# Governance Structure

- Southern Nevada RPDP
  - Four superintendents – one from each district in region
  - Four master teachers- one from each district in region
  - One university/community college representative
  - One Nevada Department of Education representative

# Governance Structure (Con't)

- Statewide Coordinating Council
  - One Director from each RPDP
  - One Representative from each RPDP
  - One NSEA Representative

# Evaluation

1. Outside contractor hired by LCB
   a. **Interviews**
   b. **Classroom Observations**
   c. **Trace Studies**
2. RPDP evaluations
   a. Participant evaluation forms
   b. Pre/Post testing participants
   c. Student Performance ($4^{th}$ , $7^{th}$ , Algebra)
   d. Post Observations

# Reporting

- Governor
- Legislative Committee on Education
- Legislative Council Bureau-Accountability
- State Board of Education
- State Superintendent of Public Instruction
- Council to Establish Academic Standards
- Local School Boards of Trustees

# Overview of Professional Development

**Increase student achievement by addressing:**

- **Content**
- **Instruction**

Two standards:

- Common sense
- My kid

Two premises:

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

# Answering the Question:

What are you doing to help my child learn?

# Closing The Achievement Gap

1. Student -Teacher Relationships
2. Building Success on Success
3. Instructional Practices
4. Testing
5. Professional Development

# Student-Teacher Relationships

1. Treat your students the way you want your own children treated.
2. Build success on success.
3. Talk to your students. Be friendly.
4. Talk positively to your students about their opportunity to be successful.
5. Call home early with information and good news.
6. Make testing as much a reflection of your instruction as their studying.
7. Teach your students how to study effectively and efficiently (visual, audio, kinesthetic, concentration time).
8. Tell them you like them.
9. Go over expectations explicitly and give examples.
10. Build trust, make sure they know you are there for them by telling them you are.
11. Tell them you want them to succeed.
12. Continually answer the question; “What am I doing to help my students learn?”

# Teacher Expectancies

I. A good-faith effort to teach the curriculum

- Elementary: District Curriculum Documents
  Utilization of Allocated Time
  Adopted Text/Program
- Secondary: District Curriculum Documents
  Benchmarks
  Adopted Text/Program

II. Components to include in a balanced delivery of instruction

- Concept Development and Linkage
- Problem Solving
- Notation and Vocabulary
- Basic Facts and Algorithm
- Appropriate use of Technology

# Teacher Expectancies

III. Instructional strategies to facilitate student learning

- Lesson Objective, Setting the Stage, and Closure
- Daily Reviews (recently & previously taught material)
- Presentation Techniques
  - ✓ Visual Component
  - ✓ Auditory Component
  - ✓ Oral Component (oral recitation & oral drill)
  - ✓ Tactile Component
- Note Taking
- Practice/Homework
  - ✓ Guided
  - ✓ Independent

IV. Other considerations that may impact student achievement

- *Backward Assessment Model* (*BAM*)

# Components of an Effective Lesson

*Before presenting a lesson, refer to the assessment blueprint for the unit.*

**Introduction**

**Daily Reviews**

**Daily Objective**

**Concept and Skill Development and Application**

**Guided / Independent / Group Practice**

**Homework Assignments**

**Closure**

**Long-Term Memory Review**

# Stephen R. Covey

"To begin with the end in mind means to start with a clear understanding of you destination. It means to know where you're going so that you better understand where you are now so that the steps you take are always in the right direction."

# Backward Assessment Model

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

The *Backward Assessment Model* (*BAM*) changes the way professional development is delivered. Rather than having an expert tell teachers what needs to be done, the assessment model uses the expertise of the staff at the school. Educational research clearly indicates that professional development should primarily be on-site, scheduled and on-going, in the discipline teachers teach, in content and pedagogy, and provided by the people that know best – classroom teachers. The assessment model places the professional development emphasis on academic standards and best practices.

The *Backward Assessment Model* is a communication model. One of its best attributes is that it provides teachers an opportunity to share their knowledge, skills, experiences, and resources with each other. Experienced teachers know where students traditionally experience difficulty. They 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 that testing drives instruction, and the second is that teachers do make a difference, but teachers working together make a greater difference.

# Proposed Professional Development Day Agenda

I. General meeting – discuss items that site administrators need to address

II. Grade level or subject level meeting

A. Identify the following:

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. Identify topics within that selected unit in which students traditionally experience difficulty.

