 1 | 29.2 | NA |
| NATIVE AMERICAN | 19% | 1 | 50.0 | NA |
| WHITE | 64% | 74 | 74.5 | NA |
| All Races | 63% | 79 | 73.2 | NA |

Zero suppression rows and columns. Suppression options applied: zero values, division by zero, missing values, overflow values

Introduction

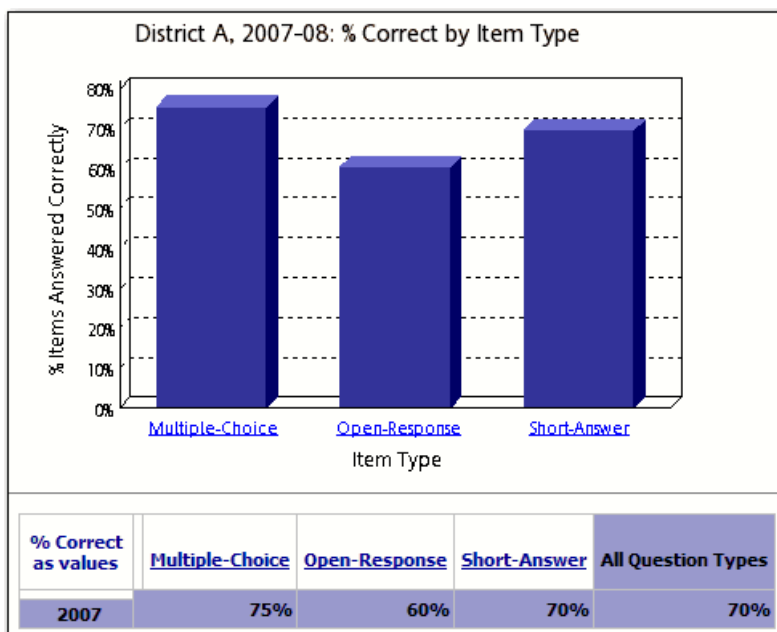
This section provides a series of exercises that will walk you through the skills described in this handbook. Each exercise begins with a focusing question that serves as a starting point for the particular chart that you will be creating. Your task for each exercise is to create the chart that is displayed. Skills that you will use are listed next to the chart. Finally, each exercise will ask you several additional questions based on the scenario. You can use these questions to make modifications to the chart.



Building a Simple Bar Chart

FOCUSING QUESTION

Is there a noticeable trend in the difficulty students have with answering different types of questions – multiple choice, short answer, and open response?



Skills You Will Use:

- Selecting the appropriate category from the Dimension Viewer (p. 19).
- Building a simple bar chart from a crosstab (p. 22).
- Using the Chart Options feature to add labels to a chart (p. 24).
- Displaying a chart and table in split screen view (p. 23).

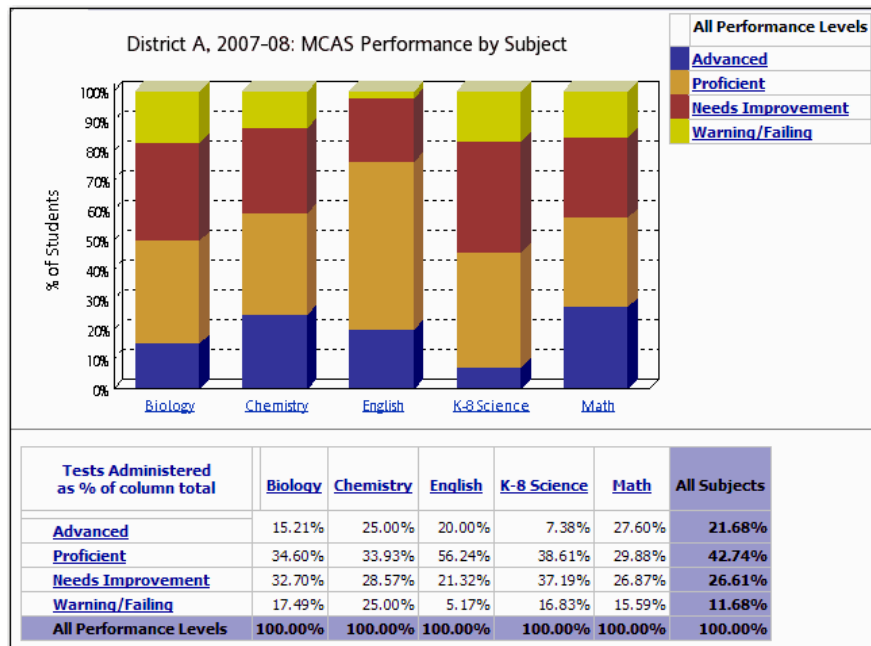
Clarifying Questions:

- Are this year's results different from last year's?
- In which subjects are we having the most difficulty with Open Response items?

