

HANLONMATH



BAM

**Focusing Professional Development
on**

What Teachers Teach

How Teachers Teach It

Student Performance

Changes In Instructional Strategies Based Upon Student Performance

Backward Assessment Model

PROFESSIONAL DEVELOPMENT DAY AGENDA

- I. General meeting – discuss items that site administrators need to address.
- II. Teachers meet by grade level or subject
 - A. Identify one of the following and discuss using data:
 1. The next unit of study
 2. The most difficult unit of study as determined by teacher experience
 3. The unit of study causing students the most difficulty as identified by local, state, or national test data
 - B. Identify what students should know, recognize, and be able to do in the selected unit (Specification Sheet).
 - C. Identify how long it should take to teach the selected unit (Benchmarks).
 - D. Determine what and how to assess the material on the selected unit to help ensure consistency (portability) and fairness between classes of the same grade level or same subject (Test Blueprint).
 - E. Using data, identify topics within that selected unit in which students traditionally experience difficulty.
 - F. Share with each other successful teaching strategies to overcome those difficulties and/or deficiencies.
 - G. Share content knowledge, resources, and expertise to address student success in the identified unit.
 - H. Using data, discuss ways to involve special education or ELL facilitators if specific student populations are not experiencing the same success as the general population.
 - I. Using data, examine the results interim tests and teacher made tests to determine strengths and weaknesses of student’s understanding of subject matter.
 - J. Identify students not meeting proficiency on standards and a plan to remediate those students.
 - K. Identify what instructional practices you will change for next year to correct these deficiencies and improve student achievement.

An agenda such as this will focus the professional development day’s activities on teaching and learning using data. This agenda cannot be discussed in a one or two hour meeting, almost the entire day should be set aside for these discussions.

This agenda requires classroom teachers to discuss what they teach, how they teach it, student performance, and implementing instructional strategies that lead to increased student achievement.

BAM Plan

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BACKWARD ASSESSMENT MODEL

Professional Development Through Sharing

Educational research strongly suggests that professional interaction—at times informal and teacher driven—is often far more influential than formally organized professional development, and is more likely to result in changed behavior.

BAM changes the way professional development is delivered. Rather than having an outside expert tell teachers what needs to be done, the assessment model uses the expertise of the school's staff. Educational research strongly suggests professional development should primarily be on-site, ongoing, and regularly scheduled. Professional development should focus on the discipline teachers' teach, in content and pedagogy with classroom teachers as active participants. The *BAM* places the professional development emphasis on *academic standards* and *best practices*.

The *BAM* is a communication model. Its strongest attribute is that it provides teachers an opportunity to share their **knowledge, understanding, skills, experiences, and resources** with each other. Experienced teachers generally know where students traditionally experience difficulty and can communicate this to less experienced teachers. Likewise, all teachers can communicate knowledge, model successful strategies, and share accommodations that help students succeed. *BAM* also provides all teachers, experienced and new, opportunities to reexamine and reflect upon their own practices.

There are two basic premises of *BAM*. The first is testing drives instruction, and the second is that teachers make a difference, and teaches working together make a greater difference. The testing referred to is teacher made tests – not state or national tests. It is our belief that teachers can gain much more rich and in-depth information from their own unit tests than they could get from a state or national test with a limited number and types of questions. It is also our belief that if teachers' tests are balanced and their test questions are asked with the same formality that are used on high stakes tests, then their student should be successful on any test administered to them. The simple fact of the matter is that many states do not test the process standards, the very standards that increase student understanding, make connections, and enable students to reconstruct those concepts and skills after they have been forgotten over time.

Specification Sheet

Before instruction on a major unit of study, grade level or subject area teachers should develop a **SPECIFICATION SHEET**. That is, before they begin teaching a unit, teachers should meet by grade or subject level (3rd grade teachers, algebra teachers, 6th grade science, etc.) and identify what they expect students to know, recognize, and be able to do in that unit and the timelines to accomplish those goals. The specification sheet requires teachers to teach the new state academic standards, school district curriculum guides, and incorporate any benchmarks already established.

