Algebra Progress Monitoring in Secondary Mathematics: Using AAIMS Algebra Measures

# December 12, 2011 Probe Standard Directions Handout

Elaine Neugebauer — PaTTAN Ernie Melcher - PaTTAN



Pennsylvania Training and Technical Assistance Network

# PROBE STANDARD DIRECTIONS Basic Skills (A) Probes

### **BASIC SKILLS (A) PROBES:**

Hand out probe A-1 (with the sample page attached), keeping the probes face down. Ask students to keep the probes face down and write their name, period/block, and the date on the back of the probe.

Give the standard directions:

The **FIRST** time you administer BASIC SKILLS algebra probes, say:

Please turn your paper over. This sample page shows some examples of the types of problems on the Basic Skills probes. The questions include solving algebra equations using basic math facts, simplifying expressions by combining like terms, using the distributive property to simplify expressions, and solving proportion, or ratio problems. Now we'll take a minute so you can practice doing a Basic Skills probe. If you finish before I say 'Stop', please do NOT turn to the next page. Any questions? Ready, begin. [time for 1 minute] Stop, pencils down.

Now that you've had a chance to try out this type of probe, do you have any questions? [Only answer procedural questions—do not suggest ways to solve the problems.]

Now we'll do the first Basic Skills probe. You will have 5 minutes to work on this two-page probe. Remember, your job is to answer as many problems correctly as you can in 5 minutes. Please look at each problem, but if you do not know how to do it, skip it and move on. If you get to the end of the probe before the time is up, go back and work on the more difficult problems. When you solve the simplifying questions, be sure to go as far as you can with your answer.

When I say begin, please turn past the sample page and begin working. You will have 5 minutes. Please do your best work. Ready? Begin.

For **ALL OTHER** administrations, hand out the probes face down and say

Please write your name, period/block, and the date on the back of your paper. You are going to do a Basic Skills probe. You will have 5 minutes to work. Remember to try and complete as many problems correctly as you can in the time allowed. When you are simplifying, be sure to go as far as you can with your answer [write your answer in lowest terms]. Please do your best work. Ready? Begin.

# PROBE STANDARD DIRECTIONS Algebra Foundations (B) Probes

### **Algebra Foundations (B) PROBES:**

Hand out probe B-1 (with the sample page attached), keeping the probes face down. Ask students to keep the probes face down and write their name, period/block, and the date on the back of the probe.

Give the standard directions:

The **FIRST** time you administer ALGEBRA FOUNDATIONS probes, say:

Please turn your paper over. This sample page shows some examples of the types of problems on the Algebra Foundations probes. The questions include translating words into expressions, solving simple equations, interpreting line graphs, and completing function or pattern tables. Now we'll take a minute so you can

practice doing an Algebra Foundations probe. If you finish before I say 'Stop', please do NOT turn to the next page. Any questions? Ready, begin. [time for 1 minute] Stop, pencils down.

Now that you've had a chance to try out this type of probe, do you have any questions? [Only answer procedural questions—do not suggest ways to solve the problems.]

Now we'll do the first Algebra Foundations probe. You will have 5 minutes to work on this two-page probe. Remember, your job is to answer as many problems correctly as you can in 5 minutes. Please look at each problem, but if you do not know how to do it, skip it and move on. If you get to the end of the probe before the time is up, go back and work on the more difficult problems. When you solve the simplifying questions, be sure to go as far as you can with your answer.

When I say begin, please turn past the sample page and begin working. You will have 5 minutes. Please do your best work. Ready? Begin.

For **ALL OTHER** administrations, hand out the probes face down and say

Please write your name, period/block, and the date on the back of your paper. You are going to do an Algebra Foundations probe. You will have 5 minutes to work. Remember to try and complete as many problems correctly as you can in the time allowed. When you are simplifying, be sure to go as far as you can with your answer [write your answer in lowest terms]. Please do your best work. Ready? Begin. Time for 5 minutes. When the timer goes off, say Stop. Please put your pencils down, and collect student papers.

#### PROBE STANDARD DIRECTIONS Translations (D) Probes

#### **Translations (D) PROBES:**

Hand out probe D-1 (with the sample page), keeping the probes face down. Ask students to keep the probes face down **and** write their name, period/block, and the date on the back of the probe.

Give the standard directions:

The **FIRST** time you administer TRANSLATIONS algebra probes, say:

In algebra, it is important to be able to use information about the relationship between two sets of numbers and translate between different ways of showing that relationship, like equations, graphs, data tables, and story scenarios. The Translations probe doesn't require that you remember specific steps for solving equations. Instead, it lets you show how well you understand the different ways for representing algebraic information.

Please turn your paper over. This sample page shows some examples of the types of problems on the Translations probes. At the top of the page, you will see a row of equations. Each one is labeled with a letter (A, B, C, or D). Below this row, you will see a row of graphs. Your first task is to match each equation in the top row to one of the graphs in the next row. Let's look at an example. The first equation is y = x + 4. Which graph does this equation match?

Pause and wait for students to identify the third graph. If they do not, say: *In this equation, if x were 0, what would y be? [4J Do you see a graph that has the point (0, 4) on it? Yes, that's right,' the third graph has the point (0, 4) as part of the line. So this answer would be A. (demonstrate writing the letter in the blank). You can use your knowledge about equations and graphs to solve the match of the graphs in this row with equations A, B, C, and D. NOTE: Feel free to ask students to share other ways to solve this problem (i.e., noting slope and intercept from the equation). Students should understand that there are multiple solution methods, but do not spend a great deal of time 'teaching' students how to do this task.* 

Now let's look at the data tables in the third row. Notice that there are 5 data tables, but only 4 equations, so you will have to use one letter more than once. Look at the third table. Can you figure out which equation goes with this set of values for x and y.? (Pause, wait for students to respond with equation C). Yes, that's right. Equation C is y = 0 and in the third data table, the y value is always 0 no matter what

value x is. Let's write a **C** next to this data table (model writing answer). Did anyone else solve this problem another way? Pause and allow comments. Yes, that's right; there are several ways to solve these problems.