E. Share with each other successful teaching strategies to overcome those difficulties and/or deficiencies.

# Proposed Professional Development Day Agenda

F. Share content knowledge, resources, and expertise to address student success in the identified unit.

G. Determine how and what to assess on the selected unit to help ensure consistency and fairness between classes of the same grade level or same subject (Test Blueprint).

H. Discuss way to involve special education or ELL facilitators if specific student populations are not experiencing the same success as the general population.

I. Examine the results of the last unit test to determine strengths and weaknesses of student's understanding of subject matter.

J. 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 professional development on teaching and learning. This agenda cannot be discussed in a one or two hour meeting, almost the entire day should be set aside for these discussions.

# Creating the *BAM* Document

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?

# Model Specification Sheet

Fractions

Definitions – fractions, proper, improper, mixed, reciprocal

Identification – numerator and denominator

Equivalent Fractions – converting and reducing

Add, subtract, multiply and divide fractions

Borrowing, whole and mixed numbers

Algorithms for the addition, subtraction, multiplication and division of rational numbers

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

GCF, LCM

Common denominator – methods

Draw models for equivalent fractions, and adding, subtracting, multiplying and dividing fractions

Ordering / comparing

Applications (word problems)

Open-ended concept or linkage

# Model 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 with addition, subtraction, multiplication and division

1 GCF, LCM

3 Work problems

Cumulative questions

# *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.

# BAM continued

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?

# BAM - Staff Time

**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 student performance, 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.

# BAM - Administrative Follow-up

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.

It is assumed that teachers have read their district curriculum documents and those documents were based on the state's academic standards created by the Council to Establish Academic Standards.

# Classifications of Professional Development

## Awareness

- Presentations
- In-services
- Workshops
- Study groups
- Seminars

## Knowledge

## Implementation

- Modeling
- Mentoring
- Classes for credit
- Programs of study

# Literacy

- Goal: All students reading at the earliest possible grade level

  Governor's Reading Improvement Program-GRIP

  - Kindergarten emphasis
  - K-3
  - Secondary

# RPDP Certificate Programs

- Middle School Mathematics
- Middle School Science

# Administrative Training

- Pam Salazar, Regional Trainer
  - School Improvement Programs
  - Supervising and Evaluating Instruction
  - Data in a Day

# Content & Pedagogy

- Math
- English
- Science
- Social Studies
- Testing & Evaluation
- Administrative Training
- Reading
- Writing
- Strategies for Special Populations
  - Poverty
  - ELL
  - Special Ed.

# Partnerships

- Nevada State College
- UNLV
- UNR
- SUU
- Exetor Academy, NH
- NDE
- NASBE
- Ed Trust
- Southern Nevada Writing Project
- Reading First
- NREA

# Balance

**Balance in mathematics has been defined as:**

- Vocabulary & Notation
- Concept Development & Linkage
- Memorization of Important Facts & Procedure
- Applications
- Appropriate Use of Technology

Balance should be reflected in assessments and in the delivery of instruction.

# Balance in reading

- Phonemic Awareness
- Phonics
- Vocabulary
- Fluency
- Comprehension
- Writing
- Motivation

# Concept Development

In mathematics classrooms that lack sufficient concept development, memorization of rules and algorithms is emphasized but little or no attempt is made to help students understand the "why" of mathematics processes. Concept development should be as important as memorizing basic facts and algorithms. Students understanding of, and comfort level with, new ideas is increased when concept development is done properly.

Sometimes students are able to "get the right answer" even though they don't necessarily understand the "why." Mathematics then becomes an arbitrary set of isolated rules which can often lead to future pitfalls. As mathematics becomes more abstract, "math anxiety" may develop if these rules and algorithms have not been developed with an understanding of why they work. Eventually, students can become frustrated and quit taking math, even though the grade they earned in their last class was average or above.

Developing concepts and linking those ideas to students' prior experiences helps to explain the "why" and makes students more comfortable in their knowledge and understanding of mathematics. For example, rather than just having students "flip and multiply" when dividing fractions, the division algorithm might be developed through use of repeated subtraction. Solving equations should be connected to the "Order of Operations." Finding the sum of the interior angles of a triangle might be introduced by having students cut out angles in triangles and piece them together. The Pythagorean Theorem might be explained by using the areas of the squares formed by the sides.