Assessment Blueprint

The second piece is the **ASSESSMENT BLUEPRINT**. To ensure students are receiving balanced instruction, teachers should determine how they are going to assess their students. The assessment should include the *Teacher Expectancies* for *balance* and some type of agreement on questions that promotes *consistency* and *fairness*. Balance has been defined as: Vocabulary & Notation, Conceptual development & Linkage, Memorization of Important Facts and Procedures, Applications, and the Appropriate Use of Technology. The blueprint does not identify specific questions, but the approximate number and type of questions. In math, for instance, 6th grade math teachers might agree to have approximately 20 questions on a test, then determine how many might be computation, vocabulary/identification, work problems, modeling, etc.

It is important to note that while grade level or same subject teacher agree on the specifications and the assessment blueprint, it is not necessary for all teachers to give the same assessment. One teacher might decide to have four computation problems, while another might choose to have six. That is okay. The goal is to assess students in similar ways and at approximately the same level of difficulty. This approach will help ensure that a grade of “B” earned in one class would transfer to a grade of “B” in the same class or subject, but taught by a different teacher. However, it should be noted, the more that tests are identical, the higher the correlation between the students grades.

On the following pages, examples of a Specification Sheet, Assessment Blueprint, and a sample test reflecting the items listed on the specification sheet and the number and types of questions on the assessment blueprint are provided.

TEST SPECIFICATION SHEET

Fractions

Definitions – fractions, proper, improper, mixed, reciprocal

Identification – numerator and denominator

Equivalent Fractions – converting and reducing

$+$, $-$, \times and \div fractions

Borrowing, whole and mixed numbers

Algorithms for $+$, $-$, \times and \div

Rules of Divisibility: 2,3,4,5,6,8,9,10

GCF, LCM

Common denominator – methods

Draw models for $=$, $+$, $-$, \times and \div

Ordering / comparing

Applications (word problems)

Open-ended concept or linkage

TEST BLUEPRINT
Fractions

2 Definitions

1 Identification

2 algorithms / information

1 rule of divisibility

2 concept / linkage problems – open ended

1 draw model

1 ordering

1 reduce

4 computation, +, -, × and ÷

1 GCF, LCM

3 work problems

Cumulative questions

MODEL TEST

Fractions

On questions 1-3, write the definition for each.

1. Fraction

2. Proper fraction

3. Reciprocal

4. In the numeral $\frac{3}{8}$, the 8 is called the _____.

5. List two methods for finding a common denominator.

6. Write the steps, as discussed in class, for adding fractions.

On question 7-10, evaluate each expression. Simplify your answers.

7. $\frac{5}{7} + \frac{1}{3}$

8. $12\frac{1}{2}$
 $-7\frac{2}{3}$

9. $5\frac{1}{2} \times \frac{2}{3}$

10. $\frac{3}{4} \div \frac{1}{8}$

11. Find the LCM and GCF of 108 and 72.

12. Reduce the following fractions to lowest terms (simplest form.)

a. $\frac{8}{12}$

b. $\frac{27}{63}$

c. $\frac{111}{207}$

13. Write a five-digit numeral divisible by 2, 3, 4, 5, 6, 8, and 10, but not 9.

14. Order the following fractions from least to greatest. Show your work or explain the strategies that you used.

$$\frac{3}{4}, \frac{7}{10}, \frac{5}{7}$$

15. If the numerator of a fraction remains constant and the denominator increases, what happens to the value of the fraction? (Assume the numerator and denominator are positive.)

16. A student added $\frac{1}{7} + \frac{4}{7}$ with a result of $\frac{5}{14}$. The answer is incorrect. What is his error and how would you explain to him the reason behind the correct answer?

17. Draw a model to show that $\frac{1}{2} = \frac{4}{8}$.
18. Bob owns five-ninths of the stock in the family company. His sister Mary owns half as much stock as Bob. Jill owns the rest of the stock. What **part** of the stock does Jill own?
19. Joel worked $9\frac{1}{2}$ hours one week and 11 hours and 40 minutes the next week. How many more hours did he work the second week than the first?
20. A person has $29\frac{1}{2}$ yards of material available to make uniforms. Each uniform requires $\frac{3}{4}$ yard of material. How many uniforms can be made? How much material will be left over?

With experienced classroom teachers involved in this process, it might take 15 or 20 minutes to create a specification sheet that is based on the school district's curriculum documents and state standards. Experienced teachers can identify the approximate time need to cover the unit.