Building a Chart with Multiple Dimensions

FOCUSING QUESTION

Which subject areas had the overall lowest performance from last year's assessment?



Skills You Will Use:

- Suppressing non-relevant data (pg. 27)
- Suppressing dimensions with no data (pg. 27)
- Changing measures (pg. 20)
- Creating a stacked bar chart (pg. 24)

Clarifying Questions:

- Which group of students shows the greatest achievement gap in English?
- Which grade level shows the lowest performance in Math?

Applying Exception Formatting to a Chart

FOCUSING QUESTION

Where are our greatest achievement gaps? Which subjects? Between which subgroups of students?

| % Correct as values | | Biology | Chemistry | English | K-8 Science | Math | All Subjects |
|---------------------|-------------|---------|-----------|---------|-------------|------|--------------|
| ASIAN | Female | 50% | 73% | 74% | 57% | 69% | 70% |
| | Male | 50% | 76% | 72% | 65% | 72% | 71% |
| | All Genders | 50% | 74% | 73% | 61% | 70% | 70% |
| BLACK | Female | 23% | 36% | 71% | 51% | 51% | 58% |
| | Male | 34% | /0 | 64% | 53% | 52% | 57% |
| | All Genders | 29% | 36% | 67% | 52% | 52% | 58% |
| HISPANIC | Female | 29% | 56% | 66% | 45% | 51% | 55% |
| | Male | 48% | 83% | 63% | 52% | 50% | 55% |
| | All Genders | 37% | 69% | 64% | 49% | 50% | 55% |
| N.A. | Female | 46% | /0 | 81% | 71% | 72% | 74% |
| | Male | 34% | 78% | 73% | 71% | 73% | 69% |
| | All Genders | 37% | 78% | 77% | 66% | 70% | 70% |
| NATIVE AMERICAN | Female | 35% | /0 | 75% | 52% | 60% | 63% |
| | Male | /0 | /0 | 54% | 47% | 42% | 47% |
| | All Genders | 35% | /0 | 63% | 49% | 50% | 55% |
| WHITE | Female | 61% | 67% | 78% | 65% | 67% | 71% |
| | Male | 59% | 61% | 73% | 66% | 66% | 68% |
| | All Genders | 60% | 63% | 75% | 66% | 66% | 70% |
| All Races | | 56% | 64% | 74% | 64% | 65% | 68% |

Zero suppression rows and columns. Suppression options applied: zero values, division by zero, missing values, overflow values

Skills You Will Use:

- Creating nested dimensions (pg. 19)
- Using exceptions to format data cells (pg. 28)

Clarifying Questions:

- In which grade levels were there the largest achievement gaps? In which subjects?
- Which subgroup of students demonstrates the largest learning needs? In which subjects?
- What were the items on the 10th grade Biology assessment?



(Hint: Use the **drill through** feature.)

Wrapping Up

Congratulations! You've just completed the Multidimensional Analysis course and have learned:

- About the inquiry process and how the cycle of inquiry contributes to building data displays in Cubes.
- How to navigate within Cubes and perform basic functions.
- How to describe the various types of charts and graphs available in Cubes and the types of questions they answer.
- How to work with dimensions and measures within Cognos® PowerPlay.
- How to identify the elements that make up a well-designed and thorough data display.
- How to use PowerPlay to conduct basic analyses connected to focusing and clarifying questions.
- How to develop thoughtful focusing and clarifying questions.
- How to use a systematic process for designing useful and appropriate data displays.

Now it's important for you to take action using your new capabilities and understanding. Take a few minutes to answer the questions to the right. Your responses will help guide your next steps toward building a culture of data use in your school and/or district.

Now What?

- Who else in your school or district needs to know this material?
- What are the key concepts that you will want to share with others?
- What technical information would be helpful for others in your school or district to know?
- What will be your plan to make sure this occurs?