Unfortunately, students all too often "tune out" teachers during concept development. Since students value what teachers test, concept development must be tested. Students might write a brief explanation of the development of a particular concept as a part of the homework assignment, and then be asked an open-ended question on a test where they must explain the origin of a rule or algorithm

# Finding Measures of Central Tendency

1. Find the mean of the following data: 78, 74, 81, 83, and 82.

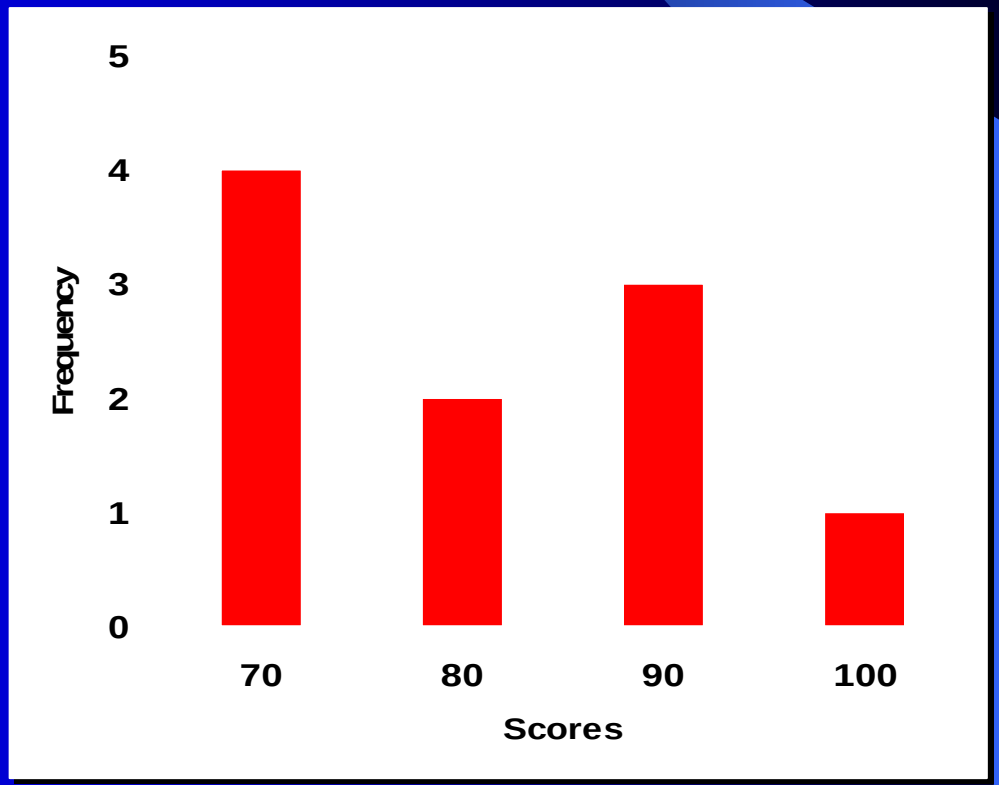
2. In Ted's class of thirty students, the average on the math exam was 90. Andrew's class of forty students had an average 80. What was the mean of the two classes combined?

3. Ted's bowling scores last week were 85, 89, and 101. What score would he have to make on his next game to have a mean of 105?

# Finding Measures of Central Tendency

4. One of your students was absent on the day of the test. The class average for the 24 students present was 75%. After the other student took the test, the mean increased to 76%. What was the last student's score on the test?

5. Use the graph to find the mean.



# Linkage

Linking new material to previously learned mathematics concepts, procedures, and practical experiences, sets the stage to help students feel more comfortable in their knowledge and understanding of the new concept or procedure being introduced. Additionally, linkage also reinforces the previously learned concept. Mathematics teachers should remain cognizant of the fact that concepts and skills they teach today may be used later as building blocks to introduce more abstract ideas.

When teachers introduce concepts through linkages, it enables students to place new ideas into a context of past learning. Students are then more likely to understand, and therefore absorb new material. For example, the standard multiplication algorithm taught in fourth grade is exactly the same algorithm taught in algebra to multiply polynomials.