It generally takes longer to come to consensus on the assessment blueprint. Teachers need to keep in mind the assessment blueprint is a guide and teachers should work toward building a consensus; **it is not a binding agreement**. Please note the Fraction Test did not follow exactly the Assessment Blueprint. Classroom teachers continue to make up their own tests unless they want to create common tests by grade level or subject.

Creating an assessment blueprint can cause friction between teachers. Traditional teachers might emphasize memorization of rules. Constructivists might emphasize conceptual development. We emphasize balance as we have defined it, it's not an either/or situation. While we expect students to memorize important information, we also expect them to understand where that information (rules and procedures) come from. Because testing does drive instruction, by requiring procedures and concept development be tested, this forces teachers to change their instruction. That change does not come without resistance, it does not come easy in some cases.

One area where teachers should take special precautions is in the writing of test questions. Too often classroom teachers use less formal language on their teacher-made unit tests, sometimes resulting in students not recognizing information that is tested on state or national exams. Care should be taken in writing test items so students are exposed to the way those questions are phrased or tested on those exams. For example, in algebra, a direction on a teacher-made test might be to "solve" an equation. On college entrance exams, the direction would be "to find the solution set over the real numbers such that..." The way the question is asked might cause some students not to connect what they learned in the classroom to what is being tested.

To summarize, using the *BAM*, teachers determine the unit of study and how long it should take to teach. Next, teachers create the specification sheet and assessment blueprint based on district curriculum documents and state standards. Finally, using the *Teacher Expectancies* to ensure balance, teachers create their own unit tests.

Now on to the most important component of the *Backward Assessment Model*—the sharing of ideas, resources, materials, knowledge, skills and teaching strategies.

Educational research suggests that professional interaction—at times informal and teacher driven—is often far more influential than organized professional development, and is more likely to result in changed behavior.

Changes in Instructional Strategies

Experienced teachers should share their knowledge of where students traditionally experience difficulty on a particular unit. Rather than bemoaning the fact students historically have done poorly on those areas, teachers should exchange their knowledge, resources, experiences, and successful teaching strategies with each other. Modifying instructional strategies and/or resources can result in greater student understanding and increased student achievement.

Teachers could increase their content knowledge by using this time to share their understanding of conceptual knowledge and application of the knowledge and skills taught in class.

Teachers might also examine areas in which the district has not performed up to expectation on state and national tests and address those areas of concern. Teachers should also study their most recently administered test to determine strengths and weaknesses of their instruction. Once that has been accomplished, decisions might be made on how best to address those weaknesses during the current school year and how instructional strategies might be changed in future years.

Additionally, teachers should discuss how they will remediate students who are not reaching proficiency on their latest test.

If specific student populations can be identified as doing poorly, the grade or subject level teachers might want to bring into their meetings, ELL, special education, reading or instructional strategists to recommend possible changes in instructional techniques that would be beneficial to those students.

Site administrators should monitor these discussions to ensure teachers are following the Professional Development Day Agenda and determine what changes in instructional behavior are identified so they can then be evaluated. The paperwork of these discussions should include a Specification Sheet, Timeframe to cover the topic, Assessment Blueprint, Changes in instructional Strategies based upon student performance, and a Remediation Plan to address non-proficient students. These documents should be placed in the *Assessment Notebook*.

Additionally, individual teacher assessments should be placed in the Assessment Notebook. It is expected that site administrators would examine those notebooks to determine if teachers are assessing local and state standards, adhering to timelines, to determine if the tests are balanced, and to determine if the tests are fair and consistent within a grade level or subject. That fairness will result in greater portability of grades rather than students being rewarded or punished by inconsistencies within a school or department. While one teacher made decide to have 20 questions on a test, another might decide to have 25. That's okay. One teacher may decide to have four computations, another 6. That's okay. However, if one teacher decided they would not incorporate conceptual development questions – that not okay. That test would not be balanced. That would also be true if another teacher did not include definitions or procedures. A principal would need to discuss these issues with their teachers.

Thoughtfully reviewing an Assessment Notebook provides site administrators a valuable resource in determining the strengths and weaknesses of their program within a grade level or subject. It will also provide suggestions on recommendations and directions that would make their teachers more effective.