This final section of the Translations probe has five different story situations. Remember that there are only 4 equations, so you will have to use one letter more than once in this section too. Let's read the first one together. (Read Bill story aloud.) Which equation would match this story scenario? (Pause. Wait for students to identify equation **A**.) Yes, that's right. Equation **A** shows the relationship. As you work with the story scenarios, it is important to remember that the story may apply to just a portion of the graph, table, or equation. For example, in the Bill story, the equation only fits with the story when both x and y are positive.

The problems on this probe are multiple choice because each time you are answering **A**, **B**, **C**, or **D**. It is important NOT to make wild guesses on this probe. If you do, you will lose points from your total score. It is fine to skip around to find the problems you know how to solve.

We will take a minute so <u>you</u> can practice solving the remaining questions on this Translations probe. If you finish before I say 'Stop', please do NOT turn to the next page. Any questions? Ready, begin. [time for 1 minute] Stop, pencils down.

Now that you've had a chance to try out this type of probe, do you have any questions? [Only answer procedural questions—do not suggest ways to solve the problems.]

Now we'll do the first Translations probe. You will have 7 minutes to work on this threepage probe. Remember, your job is to answer as many problems correctly as you can in 7 minutes. Please look at each problem, but if you do not know how to do it, skip it and move on. If you get to the end of the probe before the time is up, go back and work on the more difficult problems. Do NOT make wild guesses, because this will lower your score.

When I say begin, please turn past the sample page and begin working. You will have 7 minutes. Please do your best work

For ALL OTHER administrations of the TRANSLATIONS (D) measure, hand out the probes face down and say *Please write your name, period/block, and the date on the back of your paper. You are going to do a Translations probe. You will have 7 minutes to work. Remember to try and complete as many problems correctly as you can in the time allowed. If you are not sure of a problem, skip it and go on. Do NOT make wild guesses because this will hurt your score. Keep in mind that in some sections you will need to use one of the letters (A, B, C, and D) more than once. Please do your best work Ready? Begin.* 

# PROBE STANDARD DIRECTIONS Content Analysis (E) Probes

#### Content Analysis (E) PROBES:

Hand out probe E-1 (with the sample page attached), keeping them face down. Ask students to keep the probes face down and write their name, period/block, and the date on the back of the probe.

Give the standard directions:

The **FIRST** time you administer the CONTENT ANALYSIS algebra probes, say: The problems on this probe come from the chapters of an Algebra textbook, but they are not in any special order. For example, a problem from Chapter 1 could be the last problem on the probe. Please look at each problem and decide if you know how to do it. If you do, go ahead and solve the problem. If you aren't certain, or think you can't solve the problem, skip it and move to the next one. Don't spend too much time on any one problem. The object of the probe is to answer as many problems correctly in the time available. Once you get to the end, go back and work on the problems you skipped Remember that you may earn partial credit by showing your work even if you can't solve the entire problem. Do NOT make wild guesses because this will cause you to lose points on the probe.

Please turn your paper over. This sample page shows some examples of the types of problems on the Content Analysis probes. The problems on this probe are drawn from the different types of problems you are learning. The questions are multiple choice. Each problem is worth 3 points, but you can earn partial credit by showing your work. Unless you are completely certain of the correct answer, the best strategy is to show your work. If you do not know the answer, you should NOT make wild guesses. You will lose points from your total score on the probe when you make wild guesses.

Look at the three boxes in the first row labeled A, B, and C. You'll notice that all three have answers and that the problem is the same for all three. Look at the box for Student A. She thought she knew the correct answer, so she just circled her choice at the bottom. Unfortunately, she was incorrect, so she will lose a point for this problem. Student B showed his work, but did not know how to finish the problem.

Because he did part of the problem correctly, Student B will earn 1out of 3 points on this problem. Student C solved the problem, but made an error, so her final answer is not correct. Because she showed her work, she will earn 1 out of 3 points on the problem for the part she has done correctly. As you can see from these examples, it is important to show your work on these probes.

Let's take a minute so you can practice doing a Content Analysis probe. If you finish before I say Stop', please do NOT turn to the next page. Any questions? Ready, begin. [time for 1 minute] Stop, pencils down.

Now that you've had a chance to try out this type of probe, do you have any questions? [Only answer procedural questions—do not suggest ways to solve the problems.]

Now we'll do the first Content Analysis probe. You will have 7 minutes to work on this twopage probe. Remember, your job is to answer as many problems correctly as you can in 7 minutes. Please look at each problem. If you do not know how to do it, skip it and move on. If you get to the end of the probe before the time is up, go back and work on the problems you skipped. Remember that you may earn partial credit by showing your work even if you can't solve the entire problem. Do NOT make wild guesses because this will cause you to lose points on the probe.

When I say begin, please turn past the sample page and start working. You will have 7 minutes. Please do your best work. Ready? Begin.

For ALL OTHER administrations, hand out the probes face down and say

Please write your name, period/block, and the date on the back of your paper. You are going to do a Content Analysis probe. You will have 7 minutes to work. Remember to try and complete as many problems correctly as you can in the time allowed. If you're not sure of an answer, skip the problem and come back to it if you have time left. Remember that you can earn partial credit by showing your work. Do NOT make wild guesses. Please do your best work Ready? Begin.