Also, linking mathematics to real-world experiences can be a positive method for introducing new concepts. For example, buying candy at a store can be linked to such mathematics concepts as ratios, proportions, ordered pairs, graphing, and functions. While students rarely link their transactions at the store to mathematics class, they quickly understand that if one candy bar costs fifty cents, then two will cost a dollar.

The understanding gained through concept development and linkages, in combination with memorization of basic facts and algorithms, gives students confidence and an increased comfort level in their ability to do mathematics.

# Homework

Student achievement rises significantly when teachers regularly assign and students consistently complete homework. The extra study that homework provides helps students at all levels of ability. Homework boosts achievement because the total time spent studying influences how much is learned. While time is not the only ingredient for learning, without it achievement is diminished. Homework also gives students experience in following directions, making judgments and comparisons, raising additional questions for study, and developing responsibility and self-discipline.

To make the most of what students learn from homework, teachers need to give the same care in preparing homework assignments as they give to classroom instruction. Homework is most useful when teachers carefully prepare the assignment, thoroughly explain it, and give timely comments and criticism when the work is completed. Also students are more willing to do homework when they believe it is part of instruction, when it is evaluated, and when it counts as part of their grade.

In many math classes, homework is used as practice. Initially, that practice should be “guided” practice to ensure that students are proceeding correctly. When students begin their homework assignment in class, teachers need to monitor their understanding. To accomplish this, teachers should require students to do several problems and check them before they are left to do the remainder of the assignment independently. Besides assigning a problem set for homework, teachers might also require students to copy definitions, algorithms, and write brief explanations to explain the day’s work.

# Not my job to teach:

- Reading
- Writing

# Testing

Teachers should prepare students to succeed. In preparing students for tests, teachers should provide tips on how to study. For instance, students sometimes confuse the definitions of complementary and supplementary angles. Teachers might suggest the “c” in complementary comes before the “s” in supplementary as comes before . Teachers should also take the time to help students differentiate between problems that look alike. For example, while students might learn several different methods of factoring, they may not be able to determine an appropriate method of factoring when a mixture of problems is presented. Students have to be taught how to recognize differences and when to apply the appropriate method.

Teacher-made tests should reflect what is taught and valued in mathematics education. For example, while many teachers say mathematics is a language, this may not be reflected on their tests. If we value students’ ability to verbalize their knowledge, then definitions, identifications, and procedures should be part of tests. In addition, manipulation of data, open-ended questions, problem solving and appropriate use of technology should be included on tests. Also, to encourage students to review and reinforce previously learned material, teachers should make their tests cumulative.

Tests are formalized vehicles to not only evaluate student learning, but should also act as an assessment tool. As such, tests provide students a blueprint to increase their knowledge. Teachers should use test information, particularly questions answered incorrectly, as one way of increasing student performance. Addressing these

deficiencies can increase student achievement.

# Reviews

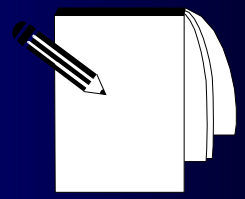
There seems to be a pattern of students entering middle school and high school with deficiencies in basic skills. To assist in this area, two daily reviews should be employed. These reviews should be brief – as little as 30 to 90 seconds. The review at the beginning of the class should cover recently learned material and may be used as an introduction to the lesson. This review helps place material into short-term memory. The review at the end of the period should address basic skills, important formulas, facts, algorithms, definitions, strategies, and deficiencies. This review is designed to place into long-term memory those items that all students should know at the completion of the school year. These reviews are important because they require students to revisit information from memory or notes.

While there is more to learning than just memorization, memorization is an important component of learning. Knowing "how" we remember is important if we are going to help students. Teachers should teach their students to review using different strategies such as mnemonics, linking, developing relationships, learning in context, and utilizing audio and visual cues.

Teachers can encourage students to develop memory skills by teaching highly structured and carefully sequenced lessons using frequent reinforcement and review. These memory skills are required for all kinks of cognitive activity, including the comprehension of analogies, the understanding of metaphors, and engaging in problem solving. Teaching students to recognize that they already use memory skills and transferring these existing skills to school will aid them in their efforts to learn.

If more instructional time were spent focused on cognitive strategies for learning and memorizing students would be helped to learn and remember. An important part of a teacher's work should be devoted to teaching the strategies that facilitate learning.