BAM THE ALGORITHM

- **Testing drives instruction.**
- **Teachers make a difference; teachers working together make a greater difference.**

I. To create the *BAM* documents, the teachers will do the following:

1. Teachers meet together by grade or subject to work on selected topics/units.
2. Teachers determine what students are to know, recognize, and be able to do within each unit and record those on their SPECIFICATION SHEET.
3. Teachers determine the approximate time (days or weeks) it takes for teachers to teach and students to learn what has been identified on the SPECIFICATION SHEET.
4. Teachers develop an ASSESSMENT BLUEPRINT. A blueprint describes the number and types of questions that should appear on a balanced assessment—not the actual questions.
5. Teacher-made assessments based upon the ASSESSMENT BLUEPRINT will be developed later and placed in an ASSESSMENT NOTEBOOK.
6. The ASSESSMENT NOTEBOOK should contain the SPECIFICATION SHEET, ASSESSMENT BLUEPRINT and TIMEFRAMES.
7. Site administrators should examine these ASSESSMENT NOTEBOOK to determine if the curriculum is balanced and being taught, and if there is consistency, reliability and fairness. For example, would a grade of “B” in one class equate to a “B” in a different teacher’s class?

II. The majority of the staff development time should be used to:

1. Discuss areas in which students traditionally experience difficulty.
2. Share knowledge in content, experiences, resources, and materials to help students learn.
3. Share successful teaching strategies that result in increased student achievement.
4. Consult with specialists—ELL, Special Education, etc.—to help special populations be more successful.
5. Create or identify strategies in areas in which students have difficulty on district, state, and national exams.
6. Review teacher-made assessments for balance, consistency, and fairness based on the ASSESSMENT BLUEPRINT.
7. Identify what changes in instruction must occur to increase student knowledge, understanding, and comfort levels in order to increase student achievement.

Site administrators should monitor these discussions to determine what changes in instructional behavior are identified so they can then be evaluated. The notes of these discussions should also be placed in the ASSESSMENT NOTEBOOK.

After each release day using *BAM*, the minimum acceptable work product is a SPECIFICATION SHEET, TIMEFRAME, ASSESSMENT BLUEPRINT, and notes on how to increase student achievement.

NOTE: It is assumed that teachers have read their district curriculum documents.

APPENDIX

Evaluation Form

Southern Nevada Regional Professional Development Program
515 West Cheyenne
Suite D
North Las Vegas, NV 89030

Please respond to the following statements regarding the professional development at your school.

- 1) What grade level(s) do you teach?
a) K-2 b) 3-5 c) 6-8 d) 9-12

- 2) What subject(s) do you teach? (Elementary teacher please choose a,b,c, and d.)
a) math b) science c) social studies d) English/reading e) other

- 3) Teachers meet on identified professional development days by grade level or subject to work on selected topic/units.
a) always b) often c) sometimes d) never e) don't know

- 4) By grade level or subject, teachers created Specification Sheets to determine what students should know, recognize and be able to do within each unit based on the state standards.
a) always b) often c) sometimes d) never e) don't know

- 5) By grade level or subject, teachers determined the approximate time (days or weeks) it takes to teach what has been identified on the Specification Sheet.
a) always b) often c) sometimes d) never e) don't know

- 6) By grade level or subject, teachers developed Assessment Blueprints.
a) always b) often c) sometimes d) never e) don't know

- 7) By grade level or subject, teachers discussed areas in which students traditionally experience difficulty.
a) always b) often c) sometimes d) never e) don't know

Please turn over 

- 8) Teachers shared content knowledge and successful teaching strategies, experiences, resources, and materials related to each unit to increase student achievement.
a) always b) often c) sometimes d) never e) don't know
- 9) Teachers consulted with specialists, ELL, and special education, to help special needs students be more successful.
a) always b) often c) sometimes d) never e) don't know
- 10) Teachers identified strategies and/or interventions to address areas in which students have difficulties on district, state, or national exams.
a) always b) often c) sometimes d) never e) don't know
- 11) Teachers identified changes in instruction that must occur to increase student knowledge, understanding, and comfort levels in order to increase student achievement.
a) always b) often c) sometimes d) never e) don't know
- 12) Teacher-made assessments based upon the Assessment Blueprint have been placed in the Assessment Notebook along with the Specification Sheet, Assessment Blueprint, and notes or instructional changes.
a) always b) often c) sometimes d) never e) don't know
- 13) Teachers identified students not meeting standards and a plan to remediate those students.
a) always b) often c) sometimes d) never e) don't know

Comments: On the lines provided please write you school name and location number.

Thank you for you time. We appreciate all that you do to improve student achievement.