# Note Taking



When asked, memory researchers reported the number one “memory aide” which they themselves use is “write it down.” Teachers should require students to take notes in all mathematics classes. Notebooks keep students engaged in learning, help them complete their daily homework assignments, enhance their study, and act as a foundation from which to prepare for tests. Also, since students are not allowed to keep their textbooks, the student notebook is usually the only mechanism available for review in later years.

Note taking is a process used by students to record important information that they are trying to understand and need to remember. Because of the importance of a student notebook, teachers need to be prescriptive in how notes are taken and accommodating in their instruction. Notes should usually include a title, the date they were taken, objectives, definitions, identifications, pattern or concept development that leads to some conjecture, a formalized rule or algorithm, and an number of example problems used in guided practice. Teachers should also encourage students to write an explanation of what led to the procedure being used to manipulate or solve problems. Explanations are especially important when a problem-solving method might be construed as a “trick” and whose rationale would not be immediately obvious to the student when reviewed at some future date.

Finally, while note taking is a student responsibility, teachers need to hold students accountable for taking notes. This need not be complicated or time consuming, but it must be done frequently and consistently to further encourage students to take notes.

# Oral Recitation

Oral recitation, is the practice of having the entire class recite important facts, identifications, definitions, and procedures within the instruction and later when they need to be revisited. Concept development generally precedes oral recitation. Whole class recitation (repetition) of this information should be repeated a number of times, however the total time involved should not exceed two and one-half minutes.

Oral recitation is just one method of helping students memorize information. Adults often use it when trying to remember a license plate number or grocery list. This practice anchors information in the brain and helps students absorb and retain information upon which understanding and critical thought is based. The more sophisticated mental operations of analysis, synthesis, and evaluation are impossible without rapid and accurate recall of bodies of specific information.

The process also keeps students engaged in learning, helps them verbalize their knowledge, and suggests that if the information being presented is important enough for the entire class to recite, it is worth remembering.

# Time on Task

Stake and local school districts usually determine the classroom time available to teachers and students. However, regardless of the quantity of time allocated to classroom instruction, it is the classroom teacher and school administrator who determine the effectiveness of the time allotted.

According to a survey conducted by the American Association of School Administrators, teachers identify student discipline as the single greatest factor that decreases time on task in the classroom. Generally, teachers with well-managed classrooms, have fewer disciplinary problems. These classrooms typically have teachers who have established rules and procedures are in the classroom when the students arrive, and begin class promptly. They reduce the "wear and tear" on themselves and students by establishing procedures for make-up work, they arrange their room to accommodate their teaching philosophy and style, and they develop routines that increase overall efficiency. The benefits of establishing these classroom procedures and routines become apparent as the total time on task approaches the allocated time.

When teachers begin class immediately, students view them as better prepared, more organized and systematic in instruction, and better able to explain the material. Students also see these teachers as better classroom managers, friendlier, less punitive, more consistent and predictable, and as one who values student learning.

Routines like beginning class immediately, reviewing recently taught material, orally reciting new material, having students take notes, and ending the class by reviewing important definitions, formulas, algorithms, and the daily objective keep students engaged and on task. Quality time on task is not a "silver bullet" that can cure all the problems facing education. However, it can play an important role in increasing student achievement.

What do your students know?

How do you know they know it?

# Improving Students' Achievement

*Have a positive attitude – build success on success.*

*Treat students the same way you want your own children treated.*

**Try these strategies:**

- State the day's objective, teach it, and then tell them what you taught the and what they should have learned when you close the lesson – closure.
- Develop concepts. Teach to the big ideas.
- Link concepts to previously learned material and and/or real-world experiences.

- Use, simple, straightforward examples that clarify what is being taught.
- Use numbers in examples that allow students to focus on the concept and don't bog students down in arithmetic.

# Improving Students' Achievement

**Try these strategies (continued):**

- Incorporate guided practice to monitor student learning before assigning homework.
- Use practice tests to prepare students for unit tests. In first yea algebra, use multiple test versions.
- Tell students how you personally remembered (learned) important information.
- Use choral recitation to imbed information in short-term memory.
- Require students to take notes and keep notebooks.
- Require student reading as part of the daily assignment
- Require students to write about what they have learned.
- Use the second review period to reinforce long-term knowledge and address student deficiencies.